The Effectiveness of a Training Programme for Improving Self-Regulation Skills and Academic Self-Concept of Students Who are Struggling at School in Saudi Arabia

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Abstract

The current research goes through three stages, which namely, validations study, pilot intervention programme study and finally, main intervention programme study. This paper devised two original scales, namely the Academic Self-Concept Scale (ASC) and Self-Regulation Scale (SRS). These two scales and three other existing scales-Myself-As-A-Learner Scale (MALS) (Burden, 1998), Self-efficacy for Self-regulated Learning Scale (SSLS) (Usher and Pajares, 2008) and Locus of Control Scale (LCS) (Nowicki and Strickland, 1973) were subjected to a validation analysis through utilising Exploratory Factor Analysis and Confirmatory Factor Analysis. Each of these scales was discovered to have acceptable reliability, construct validity, content validity and criterion validity. Following this test, the researcher adopted these five scales in order to investigate the differences between 802 students (aged 10-12 years) with and without learning difficulties in Saudi. The statistical analysis indicated that there were significant differences, with a moderate impact across all of the scales on students with and without learning difficulties, apart from a small impact on the (LCS).

The researcher subsequently designed an intervention programme, based on a theoretical framework that emphasised social cognitive theory. The effectiveness of the intervention programme was investigated in terms of improving students with learning difficulties' (SRS), (SSLS) and (ASC). In order to investigate effectiveness in relation to each of these areas, the researcher utilised all of the five scales mentioned previously, apart from the (LCS), with 40 students divided equally between experimental and control groups. The statistical analysis indicated that the proposed intervention programme significantly enhanced students' scores on the (MALS) and (SRS), in favour of the experimental group. However, the discrepancies between the experimental and control groups were not statistically significant for the (ASC) and (SSLS). However, students in the experimental group acquired higher scores than those in the control group for these two scales.

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Declaration

I declate that the current thesis is the resarcher's own work. No chapters or any information in the submitted thesis has received an award at other universities. The researcher has not receieved a qualification from any other university regarding the information submitted in this thesis. All sources used in this thesis are acknowledged as References.

Chapter One

Introduction Chapter

Chapter 1: Introduction to the study

1.1 Chapter overview

This chapter will outline the following sections: the education system in Saudi Arabia (hereafter referred to as Saudi) terms used for students who are struggling at School Across-culture, the rationale behind using learning difficulties term, the origins of this study, the rationale of selected topic, core components of this study and the overall structure of this study.

1.2 The education system in Saudi

The researcher will focus on the Saudi education system as the implementation of this study took place in Saudi primary schools. In 1950, it started educating Saudi males through the establishment of a formal education system that includes Elementary, Middle and High school. In 1960, a formal system for women was established. The ten-year lag was because in Saudi the schools are separated for male and female students from the age of six. The first University in the Kingdom was King Saud University, which opened its doors for students in 1962 (Al Sallom, 1991). Saudi has the same religion and culture as the United Arab Emirates. In these countries there are different roles for males and females; the appropriate role for females is at home, even though the government encourages the education and employment of both males and females. The difference between male and female roles is established from an early age in view of their future destinies (Crabtree, 2007).

Unfortunately, early formal education in Saudi did not initially support students with special education needs (hereafter referred to as SEN). In the1950s and 1960s, the

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Kingdom did not have qualified teachers who could be responsible for the teaching of students with difficulties. In the early 1980s, fast and significant improvement within the education system saw the development of curricula and new special education programmes (AL Sheikh, 1992). The first important change happened in 1985, when King Saud University offered its first Bachelor degree programme in Special Education; not only was this the first such undergraduate degree in Saudi, but also in the wider region. Since then, large numbers of teachers have been trained to teach students with SEN (King Saud University, 2011).

In the Arabic world, the Saudi authorities spend the largest proportion of its Gross Domestic Product (GDP - 9.5%) on education compared to many other Arabic countries. However, of all students, 6% of girls and 9% of boys repeat their gradeseach year due to certain limits or a lack of educational support (Williams, 2003). According to Faour (2012), approximately 46% of Saudi students feel that they are safe at school. Safe means physically, emotionally and socially safe in the presence of other students and teachers. Between 2009 and 2011, 10% of students in schools indicated that at least 76% of their teachers had confirmed professional training or development to enhance their skills in teaching. Just around 13% of students agreed that their attendance rate at schools is good. Overall, Saudi schools present a negative school climate with a score of -2 below the international mean. That is due to poor safety, attendance and teachers' training in schools settings.

The authorities in Saudi are still unwilling to transfer any national wealth into extensive opportunities in primary education. Throughout the Middle Eastern countries, Saudi is considered as a bad performer and occupies the position of the second largest

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country in the difference between their EPI and income ranks. There is a discrepancy between Environmental Performance Index (EPI) rank and income rank in Saudi, with Saudi being considered in the 48th places lower (Akkari, 2004).

Furthermore, many students suffer from medical or neuropsychological conditions, which can considerably lower their attendance at school. The ratio of male and female students who suffer from a variety of neuropsychological problems in childhood is about 2-4:1 (Gillberg, 1995). In 2005, Gulf Cooperation Council (GCC) countries failed to achieve education for all Educational Funding Agency (EFA) goals, which means inclusion of education for students with disabilities is still at the developmental level. In a study, just 7.1 agencies provided rehabilitation services for students with disabilities. Agencies in GCC responding to the survey were all from the UAE and one from Oman. There is any response and collaboration from Saudi agencies, which offer rehabilitation services for students with disabilities. The results of this study, specifically from the UAE, indicate that in the GCC, there is some evidence of care, changing attitudes, support, and inclusion for students with disabilities, but it is not significant statistically. There is positive development towards disabilities but stigmatization of these individuals with disabilities is still a major issue in GCC (Crabtree and Williams, 2011).

In Saudi, education is segregated by gender from primary school to Higher Education. Both male and female genders in a particular grade follow the same curriculum and evaluation method to pass from one grade to the next (Sedgwick, 2001). Pre-primary education for students between the ages of 3 and 5 is not part of the formal

education system and is not required to enter primary school. There are some private schools, which offer pre-primary education. Girls who attend 4 to 6 grades in primary school study a variety of subjects such as Arabic, religion, mathematics, science, history, geography, art education, home economics and general cultural studies. Students progress from one grade to another after being assessed at regular interval through the school days and passing of examinations at the end of the first and second terms of the school year (International Bureau of Education, 2011).

The Ministry of Education has proposed a class size of around 30 students in a classroom for government buildings, and about 20 for rented ones. However, there are now over 40 students in a classroom because the Ministry of Education has not addressed the need for more schools, especially in some areas, to meet the demand of a growing population. Opening new schools would require substantial funds for school equipment and staff salaries. Overcrowded classrooms have affected the educational performance of teachers, behaviour management of students, and their learning outcomes (Al-Sughair, 2014). Students have to learn through ineffective memorization techniques and understand the information and facts in their given curriculum, then sit, and pass in order to progress from one grade to the next. This approach applies to all subjects, even in teaching English, where teachers give students passages in English to memorize at home, and then give students reading and writing tests related to these passages. Memorization is considered a challenging skill to acquire for some students, especially those with short-term memory or literacy difficulties (Hamdan, 2015). Therefore, there are many students who tend to struggle at school in Saudi for different reasons, without receiving proper support through their learning. This group of students

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represents the 'high-incidence' category group who approximately embody one-half of all students with disabilities (Lerner and Johns, 2009).

In Saudi classrooms, there is an absence of the teaching assistant role, which consider as an issue for both general education teachers and students. Qualified teaching assistants have a strong working relationship with general education classroom teachers which impacts student learning positively. Teaching assistants provide support for children with learning difficulties by working with students one-to-one or in small groups in line with individual student needs. Furthermore, they work with other professionals to address student behaviour, health and speech problems (Kay, 2005). In the Saudi school system, students who struggle in their classrooms are referred by their general education classroom teacher to the Resource Room. Categorical Resource Rooms are currently used in the Saudi school system. In this type of resource room students with learning, behaviour and emotional problems share the same Resource Room. The teachers in the Resource Room provide quality programmes, which assist in achieving effective academic outcomes for students with learning problems, helping them to develop and progress by using different learning skills and extra homework and activities. However, there is a need for diagnosis, a more focused curriculum teaching skill and resources in these Resource Rooms (Al-Zoubi and Abdel Rahman, 2012). Furthermore, there are too few Resource Room teachers, typically 2 to 3 teachers per school to support the large number of students with learning difficulties, especially in primary schools (additional details included in Chapter 3, Methodology section 3.7).

1.3 Saudi families and school view of learning difficulty in term of education and career for both genders

The first special education programme for students with learning difficulties was started in 1995 for males and in 1998 for female students (Habib, 2006). In the Saudi school system, students who are struggling in general education classrooms are referred by their teachers to the Recourse Room. Categorical Recourse Rooms are used in which there is no distinction in the guidance between the different types of learning difficulties and here all students with learning, emotional and behavioural problems share the same Recourse Room (Al-Zoubi and Abdel Rahman, 2012). Students with learning difficulties receive their education in the general education classrooms for most of the school day and pull out to attend recourse room sessions relating to their difficulties (Alquraini, 2011). Schools have a positive attitude towards teaching students with learning difficulties under Saudi education policy with no distinction between genders in receiving the learning difficulties programmes. However, there are some educational issues that affect students with learning difficulties negatively.

The first issue is that teachers who are qualified to work with students with learning difficulties must earn a Bachelor's degree in Special Education without any requirement to participate in training programmes to develop their teaching skills regarding students with learning difficulties (Al-Thabit, 2002). The second issue is the lack of funding provided to develop the educational process. There are limited funding sources and the urgent need for non-government organizations to provided services for students with special needs (Masri, 2014). The third issue is that there are at least 215,000 students who are struggling in Saudi schools. There is a need to provide more programmes because there are only 1268 programmes available which are serving approximately 5% of Saudi schools (Kaaki, 2010). The fourth issue is a lack of teaching strategies such as peer tutoring and cooperative learning and sources in Saudi

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schools. Students with learning difficulties need to have learning materials, more accessible

tasks and be provided with an appropriate type of assessment (Reid, 2009). Mansour and

Alhodithy (2007) found that in Saudi there are no teaching strategies in Saudi school such as

cooperative learning. Appropriate materials, instruments and resources available in schools

increase the belief of teachers of students with learning difficulties in the effectiveness of their

role and the importance of educating these children (Koutrouba, Vamvakari and Steliou, 2006).

The fifth issue is that the Saudi system does not provide learning difficulties services to all

students who are eligible to receive this service. Some students receive the service in the

following term or year. There were 728 and 498 special learning difficulties programmes for

males and females respectively which served just 15,038 students with learning difficulties

(Alhabib, 2006). According to Al-Mosua's study, in Saudi there are 742 and 503 programmes

for students with learning difficulties for males and females respectively. There are around 7849

male and 4092 female students with learning difficulties receive learning difficulties services

(2010).

In Arabic societies, individuals with developmental, intellectual and psychological

difficulties seem invisible. Females are more likely to experience marginalization, which creates

a barrier for them in overcoming their difficulties. Individuals with difficulties in the rural

communities or from low economic status groups have a higher chance of being a source of

shame for their families. This attitude towards these individuals is seen much less often in urban

communities due to their education and awareness; however, families need to be educated

further to develop more positive attitudes towards these individuals (Al-Thani, 2006). Al-Anazi

(2012) states that in Saudi, there is no clear understanding of students with learning difficulties.

Their difficulties mean they are labelled by their peers, siblings and parents as stupid, which

harms their emotional feelings and affects their attitude towards academic tasks. Dare, Nowicki

and Felimban (2016) indicate that in Saudi male individuals with learning difficulties more

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likely to be accepted socially compared to females. They view social acceptance in school and society through inclusionary behaviours such as helping them with their homework and participating with others during play time.

Students with learning difficulties achieve low scores and experience high academic failure compared to students without learning difficulties. Therefore, one-third of these students at least are held back a grade one time or another. 68% of students with LD leave high school with a diploma, 19% drop out of high school and 12% receive a certificate. The unemployment rate in 2012 for individuals who earned less than a high school diploma and high school diploma is 8.2% and 12.4% respectively. 41% of these students completed any type of postsecondary education such as community college and vocational schools.

The unemployment rate in 2012 was 7.7% and 6.2% for those who earned a college qualification but no degree and associate degree respectively (Cortiella and Horowitz, 2014).

In Saudi Arabia, these students drop out of high school because they are not satisfied with the education system and Saudi school environment, especially teachers and peers. These students leave high school searching for money and thinking that the school environment is not attractive to them and failure often affects them (Massialas and Jarrar, 2016). Students with learning difficulties are usually confused about their goals in the future unless they are instructed. Schools must offer an Individual Education Plan or transition plan for students with learning difficulties depending on these students' academic and social strengths and weaknesses as an early determination for their post secondary goals, appropriate post secondary institution such as vocational-technical college and careers choices. Furthermore, schools must analyse each student with learning difficulties needs and then match them with the available support services (Franklin, Harris, Allen-Meares, 2013). Al-Zoubi and Abdel Rahman (2016) found in their study in Saudi that there are no statistically significant differences between genders regarding

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obstacles facing students with learning difficulties relating to teachers, collaboration with others, facilities and equipment. There is high level of obstacles and severe weakness in pre-service academic preparation, programmes, in-service professional training programmes and preparation, implementation and evaluation of individual education plan IEP.

Generally, in all Middle East countries, including Saudi culture, men must be financially responsible for their family and the role of a woman is to get married and take care of her family. The female labour force rate was 21% in 1980 versus 26% in 2009. This is compared to the male labour force of 75% in 1980 versus 76% in 2009 (World Development Report, 2012). Saudi families give females the right to work and be educated but the law gives their male relatives the final decisions on their work or daily life. Saudi females must gain permission from their male relatives to study aboard, travel or marry (Batrawy, 2017). In a study to investigate the importance of gender in terms of work and education among Americans and some individuals in Middle East countries the results show the following. Regarding the statement "When jobs are scarce, men should have the right to a job more than women" the percentage of individuals who disagree with this statement is as follow: Saudis 7%, Iranians 22%, Jordanians 12% but Americans 81%. Regarding a university education, there are different percentages between nationalities in terms of those who responded that they disagreed to "A university education is more important for a boy than for a girl". 38% of Saudis disagreed about this statement compared to 59% of Iranians, 61% of Jordanians and 91% of Americans (Moaddel, 2007). From the information above it is clear that there is a difference in Saudi culture regarding to the importance of gender in careers in favour of males.

1.4 Conventional pedagogy in Saudi school in term of students with learning difficulties

In general, the Saudi education system tends to implement conventional or traditional methods in teaching and learning processes. These schools are poor quality and face difficulties in encouraging intelligent students. All students in Saudi schools are required to learn about the same academic texts, tasks and examinations.

Students are taught how to memorize the facts and information in their textbooks and pass the examinations (Al Thabit, 2002). According to Al-Abdulkareem and Hentschke Saudi textbooks achieve a minimum and very modest level of constructive practice in classrooms among all subjects in different fields (2014).

Mansour (2007) indicated that Saudi schools are very slow in applying differentiation instruction in the teaching and learning process. Students can obtain knowledge through listening to teachers lecturing and a teacher-centred approach is implemented. In the Saudi education system multiple intelligence (MI) methods are not common. The multiple intelligence method takes into account that students can learn in different ways. Mansour found in his study that teachers are confused about the meaning of MI. Teachers state that there are constraints affecting their implementation of MI such as time, school administration and teachers' experience. These teachers express their need for programmes and workshops, which enhance their skills in implementing MI. Albugami and Ahmed (2015) state that there are many countries that integrate technology tools into schools such as the Internet, whiteboards and computers as resources in the teaching and learning process. Students tend to be more active learners and they are engaged in the academic environment that uses technology tools in the teaching process, which is in contrast to traditional education in which students are more likely to be passive listeners. In Saudi there are different barriers that could hinder the utilization of ICT. These barriers include the poor availability of ICT in schools and if they are available teachers do not use effective strategies during teaching due to not having adequate training on ICT and pedagogy.

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Students with learning difficulties usually struggle in their academic tasks for several reasons such as difficulty in reading, writing, memory and processing information and memorization. Students with learning difficulties have problems and difficulty in retaining and retrieving information during exam situations, which increases their anxiety and stress during the recalling process. These students need multiple tests and specific strategies during the examination process to maximize their success in schools. These strategies include extending their time during examinations, modifying the test format for these students, taking the exam in a quiet and distraction free space and, finally, modifying written exams to oral or typed exams (Butler and Silliman, 2001). Schools which only provide one way to teach students are considered disabled schools. Schools which implement a multiple intelligence approach in their teaching and learning process assist students with learning difficulties to become more successful. A dominant student-centred method uses a tactile approach to assist pupils to learn and present their understating through their spatial, artistic and bodily-kinesthetic intelligences (Hoerr and Rolheiser-Bennett, 2000). Schools that provide computer technology tools help students with learning difficulties to be more successful in reading and vocabulary instruction such as through the Edmark Reading Programme. Students could use computers to create a graphic organizer for the information. Furthermore, they can use a semantic web strategy on the computer to help them make sense and meaning of the vocabulary presented in reading passages (Bender and Larkin 2009). From all the information above, the conventional or traditional pedagogy in Saudi hinders children with learning difficulties from having the opportunity to learn effectively.

1.5 Saudi culture in formation of self-belief

Islamic religion and Arabic traditions sharply influence Saudi people who should care for others, especially their family. The Saudi cultural background is a collectivist

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culture, in which success in school or life means that individuals tend to have a supportive family; therefore, his/her success belongs to the family rather than the individual, which is considered a way to enhance the economic status of that family (Alyami, 2015). This type of society, called collective society, refers to the serious role of the social group to a person. The judgement for an individual role, other members' evaluation of his/her social group and the necessity of his/her membership in the social group affect an individual's self-belief (Kim and Omizo, 2005). Gilton (2005) indicates that in a collective society a person tries to avoid failing or bringing shame to their family. In this type of society interpersonal relationships have a powerful effect in developing and challenging for achievement. Saudi society forms strong relationships in which each individual takes responsibility for fellow members of their group. Saudi society is an advice society in which everyone gives her/his advice to others because they feel that they are responsible for each other which encourages them to provide their advice regarding someone's ability, interests and problems and the listeners take this advice into account (Al Liyl, 2016).

Pajares and Schunk (2001) indicate that there is a positive relationship between academic achievement and self-belief. Razek and Coyner (n.d.) state that the Saudi centralized educational system predetermines the Saudi concept of their ability. In this education system, there is less focus on the students' autonomy and more focus on their behaviour and thought. Not all students in Saudi have awareness, views and concepts about their inherent capacity and abilities. Usually these students compare themselves with their peers. The academic choices for these students depend on the aim they would like to achieve are not due to their self-efficacy beliefs. These students usually complete

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their academic tasks even though they believe they are beyond their capacity, skills and abilities.

1.6 Factors might influence student's belief toward academic tasks.

There are two factors that influence Saudi belief regarding their confidence, anxiety and attitudes towards academic tasks, which are highlighted below:

1.6.1 The first factor is family:

Saudi Arabia is considered a collectivist society. An individual has to act and achieve better performance with respect to his/her family group rather than aim for an individual goal. In this society individuals avoid bringing shame to them and the past, present and future of their family members. Individuals here may overlook their interests and desires in favour of her/his family and group. In this society, there is little privacy and more belief in group power (Darwish and Huber, 2003). Saudi parents have responsibilities for monitoring their children's homework, teaching and directing them in their subjects to prepare them for exams and providing tutors for their children to achieve better scores (Al-Anqoodi, 2012).

Parents' educational backgrounds affect their involvement in their children's education process. Typically, parents who receive high education or higher degrees are more understanding regarding the stresses and pressures that their children may face during their school days and they provide more support for their children. In contrast, parents who are less educated are less likely to participate in their children's learning process because they do not realize the importance of their involvement in their education (Kurth-Schai, 2006). Educated parents mostly tend to obtain skills and knowledge regarding the education system, which

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influence their academic practice and their children's educational abilities and skills. These parents have high expectations regarding their children academic performance and predict better academic attainment for them (Davis-Kean, 2005).

Parents' socio-economic background influences their children's academic performance. Students from families of low socio-economic status face difficulty if they compete against students from high socio-economic status families even though they are under the same educational environment (Hill et al., 2004). A study conducted in Saudi Arabia by Alghazo and Alghazo (2015) showed that there is a significant correlation between parental involvement at home and parents' education, family income and parents' employment status. There is a positive correlation between parental involvement at school and the parents' educational level. There is a strong correlation between maths achievement and parental involvement at home and a strong significant correlation between maths achievement and parents' education, family income and employment status.

Parents' high-level expectation of their children's academic achievement assists in developing a high level of anxiety. There is a significant negative relationship between academic outcomes and anxiety, which leads to the fact that a high level of anxiety causes a low level of educational performance (Kaya, 2004). Parents' level of education and their occupation influence their children's attitudes toward completing their education, especially students below average in general certificate of secondary education (GCSE). Parents who belong to middle socio-economic and higher economic classes tend to be more effective in giving their children academic support. Families with low income restrict their children's educational support and choices (Payne, 2003). Students of low, middle and high socio-economic status believe in the importance of education; however, the negative attitude from the majority of children from low income families is due to their lack of opportunities and experiences which cause them to lack confidence in their ability to succeed within the education system (Hirsch, 2007)

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1.6.2 The second factor: School environment

Schools should play an affective role in preparing pupils to participate in developing their society during the twenty-first century, which requires a different educational system to the traditional one. Mansour and Alhodithy (2007) in their study found that Saudi classrooms and the school environment do not accommodate cooperative learning practices. The Saudi educational system is based mostly on memorization, which may be a barrier to developing study skills among these students, impairing creativity and critical thinking (Hershberger and Farber, 2008). It focuses on subjects that pupils are not interested in and the learning is based on memorization rather than on understanding. Therefore, the academic content focuses on students having to pass their examinations, which are used to evaluate these students' academic outcomes. Teachers provide identical examination methods for all students. These teachers design traditional assessment methods in their examinations without guidance, which means that these examinations fail to reflect students' performance (Al-Alhareth and Al-Dighrir, 2014). The Ministry of Education (2011) indicate that students must achieve 60% in each class in order to progress to another grade level.

Most Saudi teachers follow a traditional teaching style in teaching their lessons and they provide many examinations during one semester to assist students' memorization without focusing on higher order skills such as critical thinking. Also, the lack of training for these teachers regarding teaching methods and providing effective assessment tend to lead to different difficulties that teachers and their students face during the teaching and learning process (Al-Sadan, 2000). Furthermore, there is a lack in using classroom activities due to the overlap in the number of students in each class, which also prevents Saudi teachers from providing their feedback and monitoring

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students' progress (Alotabi, 2014). Malhotra (2015) states that most students suffer exam anxiety and stress at a moderate level. In a study in Saudi Arabia the researcher found that among 1723 Saudi students, 38.2% had depression, 35.5 had stress and 48.9% had anxiety. These three disorders were significantly and positively correlated (Al-Gelban, 2007). The anxiety level for female students is significantly higher than for male students among Saudi college students (Ahmed and Alansari, 2004). In a study the researchers found that there was a very low relationship between working memory capacity and scientific thinking. However, there was a relation between working memory capacity and the confidence level regarding academic subjects (Al-Ahmadi and Oraif, 2009). Al-Makadama and Ramisetty-Mikler (2015) state those Saudi students' negative attitudes towards school, such as absenteeism, fights and skipping school, have a significant relationship with parental monitoring and school connectedness. It has emerged that Saudi school policies reduce students' misbehaviour, which includes fights and skipping classes and parents' mentoring also reduces their children's absenteeism.

1.7 Terms used for students who are struggling at school

1.7.1 Countries other than Saudi

Students who are struggling at school may encounter a variety of difficulties in literacy and phonological difficulties. These difficulties can take the form of difficulties in reading words, phonics awareness and understanding the information in the reading text. This particular type of difficulty is called Dyslexia. Other students can have difficulties in handwriting, written expression, spelling, and difficulties using grammar

and punctuation in their writing. This particular type of difficulty is called Dysgraphia. Some students have difficulties with basic maths skills or problems with reasoning and computational abilities. This type of difficulty is called Dyscalculia (Ollendick and Hersen, 1998).

Dyslexia, Dysgraphia and Dyscalculia are considered common difficulties in school settings (Petrina, 2007). These difficulties have different terminologies, but all describe a group of students, who are struggling at school in one or more subjects whilst they have an average to above average Intelligence Quotient (IQ). Children usually assessed before these terms applied to them (Agag, 1998).

This unique group of difficulties has been known for over 40 years, more specifically since 1963, when the first term given to this group of students was students with learning disabilities. The first organization was formed to analyze and provide support for those experiencing these difficulties. It was named 'Learning Disabilities Association of America' (LDAA). Since that time, extensive international researches have been done to describe this group of students, who struggle particularly in school settings. Many public policies in the Unites State of America (U.S.A) have been laid out in laws to define learning disabilities, such as the Education for All Handicapped Children Act (1975) (Ollendick and Hersen, 1998) and the Individuals with Disabilities Education Act (1990 and 1997). Many institutions have been set up to provide support, such as the United State Office of Education (1977), the National Joint Committee on Learning Disabilities (NJCLD), Federal Law IDEA (2004) and the Interagency Committee on Learning Disabilities (ICLD) (Lerner and Johns, 2009). The term Learning Disabilities is used specifically in U.S.A and Canadian organizations to

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describe and categories students who are struggling at school with mathematics, reading and writing (Geva and Wiener, 2015).

On other hand, categories of learning disabilities in the United Kingdom (UK) include students who struggle to communicate or require intensive support, such as social or health care. However, the term 'Specific learning difficulties' describes students who have problems in an academic setting in specific educational areas for a variety of reasons. This is why they require special education needs services (Holland, 2011). The British Dyslexia Association (BDA) defines Dyslexia as a learning difficulty in different elements related to language and literacy skills (Kamala and Ramanesh, 2015). In the UK and Australian organizations, the term 'Specific learning difficulties' is used to describe students with Dyslexia - reading difficulty, Dysgraphia - writing difficulty and Dyscalculia - maths difficulty (Geva and Wiener, 2015).

1.7.2 Saudi

In Saudi, terms for learning disabilities were decided by the Saudi Academic system in 1996. It was adapted from the U.S.A by Saudi specialists in the special education field. A learning disabilities department was formed within the Ministry of Education to understand this new category of difficulties and provide targeted support for students in primary schools all over the country. These educators translated learning disabilities into Arabic as this term 'Subat altulm'. When they translate the previous term back into English, it means learning difficulties, (Al-Hano, 2006).

Saudi established its first special education programme for students with learning difficulties in 1995 with 12 programmes for males, each supervised by teachers who specialized in teaching students with LD. A programme for female students with

learning difficulties began in 1997, but it differed from the first programme for males. Nine teachers who specialized in learning difficulties began collecting data and information from schools in order to research programme opportunities. Then, in 1998, the first programme for females students with learning difficulties was initiated (Habib, 2006). These students receive educational support through Resources Room teachers after they are referred by their general education classroom teacher due to their learning difficulties in one or more subjects. There is a lack of assessment used to diagnosis students with learning difficulties in the Saudi school system. (Al-Zoubi and Abdel Rhman, 2012).

1.8 The rationale behind using learning difficulties (LD) terminology

The term 'learning difficulties' is used in Saudi to describe students who struggle at school in reading, writing and/or mathematics rather than the term 'learning disabilities' which is used in U.S.A and Canada to identify students who struggle at school in general.

The term 'learning difficulties' has been adapted in this thesis for five reasons:

1) Students who struggle at school prefer to be acknowledged as having learning difficulties rather than learning disabilities, due to the latter suggesting that they have an inability to learn (Harris, 1995).

2) Learning disabilities as a term differ in meaning across different countries. In the UK, the term refers to a group of Individuals who have different levels of cognitive impairment who may require health and social care. The same term in U.S.A relates to

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students who have dyslexia, dysgraphia, dyscalculia and dyspraxia. The term 'specific learning difficulties' (SpLD) is used in UK for individual who are struggling at one or more subjects at school. Therefore, learning difficulties is the term that is more understandable in different cultures and countries (Tilly and Hardie, 2012).

3) 'Learning difficulties' is the most accurate translation term in the Arabic language which describes students who struggle at school with average or above average IQ (Al-Hano, 2006).

4) Learning difficulties implies learning problems that are defined by DSM-5 as 'persistent difficulties in the core academic skills, represented by reading, writing and maths, in onset during the years of formal schooling. These difficulties may be specific such as reading comprehension, fluency, spelling, accuracy and fluency in math', Tobin and House, (2016, 65). In addition, Diagnostic and Statistical Manual of Mental Disorder, fifth edition (DSM-5) defines SLD as

> 'A type of neuro-developmental disorder that impedes the ability to learn or use specific academic skills such as reading, writing and arithmetic, which are the foundation of other academic learning. The learning difficulties are specific within expected levels for the child's chronological age. Early signs of learning difficulties may appears in the preschool years (such as, difficulties learning names of letters or counting), but they can only be diagnosed reliably after starting formal education. SLD is understood to be a cross-cultural and chronic condition that typically persists into adulthood, albeit with cultural differences and developmental changes in the way the learning difficulties manifest' (Tannock, 2014, 1).

5) The term learning difficulties is used in Saudi where the participants of this study live and where the researcher conducted this study.

1.9 The origins of this study

Improving the quality of daily life is an important concern for most parents/carers of children. Enhancing educational outcomes is the major objective for teachers and parents of children of school age. Teachers and parents in Saudi aim to improve the academic outcomes of children through extensive homework, memorization and examinations, which required allowing students to pass from one grade to the next. For example, students in Saudi primary schools have to do homework every day for about five to eight subjects. They are required to memorize information appearing in their textbooks and participate in assessments frequently through quizzes in each subject. Students have to prepare themselves for final examinations in each subject at the end of the first and second semester of the school year. These examinations require memorization, writing and reading skills, which are consider as a challenge for students, especially those with learning difficulties. Students have to master 60% or more in each subject to be promoted to the next grade or the students have to repeat the gradeagain.

The researcher's experience of work in Saudi primary schools provides in-depth knowledge, and so educated parents from mostly moderate to high socioeconomic backgrounds; expect their children to achieve high educational outcomes. These parents give their children extra support at home or employ private teachers. Children of non-educated parents, who are from low socioeconomic backgrounds, do not receive any support at home and depend on school support, which is challenging for them, especially for those with learning difficulties. Furthermore, not all students with
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learning difficulties in lower grades(1, 2 and 3) in schools get the opportunity to receive the Resource Room service, which depends on the number of students in a school and Resource Room teachers. Students in grades4 to 6 do not receive any academic support in most Saudi schools because Resource Room teachers focus on students in lower grade, especially those who have not been enter pre-School before.

The Saudi education system provides a demanding curriculum, which not all students can engage with, especially those who do not benefit from parental support. Most students in Saudi primary schools, especially those from low socioeconomic backgrounds, lack study skills and/or do not study effectively. As a result, some children become depressed, anxious, and frustrated about their failure in an academic setting. This situation is worse for students with learning difficulties, especially those who do not receive appropriate support from home or their school. As a researcher, my own educational background is combination of psychology and special education, with a minor in learning difficulties. This experience and expertise in education helps the researcher to understand that students can improve their study skills through self-regulation skills. The psychological term 'self-regulation skills' was identified approximately forty years ago by Bandura who paid more attention to self- regulation.

Self-regulation studies became prominent in 1986 under studies conducted by the American Educational Research Association (Zimmerman, 2008). Self- regulation is defined as 'The process whereby students activate and sustain cognitions, behaviours, and   affects, which are systematically oriented toward attainment of their goals' (McMahon and Luca, 2001, 427).

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Self-regulation skills are helpful for all students, especially those who are at risk academically, as these skills help them understand how to study effectively. (Zimmerman, 2008). Self-regulation skills are important to improve students' study skills in doing their homework, passing their examinations, staying on the task, evaluating their performance, memorising information and enhancing their abilities in reading and writing. (Israel, Sisk and Block, 2007). In view of the urgent need for enhancing pupils' self-regulation and study skills, the researcher developed an intervention programme, which focuses on teaching individuals self-regulation skills. Having developed the programme the researcher implemented it in Saudi schools and subsequently evaluated its effectiveness in raising self-regulation skills.

1.10 The Rationale of selected topic

1.10.1 Self-regulation skills

The researcher selected the topic of self-regulation skills in Saudi and decided to develop the proposed programme due to the lack of self-regulation programmes in Saudi schools. Reviewing the available research regarding self-regulation programmes (Chapter 2, Literature Review) indicates that there are a few studies in the Middle East which have focused on programmes to improve self-regulation skills for students with learning difficulties. However, there is a lack of this topic of study in Saudi and the researcher did not find any Saudi study concerning self-regulation apart from that of Al-Sobaae (2007) which is not an experimental study. Self-regulation skills are important for all students, especially those with learning difficulties who do not receive any support at home or in school. It is evident that there is a need to address the theoretical

and practical aspects of intervention programmes to improve self-regulation skills for students with learning difficulties in Saudi.

The proposed intervention programme is derived from the theoretical framework of social cognitive theory, which focuses on Individuals obtaining skills through their interaction with others (Lamport et al., 2012). Further information is provided on the developed intervention programme in Chapter 5- Intervention Programme. Previous research indicates that students with learning difficulties need to learn appropriate methods and skills to assist them in their learning and to help them manage their behaviours; Marcia suggests that self-regulation skills are the most successful skills in school setting (Marcia, 2005). Students with learning difficulties are less adept at organizing their learning, less able to use information to move toward their goals, and have difficulty developing and applying appropriate skills to accomplish these goals. For these reasons, they often lack the self-regulation skills needed to correct their educational shortcomings (Miranda, Villaescusa and Vidal-Abarca, 1997).

The 21st century trend is to improve the education system and prepare students as effective future employees. Self-regulation affects every aspect of life, such as eating, shopping as well as educational progress. Self-regulatory learning attempts to understand how students can manage their own education (Wolters, 2010). According to Zimmerman and Schunk, students can achieve better learning performance and success at school if they implement self-regulation skills (Zimmerman and Schunk, 2008). However, students with learning difficulties encounter problems in developing and implementing self-regulation skills, which enable them to enhance their academic performance in school setting (Wong, 1998).

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1.10.2 Facts about students with learning difficulties

According to Learner and Johns (2009), LD is a major field within special education because students with learning difficulties represent a high incidence group being one-half amongst the special education groups. Students with learning difficulties cannot always benefit from traditional teaching tools and it is important to understand their characteristics, such as impulsivity, inattention and hyperactivity. In general, these students are not organized, forget school equipment and have difficulty remembering information (Schunk and Zimmerman, 1997). The specific difficulties encountered are primarily cognitive processing, aptitude-achievement discrepancy, low achievement in school work and lack of response to the provided intervention. Following this, students could be diagnosed as having learning difficulties if they meet one or more criteria as detailed in Diagnostic and Statistical Manual of Mental Disorder (fifth edition- DSM-5) or Individual with Disabilities Education Act (IDEA) (Taylor, 2014). There were nearly two and a half million students diagnosed with learning difficulties, representing 41% of all students who benefit from special education services under IDEA (Learning Disabilities Association America, 2016).

The International studies indicate that the percentage of students with learning difficulties in any nation is expected to be between 5-10% of the total students in schools. In the latest statistics from the Saudi Ministry of Education released in 2010, the number of students in Saudi schools was said to be more than five million males and females. Therefore, the expected number of students with learning difficulties in Saudi schools is estimated at a quarter to half a million students. However, the number of students with learning difficulties that are actually identified and obtain the appropriate

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services and programmes, however, is said to be small (National Program for Learning Disabilities, n.d).

Less than 5% of formal education schools in Saudi offer programmes and services for students with LD. The estimated number of teachers required to serve all students with learning difficulties is 20,000, but currently there are only 1,600 teachers (National Program for Learning Disabilities, n.d). The statistical summary of Special Education in the Ministry of Education (2009) indicated that the actual number of students who receive educational support in schools is 11,618 in 888 classrooms. Habib (2006) found that just 4,512 females with learning difficulties were using the services provided due to the fund issue and qualified female teachers

In terms of teaching qualifications, teachers of students with learning difficulties in Saudi are required to complete a four-year Bachelor's degree in Special Education and spend their last semester in a school where they must teach students with learning difficulties under the supervision of the schools' administration. Teachers are then qualified to work in either public or private schools as teachers for students with LD. Teachers are not required to attend or undertake any development or training programmes as part of their role. The appraisal system for teachers who teach students with and without difficulties does not have negative consequences such as disciplinary and dismissal procedures (Al Thabit, 2002).

All these issues increase the number of teachers who are not qualified and do not have enough training to educate students with learning difficulties. Developing professional programmes for teachers of students with learning difficulties is very important; as such, training enables teachers to increase the effectiveness of their

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classes and also to support students who are struggling at school. These students tend to have a negative academic self-concept, more than students without learning difficulties (Miller, 2002).

1.10.3 The Academic Self-concept

The Academic Self-concept (ASC) is considered to be a component of self-concept; therefore, if children with learning difficulties tend to have a more negative self-concept than their peers without learning difficulties, they will more likely present a more negative academic self-concept than students without learning difficulties (Zeleke, 2004). In Saudi, there is no clear definition of learning difficulties. General education classrooms teachers refer students who are struggling to special teams of education specialists. These teams include special education teachers, general education teachers, vice-principals and psychologists. Students are eligible to receive these learning difficulty services if they encounter a significant difference between their achievements at School and their intelligence level (IQ). There are no specific tools used in Saudi for the diagnosis of students with learning difficulties (Felimban, 2013). In this case, many students may not be diagnosed and will therefore not be eligible for special education services. These students are more likely to encounter poor performance and failure, which tends to make them feel that they are not clever. Such feelings can negatively affect their psychological wellbeing, typically manifesting in lower self-esteem and lack of self-worth (Martin, 2010).

All these characteristics for students with learning difficulties affect their academic self-concept. The Academic Self-concept 'represents how a person feels about himself or herself within a school or academic setting' (Furlong, Gilman and

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Huebner, 2009, 92). Renick and Harter (1989) indicated that when students with learning difficulties compare themselves with their peers with learning difficulties, their education or the academic self-concept is much higher than when they compare themselves to average classroom students. Jambor and Elliot (2005) state that there are several factors affecting the self-awareness of students with learning difficulties. These factors include the degree of the difficulty, parents' acceptance of the difficulty and age of student when the difficulty is diagnosed. (Gans, Kenny and Ghany, 2003) stated that students with learning difficulties compare their academic achievement to those of typical classroom students, and therefore, their academic self-concept is lower than the average classroom student. Some research studies indicate that acquiring self-regulation skills helps to strength the academic self-concept (Boekaerts, Pintrich and Zeidner, 2005; Ommundsen, Haugen and Lund, 2005; Zimmerman, 2008 and Huitt, 2009).

1.10.4 Rational for selected sample

The proposed intervention programme was developed by a researcher to be implemented for Saudi female students, since the education system segregates genders from primary school until higher education (Sedgwick, 2001). The researcher decided to implement the intervention programme personally to ensure that the proposed intervention programme provided equally to the participants in the selected schools. As a female researcher, Saudi education system does not allow me to enter male schools, therefore only primary schools for females' students were targeted. The researcher selected primary school students for the implementation of this programme because this will help these students to build and acquire self-regulation skills which will help them

to achieve better academic and non-academic performance for the rest of their lives (Nicol, 2010). Female students with learning difficulties in upper grades(4, 5 and 6) were selected as they do not receive any academic support regarding their difficulties and needs. The proposed self-regulation intervention programme aims to improve the students self-regulation skills particularly in a formal educational setting (further details of the participants can be found in Chapter 3).

1.11 Core components of this study

1.11.1 The proposed intervention programme

The overall purpose of this study is to develop, implement and evaluate the effectiveness of a training programme for improving self-regulation skills and academic self-concept of students who are struggling at school in Saudi (further details of the proposed intervention programme can be seen in Chapter 5, Intervention Programme). The research investigates the effectiveness of the proposed intervention programme in developing self-regulation skills for students with learning difficulties as well as investigating its impact on the academic self-concept of these students in experimental and control groups. The researcher implemented the intervention programme personally, and evaluated its effectiveness through a variety of methods.

1.11.2 Outcome measures used in this study

The effectiveness of the proposed intervention programme was evaluated using a test battery of scales. Two existing scales were used: the Myself-As-A-Learner Scale (Burden, 1998) and the Self-efficacy for Self-regulated Learning Scale (Usher and

Pajares, 2008). Two additional scales were also designed by the researcher especially for this study, which is the Self-regulation Scale and the Academic Self-concept Scale, to determine the effectiveness of the intervention programme and reveal any differences among students in the experimental and control groups. A further scale, the Locus of Control Scale (Nowicki-Strickland, 1973) was in addition to the four scales to investigate the differences between students with and without learning difficulties (further details of these five scales can be seen in Chapter 3, Methodology). These five scales were subjected to a validation process to investigate their validity, reliability and ability to measure the previously mentioned aspects among female Saudi students in upper primary schools (further details can be found in Chapter 4, Results I).

1.12 The overall Structure of this thesis

This thesis contains eight chapters. The first chapter is the Introduction, which focuses on key components of the current study, the importance of self-regulation skills, and the need for such an intervention programme in Saudi. The second chapter presents a literature review, which provides a more detailed outline of learning difficulties, self-regulation, and the academic self-concept as discussed in pertinent research literature. The third chapter discusses the research methodology adapted for the study and highlights the research questions and their design, profile of participants, study procedure and ethical considerations. The fourth chapter addresses the validation of the scales and examines the reliability and validity of the scales used in this study through the use of Chronbach's alpha, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The fifth chapter discusses the intervention programme,

demonstrating its theoretical background, elements of the programme, and sources of activities. Chapter six presents the results and discusses the effectiveness of the intervention programme with the experimental and control groups, in terms of self-regulation and the academic self-concept as well as presenting the differences between students with and without learning difficulties based on various outcome measures used for this study. Chapter seven discusses the results presented in Chapter four and six, how they relate to existing literature and their implications for research, policy and practise. The final chapter presents conclusions based on the findings of the study.

The following chapter, Chapter two, Literature Review that examines current related literature, identifies gaps in existing research and presents the research questions for this study.

Chapter Two

Literature Review

Chapter 2: Literature Review

2.1 Chapter overview

There is now extensive literature related to learning difficulties, the Academic Self-concept and self-regulation. After the researcher review, the literature regarding to the target aspects of this study this chapter will describe and discuss the three terminologies: First, learning difficulties: its definition, classification of criteria, students' characteristics and the differences between students with and without learning difficulties. Second, academic self-concept: the author of this study will discuss the definition of self-concept, its theories, it influence factors and its domains, and then will specifically mention the definition of the academic self-concept and its development.

Third, self-regulation, which present a definition of self-regulation, its related terms, its mechanisms, its theories, and a critical review of existing studies and will demonstrate the need for a new intervention programme. This new programme will aim to develop self-regulation skills, especially for students with learning difficulties. The research questions, which underpin the current study, will be presented at the end of this chapter.

2.2 Introduction

Students with learning difficulties often demonstrate low general academic self-concept, as evidenced by their educational difficulties and behaviour in lessons at school (Gresharm and MacMillan, 1997). There are several factors that impact upon the

development of self-concept and its growth. One important factor is academic achievement because there appears to be a positive relationship between self-concept and educational success (Ebraum, 1981). (Gelgel, 2009) states that most students with learning difficulties have low academic self-concept because they often receive worse grades in their examinations and assignments than students without learning difficulties. For example, students with learning difficulties have difficulty in following the directions for a task, organise the information, divide a task into small pieces, manage their time, complete a project on time or reward themselves when they have performed well (Gelgel, 2009).

Self-regulation research started during 1970s with a focus on teaching skills, such as self-instruction and goal setting. Self-regulation learning has been recognised for approximately two decades with the efforts of many researchers, such as Brown, Levin, Schunk and Pressley, contributing to our current understanding (Zimmerman, 2008). Self- regulation skills are not so much related to mental ability as a group of study skills based on different skills that students with and without learning difficulties can learn and master. These skills can then be implemented in their lives both inside and outside school (Schunk and Zimmerman, 1998; Gelgel, 2009).

Self-regulation skills are mostly dependent on the Bandura social cognitive theory which enables individuals to motivate and regulate their behaviour by using many skills such as self-monitoring and self-evaluation. Furthermore, social cognitive theory confirms that those individuals, who know about their abilities to do things, can use many techniques and practises to help set goals and achieve them. In addition,

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individuals who have a positive evaluation of their efficacy influencing their decision-making and how they can overcome and cope with any problems they may encounter. Individuals' positive efficacy influences their self-regulatory skills, such as self-monitoring and the cognitive process of many areas of individual performance (Bandura, 1991). Consequently, students with learning difficulties need support to develop self-regulation skills in order to improve their educational outcomes, and indeed their whole lives.

2.3 Learning Difficulties

2.3.1 Terms related to learning difficulties

Interest in the area of learning difficulties began in 1800 when a doctor observed patients presenting with brain injury that caused many problems in their ability to indicate themselves through speech. Gall in 1802 is considered to be the first person who was interested in studying patients who have a problem in learning in his own hospital. Since that time there are different names given to the problems encountered by such patients namely, brain injuries, perceptual difficulties and hidden handicaps In addition, numerous terms and phrases have been given to individuals who face difficulty in written or oral communication, but who do not present with a physical disorder. In 1960, Strauss coined a more specific clinical terminology for the difficulties experienced by these children; minimal brain dysfunction, organic brain damage and organic behaviour disorder. Then, in 1974, Strauss and Lehtinen referred to these difficulties clinically as brain injury, brain damage or lesion in the central nervous system. (Lerner and Johns, 2009; Botrows, 2008; Hammil, 1993 and Hewett and

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Foreness, 1977). Since then, on many terms have been used by educators at schools in order to refer to students who have difficulties, such as slow learners, under- achievers, learning disordered and learning handicapped (Boagram, 2005). However, such terms and phrases did not satisfy professional and parents of students with learning difficulties.

Samuel Kirk, who was a Professor at Psychology Department in University of Illinois, believed that the terms used were not appropriate for the students who are struggling in the school. In April 6, 1963, Kirk proposed that the term 'learning disability' would be used for students who are academically challenged, but who do not suffer from any mental or physical disabilities. This term proved much more popular amongst parents whose children faced learning difficulties and thus became the official name for this group of students (Lerner and Johns, 2009; Abunean, 2001; Hallahan and Cruickshank, 1973). Kirk proposed learning difficulty term at a conference in 1962; Dr. Samuel Kirk presented a speech where he created a new name for these problems experienced in an educational setting, which is learning disability. This term has now been adopted and accepted by professionals and parents of students with learning disabilities (Hallahan and Mercer, 2007).

2.3.2 Definition of learning difficulties terminology

For around fifty years educators began to use 'learning disabilities', which means Learning Difficulties in Saudi or Specific Learning Difficulties (SpLD) in UK, as a category and along with various organizations and committees sought to define the term. However, defining such a term posed serious problems and educators could not

agree on a single definition. This was due to the fact that the term 'learning disabilities' encompasses a variety of difficulties, such as memory, behaviour, recognition, language and movment. Samuel Krik is considered the first person to publish the term 'learning disabilities' in his book 'Educating exceptional children' (1963). Kirk was the first to define it as the following

'It refers to a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, writing, arithmetic, or other school subject resulting from a psychological handicap caused by a possible cerebral dysfunction and/or emotional or behavioural disturbances. It is not the result of mental retardation, sensory deprivation, or cultural and instructional factors' (Hallahan and Mercer 2007, para. 1; Hewett and Forness, 1977, pp. 103).

This definition limited the scope of the term 'learning disability' to children at school, because they experienced academic difficulties. However, it excludes students who face learning difficulties due to their IQ. It was for this reason that in 1965, Bateman expanded Kirk's definition, adding a new criterion for the diagnosis of students with learning disabilities. She defines students with learning disabilities as

'Those who manifest an educationally significant discrepancy between their estimated potential and actual level of performance related to basic disorders in the learning process, which may or may not be accompanied by demonstrable central nervous system dysfunction, and which are not secondary to generalized mental retardation, educational or cultural deprivation, severe emotional disturbance, or sensory loss' (Hallahan and Mercer, 2007, para. 1).

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In 1967, the National Advisory Committee on Handicapped Children (NACHC), defined learning disabilities as

'A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or emotional disturbance, or of environmental, cultural, or economic disadvantage' (American speech – language Hearing Association, 1991, para. 1; Hewett and Forness, 1977; pp. 103).

This definition limits learning disabilities solely to children, excluding other stages of life. While it refers to learning difficulty in brain development and central nervous system problems, it excludes some physical difficulties and external factors. Overall, it is very similar to Kirk's definition of learning disability.

The U.S Office of Education currently defines learning disability for a student as The following:

' (1) The student does not achieve at the proper age and ability level in one or more specific areas when provided with appropriate learning experiences and (2)

The student has a severe discrepancy between achievement and intellectual ability in one or more of these seven areas: (a) Oral indicate ion, (b) Listening comprehension, (c) Written indicate ion, (d) Basic reading skill, (e) Reading comprehension, (f) Mathematics calculation and (g) Mathematics reasoning'(Lerner and Johns, 2009, pp. 10).

This definition is similar to Bateman's definition; however, it adds that students face difficulties despite being within a suitable learning environment. On the other hand, it does not include the reason for this condition nor refer to excluded groups. Furthermore, none of the prior definitions indicate learning disability as a life-long problem. It was the Learning Disability Association of America, which first defined this term as:

'A chronic condition of presumed neurological origin which selectively interferes with the development, integration, and/or demonstration of verbal and/or nonverbal abilities. Specific Learning Difficulties exist as a distinct handicapping condition and varies in its manifestations and in degree of severity. Throughout life, the condition can affect self-esteem, education, vocation, socialization, and/or daily living activities' (Visser, 2000, para. 1).

At a glance, this definition is the first one to mention that a learning difficulty is a life-long problem and the impact of this on the individuals concerned. On the other hand, it does not explain the meaning of oral and non-oral verbal skills.

Students with global learning difficulties face difficulties in all areas of their life. For example, it is difficult for them to learn new things, comprehend various

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situations, speak and communicate with others, indicate their ideas and needs, benefit and learn from the environment around them like their peers. Therefore, these students' abilities in a range of skills are very low because they learn much more slowly than their typical developing peers. Global learning difficulties can be between mild, which allow a child to grow into an independent adult, to severe global learning difficulties, which led a child to be more dependent (Royal College of Psychiatrists, 2013). However, Specific Learning Difficulties (U.K) refers to a child who may have one or two difficulties in his or her learning, but who shows typical progress in other developmental skills and abilities. For example, a child may have isolated problems with literacy and mathematics but no trouble with other skills, required in other areas, such as understanding language (Abead, 2009). Kirby and Kaplan support this definition and state that the term Specific Learning Difficulties (SpLD):

'It is not universally accepted, but is commonly used to refer to three problems: dyslexia, developmental coordination disorder or dyspraxia and attention deficit hyperactivity disorder (ADHD)' (Kirby and Kaplan, 2003, pp. 5).

The National Joint Committee on Learning Disabilities (NJCLD) defines learning difficulties as

'A general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems in self-regulatory behaviours, social

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perception, and social interaction may exist with learning difficulties but do not by themselves constitute learning difficulty. Although learning difficulties may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance), or with extrinsic influences (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences' (American Speech-Language Hearing Association, 1991, para.2).

It is evident that this definition is the first one that takes into account that students with learning difficulties are a heterogeneous group, hence opening the educator's mind to the need for differentiation of instruction and the use of different learning styles for these students at school.

The Interagency Committee on Learning Disabilities (ICLD) refers to the cause of learning difficulties as a genetic defect. It is apparent that all the definitions consider learning difficulties as a primary reason, not a secondary one, as a result of other physical disorders or external factors. However, the U.S Office of Education's definition makes no mention of this point. It defines learning difficulties term as:

 'A generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities, or of social skills. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning difficulty may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation,

social and emotional disturbance), with socio- environmental influences (e.g., cultural differences, insufficient or inappropriate instruction, psychogenic factors), and especially attention deficit disorder, all of which may cause learning problems, a learning difficulties is not the direct result of those conditions or influences' (Visser, 2000, para.1; Hammill, 1990, pp. 77).

Hammill (1990) states that the most important definitions are those of the National Joint Committee on Learning Disabilities (NJCLD), Learning Disabilities Association of America (LDAA) and Interagency Committee on Learning Disablities (ICLD). Children with Specific Learning Difficulties are defined as: 'Children who are their difficulties are significant and persistent, despite appropriate learning opportunities and if additional educational provision is being made to help them access the curriculum' (Farrel, 2006).

The definition of students with Specific Learning Difficulties used in this study refers to students who still have difficulties with their learning at school even though they receive appropriate support. Specific Learning Difficulties refer to

'Children who experience a range of challenge in one or more of the following areas: literacy, numeracy, writing, movement and attention. It can also include other aspects of learning that may prevent them from reaching their potential. In some children these challenges can be very significant and provide real barriers for learners, thus preventing them from effectively accessing the curriculum' (Ried, Elbeheri and Everatt, 2016, pp. 1).

This definition is similar to the previous definition but includes the aspect of students experiencing difficulties or challenges with learning difficulties encountered at school.

2.3.3 Classification (Taxonomy) of learning difficulties

The majority of researchers agree that there are two key factors present in developmental learning difficulties, which are primary learning difficulties and secondary learning difficulties. Primary learning difficulties include attention difficulties and refer to the students' inability to exclude the stimuli in their environment, hence distracting them from the important information they may receive. Furthermore, it includes memory difficulties, which refer to an individual's difficulty in storing, processing and retrieving information from short or long term memory (Lerner and Johns, 2009; Abead, 2009 Batshaw, 2002; Agag ,1998; Kirk and Chalfant, 1994; Sherrill, 1986). Some authors add another difficulty: Perceptual difficulty, which refers to the students' inability to organize sensory stimuli and identify them and give them accurate, meaning (Kirk and Chalfant, 1994).

On the other hand, secondary developmental learning difficulties refer to language difficulties and cognitive difficulties. Language difficulties, such as language delay, describe difficulty in receiving or indicating language. Language difficulties may lead some children to have learning difficulties because academic achievement depends upon acquiring language. Cognitive abilities combine human experiences and intelligence with a strong motivation to achieve certain goals (Agag, 1998: kirk and

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Chalfant, 1994). Students with cognitive difficulties have problems mastering abstract thinking, critical thinking, synthesizing ideas, forming concepts and using self-regulatory skills to complete tasks. They also often experience difficulties in problem-solving (Lerner and Johns, 2009). Wong (1998) states that cognitive difficulties, especially meta-cognitive deficits such as students learn about what things help them to remember facts or events and understand their; learning style, should be considered as a primary developmental problem not a secondary developmental problem, because students with cognitive difficulties tend to have low cognitive processing which can adversely affect their academic performance and achievement.

It is very challenging to classify different categories of learning difficulty, as the term refers to a heterogeneous group and therefore there is no one system for classifying them. Some educators classify the difficulty depending on its severity, namely; mild, moderate and severe. Others assert that academic learning difficulty is the most obvious classification for this category (Botrows, 2008). Academic learning difficulties refer specifically to difficulties relating to curriculum subjects namely: reading, writing and mathematical learning difficulties. Sherrill indicates that no two children have exactly the same learning difficulties, although they may have similar educational outcomes in one or more subjects (Sherrill, 1986).

Reading difficulties, or dyslexia, is a reading disorder continuum from mild to severe that causes a student to have difficulty identifying letters or words and/or indicating them in written form (Lerner and Johns, 2009; Batshaw, 2002; Hewett and Forness, 1977). Dyslexia is considered the greatest academic challenge that students

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with learning difficulties may experience. For approximately 80% of students who have reading problems, their difficulties affect other aspects of their education in school setting (Hallahan and Kuffman, 2008). The term writing difficulty or dysgraphia, refers to difficulties with writing such as spelling, handwriting and written indicate ion (Lerner and Johns, 2009; Batshaw, 2002; and Hewett and Forness, 1977).Writing is one of the important forms of communication, however, it requires students to use oral language, reading skills, thinking ability, organize a topic and produce letters to indicate students with learning difficulties may have difficulty in writing skills especially with all these skills' required during writing process (Batshaw, 2002). Finally, mathematical difficulties, or dyscalculia, refer to a problem in mathematical calculating or reasoning. Between 6-7% of children at schools show, a significant arithmetic difficulty and nearly 26% of students with learning difficulties demonstrate difficulty in mathematics (Lerner and John, 2009).

2.3.4 Criteria of identifying learning difficulties

The literature on the criteria of identifying learning difficulties mentions several set of criteria, which specialists can use to identify students with learning difficulties. First or the most established of these is discrepancy criteria, which refer to the discrepancy between a student's mental competence (IQ) and academic attainment. This means that a child may have an Intelligence Quotient (IQ) of 100 or more but his/ her educational performance is very poor in comparison to the level expected for a student with this IQ (Lerner and Johns, 2009; Botrows, 2008; Batshaw, 2002; Kirk and Chalfant, 1994; Hewett and Forness, 1977; Torgesen and Wong, 1986). Furthermore, the discrepancy

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could occur between verbal IQ and performance IQ with significantly 9-12 points'

differences between the two mentioned IQ, and then significant differences between the

verbal comprehension index and the perceptual organisation index. This means that a

child may have moderate to high non-verbal ability, but his/her verbal ability is poor in

comparison to the level expected for a child with high or moderate non-verbal ability.

(Kaufman and Litchenberger, 2006).   Kirk and Chalfant (1994) indicate that

discrepancy criteria also include the gap between different areas of development

(language, attention, memory, movement). For example, a child may walk when s/he is

eleven months old but s/he does not talk until four years old.

A second criterion is exclusion criterion, which does not include students with a

secondary learning difficulty, such as students who have mental or sensory

impairments, lack of appropriate educational experiences, severe psychological

disorders and economic, culture or environmental deprivation (Kirk and Chalfant,

1994; Lerner and Johns, 2009; Botrows, 2008). Moreover, a third criterion is special

education criteria means that students with learning difficulties encounter educational

difficulties which increase these students need for more support and extra teaching time

and skills to allow them to succeed at school (Lerner and Johns, 2009; Botrows, 2008;

Batshaw, 2002; Wong, 1998; Kirk and Chalfant, 1994; Hewett and Forness, 1977).

Another criterion given by Hewett and Forness (1977) is a neurological

criterion. This criteria focuses on whether there is a relationship between learning

difficulties and neurological impairments, such as brain injury, minimal dysfunction and

abnormal electronic activity in the brain and genetic factors influencing a child's

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likelihood of having learning difficulties. For example, a reading difficulty caused by a gene which is more likely to be acquired by students with high IQ than students with low IQ (Fletcher et al., 2002). Neurological criteria are of interest to doctors working with individuals who present with learning difficulties. In addition, psychologists are also interested in discrepancy criteria and are able to measure the different between a student's IQ and their academic achievement. General teachers and special education teachers are responsible for identifying these students' special education criteria and exclusion criteria (Lerner and Johns, 2009).

2.3.5 Gender in learning difficulties.

The research literature on the effect of gender on learning difficulties is equivocal. Some authorities demonstrate that learning difficulties are more common among boys than girls. For instance, in U.S.A, Batshaw (2002) states that there is 1 girl for every 4-5 boys who experience learning difficulties. However, he attributes this statistic to the fact that girls pay more attention to their teachers and have less behavioural issues than boys and therefore, they are less likely to be referred to special education services. Willcutt (2000) and Shaywitz, Morris and Shaywitz (2008) state that the ratio of learning difficulties is 4 boys: 1 girl but they suggest that this statistic is related to boys' great tendency towards hyperactivity and impulsive behaviour in school. Furthermore, Zorigian and Job (n.d.) report that the Office of Special Education Programme (2003) cited a difference between the genders in terms of the incidence of learning difficulties, claiming that of children between the ages of 6-12 who have learning difficulties, 67%

are male and 33% are female. For students with learning difficulties aged between 13-17, the proportion is 66% male and 34% female.

Emerson, Hatlon, Robertson, Roberts, Baines and Glover (2011) state that in England there are 188,000 boys but just 110,000 girls between ages of 0-17 with specific learning difficulties. Among adults above 18 years old there are 526,000 males and 374,000 females with specific learning difficulties. Al-Gemish and Al-Maaetah (2009) indicate that in Jordan the prevalence of learning difficulties among males is greater than among females; while the percentage of boys with learning difficulties is 72%, the percentage for girls is only 28%. In Saudi, Al-Batal (2005) shows the same percentages as the prior two studies and asserts that the rate of learning difficulties among Saudi males is three times higher than that among Saudi females due to the male behaviour and medical problems.

On the other hand, there is seminal research was conducted during 1990s, Lambe (1999) attributes the difference between male and female prevalence to a difference in brain structure and the brain activity during reading and language tasks. Generally, according to Vogel (1990) the average female demonstrates high verbal ability, while the average male demonstrates high visual-spatial and mathematical ability. Females who have learning difficulties tend to have more educational performance difficulties in relation to mathematics than males with learning difficulties. Fennema, Carpenter and Jacobs (1998) claim that there is no difference in ability between male and female students when it comes to solving mathematical problems, but there is a difference in the skills each gender uses in order to reach the answer. Zhu

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(2007) states that the difference in male and female brain structure and hormone levels influences their choice of skills, learning styles and approaches to solving mathematical problems. The female skills, hormones, brain structure and rote approach to solving mathematical problems create a challenge when they meet unfamiliar math problems. According to Schoon and Eccles (2014) the average females demonstrates high verbal ability, while the average male demonstrates high mathematical ability.

2.4 Self- concept

2.4.1 Terms related to self- concept

Ancient Greek philosophers are considered to have been the first to think about the concept of the self. Philosophers such as Socrates, Aristotle and Plato referred to the image of the human self, the soul and to the relationships between soul, body and mind. Later, early Christians such as Augustine, Gregory and Aquinas discussed and tried to understand the relationship between the human self and God (Hattie, 1992). In 1890, American psychologist William James identified the importance of the self as a subject and as object, by the pronouns I and me. The word 'me' describes a self-concept and that attracted great attention from James' colleagues in the field of Psychology, who set about further research to explore this new term (Bracken, 1996; Wylie, 1967). Since the end of the nineteenth century, scientists in Psychology have conducted numerous studies related to self-concept. However, several synonyms for self-concept appeared, such as self-worth, self-description and self-definition, although these are not, generally, thought to develop until a mental age of approximately 8 years old (Harter, 1986).

There are other terms related to self-concept such as self-identity, self-image, self-perception, self-awareness and self-consciousness. These different 'self' terms may can use interchangeably, making it difficult for some to distinguish between them and self-concept. Moreover, researchers began to extend the concept into that of self-concept domains and to focus on specific domains such as physical self-concept, social self-concept and academic self-concept. Academic domains are known by various terms connected with self-concept such as academic self-concept, ability self-concept and self-concept of ability (Byrne, 1996; Burden, 1998). All these terms related to self-concept encourage researchers to define self-concept as a general term without confusing it with other self-constructs.

2.4.2 Definition of self-concept

Self-concept is a psychological term, which presents several problems in definition. These problems include the following: Various psychologists have different approaches to and views on defining self-concept, which has led to many definitions for this term without agreement having been reached about one acceptable definition for self-concept. Opinion is mixed between using self-concept versus other synonyms, while some specialists think that self-concept is an impractical term because they cannot observe and measure it (Byrne, 1996). However, efforts have been made since James' attempts, to translate self-concept from its philosophical use into a subject topic which would allow educators to define and study it. In 1910, James produced what is considered to be a first definition of self-concept and he defined it as:

'The complete view for everything that belongs to an individual such as his/her body, family identity, abilities, friends, physical property and attributes' (Hall andWalndzy, 1978, pp. 599).

This definition describes self-concept as a reflection of the individual's body, personality and social interaction without mentioning about how a person realises these aspects and evaluates him/herself in positive or negative terms for each aspect. Since then many other definitions of self-concept have been proposed by various specialists, as outlined in the following section. For the purpose of this study, self-concept is defined as:

'A general term used to refer to how someone thinks about or perceives them and how we think about and evaluate ourselves. To be aware of oneself is to have a concept of oneself' (Mcleod, 2008, para.1).

This definition states that a person can think and evaluate him/her self, without including the aspects or domains, which represent that self, so this definition is in contrast to the previous one. That is, the former description places placed great emphasis upon the domains, which make up self-concept, whereas the latter one rests upon how a person thinks about him/herself. Bracken (1996, pp. 58) states that self-concept comprises 'A person's self-perceptions formed through experience with and interpretations of his or her environment'.

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This definition is similar to James' definition but is limited in that self-concept is acquired through social interaction. Burns (1982, pp.1) indicates that 'Self-concept is composed of all the beliefs and evaluations you have about yourself'.

This definition implies that self-concept is formed through our beliefs and evaluation of us, exclusive of the domains of a self and ways in which we think of and evaluate these domains. Hattie claims that 'Self-concept is merely a set of beliefs and relationships between these beliefs that we have about ourselves' (Hattie, 1992, pp.97).

This definition is similar to Burns', but it adds the relationships between our beliefs and excludes evaluation. Another definition of self-concept is 'One's thoughts on various aspects of existence. It may be one of the concepts from his/her body image, physical appearance and social behaviour' (Hall and Walndzy, 1978, pp. 604).

This definition combines how a person thinks about his/her social and physical selves, therefore it is another definition for educators to use to define self-concept but it does not include an academic aspect. Zahran (1998, pp. 83) defined self-concept as 'Its knowledge and learner Perceptions of emotional perceptions and evaluations of particular self'.

This definition suggests self-concept regarding an individual's background concerning him/herself and how individuals can perceive and evaluate themselves emotionally and academically. Therefore, it is somewhat similar to Mcleod (2008) and Burns (1992), Hattie (1992) definitions. In contrast, Hall and Walndzy (1978) based their definitions on how a person thinks and evaluates the self in several domains of that

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self. Furthermore, there are many factors influencing a person's self-concept such as personal, social and academic factors, which combine to form the self-concept and how the individual thinks of and evaluates her or himself

2.4.3 Factors impacting upon self-concept

Having reviewed the literature related to factors, which influence a person's self-concept, the factors can be divided into two main groups; personal factors and social factors. These are explored in the following section.

2.4.3.1Personal factors

There are three major personal factors affecting a person's self-concept, which are; age, gender and body image. Attention is first turned to examining the age factor.

a)Age

Hattie (1992) states that by the age of three, children start to identify themselves as being distinct from others and to develop their self-concept with their environment. By age eight to nine, a child starts to understand the physical differences between him/herself and others. Adolescents can understand clearly the differences between themselves and others in terms of their appearance, actions, beliefs and feelings. Students' self-concept between the ages of nine and fourteen years is unstable; it stabilises between the ages of fifteen and eighteen years. During the late teens and adulthood, other aspects of self-concept develop such as sexuality and vocation. Students between the ages of seven to twelve years are primarily focused on themselves so they

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understand their self-concept through their physical characteristics, and their self- reports tend to be written about themselves more than about others. On the other hand, students' ages of fourteen and older have developed social awareness so they can understand their self-concept abstractly, through their attitudes, values and the quality of their relationships. Therefore, their self-reports tend to be written more about others than themselves (Burns, 1982).

b) Gender

The second factor affecting self-concept is the difference between the genders. Boys understand and represent their self-concept through their hobbies and interests; however, girls do so through their relationships with family and boys. Boys represent positive attributes because they promote themselves, whereas girls demonstrate negative attributes because they tend to criticize themselves (Zastrow, C and Kirst-Ashaman, 2007; Bracken, 1996). Females have a higher self-ideal than males but males have greater stability in their self-concept than females. The gender differences in self-concept are affected by cultural and social expectations for both genders and it is probably that these influence females more than males (O'Dea and Abraham, 1999).

c) Body image

The third factor body image is a major influence on self-concept. An individual's self-concept is influenced by the state of their health, so if a person contracts a disease, such as cancer, it will lower their self-concept with regard to their perception of their body. Moreover, psychological diseases such as depression lead Individuals to rate themselves

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negatively. Individuals who use wheelchairs appear to have lower physical and social self-concepts than others (Zastrow, C and Kirst-Ashaman, 2007; Bracken, 1996). Individual's body characteristics such as height, weight and general shape, features such as hair and skin, exert a sensory impact upon self-concept so, if a person places a low value on her/his bodily characteristics that will lead to low self-concept, whereas the opposite is true for those who have a high opinion of their physical appearance (Jowett and Lavallee, 2007). Self-criticism of our bodily characteristics affects our self-concept negatively because bodily characteristics are socially accepted as a standard by which to evaluate ourselves and other people (Yahaya, n.d). Vonderen and Kinnaly (2012) indicate that the media plays a major role in affecting women physical characteristics. Recently the media had provided specific features concerning the relationship between a woman's body weight and beauty. Women who watch television regularly know that a thin body shape signifies beauty and an overweight body is ugly. Therefore, women who compare their body image to other women, who they believe to be better than them in body weight and shape according to the media, reduced their own self-esteem (Vonderen and Kinnaly, 2012).

2.4.3.2 Social factors

There are three social factors influencing self-concept in an individual, namely, family environment, social interaction and school environment.

a) Family Environment.

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Family is considered an important environment. Ideally, family should provide a child with an example of care and methods of socialisation, such as a safe environment without violence or cruelty, as a comparison to other children who might experience neglect and lack of care within their family. Therefore, a child's behaviour and emerging self-concept reflects positive or negative interactions between the child and their parents. Parents' unconditional love and acceptance of their child will lead their children to love and respect themselves and this enhances their positive self-concept (Wylie, 1967; Yahaya, n.d). The rules adhered within a family positively affect relationships between family members and can nurture each individual's self-concept in a healthy way. In addition, when parents support their children materially and emotionally challenging circumstance, this support can enhance the children's' self-concept. On the other hand, parents who show favouritism between siblings, be that verbally or behaviourally, allow the ignored siblings to feel that some family members are favoured over others, damaging their self-concepts. Moreover, changing family structures such as divorce or remarriage can affect the relationships between parents and their children negatively and destabilise children's self-concept (Bracken, 1996; Zahran, 1998). To summarise, the family environment is the primary environment in which a child develops from biological entity to social entity, enabling him/her to interact with his/her society and to continue developing their self-concept.

b) Social interaction

The second social factor to be examined is social interaction. Zahran (1998) states that social standards control social roles for each person depending on his/her age, gender and abilities. So, each person has a series of social roles and he/she has to learn the accepted behaviours for positive social interaction, which subsequently strengthen their self-concept. Peer interaction and perception of a person affects that person's self-concept positively or negatively. Therefore, each individual chooses his/her friends, who tend to be similar to them in many aspects such as beliefs, socio-economic status and intelligence. That is because friends' ratings affect a child's self-concept according to the kind of relationship that exists between peers (Jussim and Osgood, 1989). Children who compare themselves to similar or lower performing peers in terms of various characteristics improve their self-concept; however, children who compare themselves to peers who perform at a higher level than them reduce the quality of their self- concept (Guay, Boivin and Hodges, 1999). Furthermore, an individual's life experiences reduces or enhances their self-concept depending on their parents' treatment of them, the punishment and the emotional support they have received from their family and social network. The way in which individual's copes with stressful life events can enhance or diminish his/her self-concept (Dalessandro, 2013). Individuals who repeatedly find it difficult to build successful relationships with others, in achieving their goals or progressing in academic terms may have a negative self-concept (Yahaya, n.d).

c) School environment.

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The school environment is a third important social factor, which affects the emergence of self-concept in various ways. School plays a vital role in developing children's self-concept because it provides many activities and social interactions, which may contribute to a positive or negative self-concept. This is especially true of the Academic Self-concept (Zahran, 1998). Manning (2007) states that there is a strong relationship between healthy self-concept and success in school, because successful students feel more confident and accepting of themselves. Students with learning difficulties often have a negative academic self-concept because they have been labelled as having learning difficulties and requiring special education. Individuals with learning difficulties are also generally lower than average performers at school (Bracken, 1996). Furthermore, Teachers' characteristics have a strong influence on pupils' self-concept. For example, teachers who create a warm, friendly, supportive and differentiated learning environment develop positive self-concepts in their students, in contrast to ineffective teachers who create negative self-concept for their students (Manning, 2007; Burns, 1982).

2.4.5 Dimensions of self-concept

William James (1890) is considered to have been the first psychologist to describe the domains of self-concept, in order to facilitate understanding and evaluation of self-concept. He states that self-concept comprises the material self, social self and spiritual self (Bracken, 1996). Furthermore, James recognised two more dimensions, the experimental self and pure ego (Hall and Walndzy, 1978; James, 2009). There were not theoretical model, to explain with self-concept before 1970. Then after Hubner and

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Stanten's effort during 1976 in developing self-concept, they realised that general self-concept could be divided into two major categories: academic and non-academic. Academic self-concept comprises evaluations related to academic progression in different subjects such as; maths, history, English and science self-concepts. Non-academic self-concept concerns social self-concept, which encompasses evaluations relating to all significant individuals, emotional self-concept, and physical self-concept, which pertains to physical ability and appearance (Bracken, 1996 and Marsh, 1990).

Self-concept involves four domains, which relate to academic, social, physical and emotional self-concept (Byrne, 1996). Zahran specified the same dimensions as Byrne but he added general and mental self-concept (1998). Other specialists identify the domains of self-concept as including some or all of the following; confidence in self, peer, academic, physical and family self-concept (Hattie, 1992). Dubais (1993) adds more domains of self-concept, which are personal, behaviour, moral self, and self-criticism. Other psychological sciences provide further explanation for the domains of self-concept. Hattie (1992) states that general self-concept contains the academic self-concept which is presented through ability and classroom performance, social self-concept which encompasses peer and family self-concepts and finally self-regard, which stems from a person's confidence and physical self-concept.

It is clear that self-concept is an important term in Psychology, given the amount of investigation and study that has been devoted to it. However, researchers have conducted their studies from a variety of theoretical background according to their own specialist interests.

<u>2.4.6 Self-concept theories.</u>

For the purposes of this thesis, attention will be turned to two major theories in Psychology and Humanities, which explain how humans develop their self-concept. These are Rogers' theory and Maslow's theory and the following section focuses on them.

2.4.6.1 Rogers' theory

Carl Rogers (1950) deduced his theory from his counselling and psychotherapy experience; therefore, he frames the self as a fundamental aspect of personality. He theorised that a person can show different characteristics in their speech, behaviour and thought in a situation reflect his/her life experience as their perception. A person's primary motivation is to protect the self. Rogers focuses on the self as a social product, which grows through interaction with environments, such as school and significant, others such as friends and parents. Rogers indicates that an individual gains his/her self-concept from parental interaction styles and upbringing (Burns, 1982; Hall, 1997). Parents unconditional positive regard relationship with their children plays an effective role in developing healthy and positive self-concept. That is because children receive their acceptance and love from their parents. On the other hand, conditional positive regard, which makes children feel that their parents love and accept them in regard of appropriate behaviour, can lead children to develop negative and unhealthy self-concepts. For example, if a child feels that his/her parents will not be happy if he/she did not obtain a specific score at school, that child can develop feelings of dislike

towards those parents, and therefore towards others. Therefore, Rogers presents his psychotherapeutic methods as dependant on the importance of self for psychological adjustment. Furthermore, he considers that positive social interaction and views from the self and others help create a healthy self-concept (Hall and Walndzy, 1978; Mcleod, 2007).

Mcleod (2008) states that in developing a positive self-concept a person needs respect from her/himself and others. Through person-centred therapy, which was created by Rogers, a person can make adjustments in the interaction between life experiences and self-concept. Psychological support can lead to healthy growth and self-fulfilment, which allows a person to understand her/his self and develop an accurate picture of that self (2008). Roger's theory plays an important role in understanding how a student copes with challenges in their life and how s/he relates to others. So, ideally children with learning difficulties receive respect, love and acceptance from their parents for who they are and not for their behaviour (Hall, 1997). Children are all different in their behaviour and they seek others to obtain better understanding for their misbehaviour. Parents and teachers should distinguish students with learning difficulties from their behaviour and build human-to-human relationships. Parents and teachers should empathise with students with learning difficulties to understand their complex needs (Thomas and Woods, 2003).

Individuals-centred and unconditional positive regard from significant individuals build strong and positive self-concepts for these children. Teachers of students with learning difficulties should communicate, understanding students feelings

and accepting them as an individual person. Teachers of students with learning difficulties should also communicate with these students one to one (Smith, 2004). Thomas and Woods (2003) indicate that the person-centred planning theory of Rogers concerns a student on central or 'circle of care'. This phrase means teachers should meet every specific student's needs because each person has his/her strength, skills and abilities but need more positive treatment and support to overcome his/her difficulties. Person centred planning demonstrates an individual educational plan for students with learning difficulties which contains many social, educational and behavioural goals. Teachers and parents working together with specialists to support one another and to reach child goals and success (Lerner and John, 2009). Maslow developed a theory of self-concept structure to isolate this term from the abstract level.

2.4.6.2 Maslow's theory

Abraham Maslow (1954) created the hierarchical model of human needs, which provides a structure of self-concept. However, this model, especially in its explanation of the upper level of needs, is indicated in abstract terms and may be hard to measure (Bracken, 1996). Maslow provides a hierarchy of needs for Individuals, which contains five levels of need: Physical needs such as food, Safety and protection needs, Love and belonging needs, Esteem and respect needs and finally, Self-actualisation needs. The healthy self should acquire the lower level needs before it can fulfil higher-level needs. Self is affected by bodily needs, by culture and social interaction and a person will develop positive or negative self-concept according to these aspects (Heylighen, 1992). Boeree (2006) confirms that psychological needs and safety needs are primary needs

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that must be met in order to survive. Maslow named these two needs, as well as the need to belong and the need for love, as deficiency needs, which are primary and important needs, individuals motivated and seek to fulfil and achieve these needs. In addition, he named Esteem needs and Self-actualisation needs as a growth needs.

He states that not all Individuals can reach the more advanced, higher-level need of self-actualisation, because previous needs have not been met, possibly and due to social and cultural standards which prevent Individuals from fulfilling themselves. According to Maslow, Individuals have to progress through the hierarchical structure of self in order of priority, until they reach self-actualisation. However, this structure has been criticised by Wooldridge (1995) who suggests that this order cannot exist in all cases or situations because many creative Individuals, such as artists, have come from low socio-economic status and disadvantaged background, so they reach the highest level without having achieved their lowest needs. Also, he states that Maslow's hierarchy of needs can be refuted because many Individuals satisfy upper level needs successfully without meeting lower level needs (Wooldridge, 1995).

2.5 Academic self-concept

The Academic Self-concept is an important domain of self-concept. It develops as a result of schooling and of interaction with numbers of school community, both of which play important roles in the structure self-concept (Byrne, 1996).

2.5.1 Definition of academic self-concept

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Researchers do not agree on a single definition of academic self-concept. The following definitions reflect the differing perspectives, which are held by researchers in the field. Bracken (1996, pp. 288) defines the academic self-concept as: 'Someone's feeling specifically about performance in schoolwork and specific components such as math self-concept'.

This definition mentions the emotions of an individual towards specific subjects at school. However, Shavelson et al. (1976) states that the academic self-concept is how a person rates his ability in educational activities by comparison with his peer. Shavelson et al., (1976, pp. 422) defines the academic self-concept as: "Behaviour in which one indicates to himself (publicly or privately) his ability to achieve in academic tasks as compared with others engaged in the same tasks'. This term has also been defined as:

'The person's conception of his own ability to learn the accepted types of academic behaviours performance in term of School Achievement; it is the relevant behaviours influenced' (Brookover, Thomas and Paterson 1964, pp. 271).

This definition includes the way in which a person thinks about his ability in an educational setting, which is similar to the prior definition by Shavelson et al., (1976). Furthermore, Hattie and Anderman define the academic self-concept as: 'One's knowledge and perceptions about one's academic abilities' (2013, pp. 62). This definition differs from all the other definitions mentioned in this section because it incorporates how a person thinks about other academic abilities.

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Burden (1998, pp. 296) defines academic self-concept as 'It is the perceptions of the child about her or himself in a variety of different learning and Problem-solving contexts'. This definition focuses on how a person cans perceive him/herself regarding educational tasks. It definition is similar to those definitions by Shavelson, Hubner and Stanton (1976); Brookover, Thomas and Paterson (1964), because they all present academic self- concept as how an individual thinks or views his/her ability in a learning setting. Having considered these definitions, it is evident that the academic self-concept refers to a concept related to educational settings in which a person can develop thoughts and beliefs about himself/herself or others in terms of educational performance, as demonstrated in one or more specific disciplines.

2.5.2 Development of academic self-concept

Rhonda and Marsh (2008) indicate that the academic self-concept can be divided into general and specific academic self-concept, while non- academic self-concept contains physical, social and emotional self-concept. The academic self-concept starts to develop when a pupil enters school at around the age of five, because from that point a student will encounter many school requirements, which lead them to build an academic self-concept. If the pupil successfully goes through these experiences their academic self-concept will be positive, whereas a negative self-concept may develop if a student cannot succeed in school tasks (Bracken, 1996). However, by the age of nine, the stress of school performance tends to increase sharply due to a growing number of graded assessments and changes in the structure, processes and assessment styles used in education (Burns, 1982). The academic self-concept is affected by the interactions

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between students, with curricula and with school personnel especially teachers. The academic self-concept is more strongly correlated with school subjects than it is with other aspects of school or life. Therefore, educational performance influences the academic self-concept more strongly than other things (Bracken, 1996).

Burden (1998) states that there is a very strong correlation between the academic self-concept and educational performance in the formal education system. Rhonda and Marsh (2008) state that there is a positive relationship between academic self-concept and school performance. Academic self-concept is affected positively or negatively depending on students' achievement in their curriculum at school (Rhonda and Marsh, 2008). Students with high educational outcomes tend to have high the academic self-concept and those with low academic performance tend to have low academic self-concepts. In addition, high achieving students have more positive attitudes towards themselves than underachievers (Hall and Walndzy, 1978; Manning, 2007).

The interaction between pupils with peers and teachers at school can affects academic self-concept for students positively or negatively, depending on the quality of this interaction. Students, who compare themselves with their high achieving peers in terms of mental abilities, speed of understanding tasks, and scores tend to develop low the academic self-concept (Burns, 1982). Students with learning difficulties find many school tasks more challenging than do other students. Students with learning difficulties and with LD/ADHD may achieve notably lower scores than typically developing students in academic settings and have lower academic self-concept (Tabassam, 2001).

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Teachers are key personnel in educational settings because they influence their students through their teaching methods. Teachers who maintain a positive personal relationship with their students, encourage them to learn, reinforce their efforts and accept differences in their abilities, can facilitate a high the academic self-concept for these students. Teachers with opposite 'attributes', who do not actively encourage and support their students, may increase the likelihood for these students to have a negative academic self-concept. Furthermore, the traditional method of teaching students, which tends to include teachers to ignoring and failing to recognise the differences between students' abilities, causes the students with learning difficulties to have less interest in attending classes and also lower their academic self-concept (Burns, 1982; Manning, 2007).

2.5.3 Self-concept for students with learning difficulties

Students with learning difficulties, like other students, develop their self-concept through social interaction with their environment and their evaluation of this social interaction (Moller, Streblow and Pohlmann, 2009). According to Gans, Kenny and Ghany (2003) comparison of students with and without learning difficulties, shows that students with learning difficulties have lower scores in three aspects of self-concept namely, mental ability, academic setting and behaviour. However, they found no differences between students' with and without learning difficulties in global self-concept. Tabassam (2001) states that there are no significant differences between students with LD/LD and ADHD and typically developing students in non-academic self-concept. Smith and Nagle (1995) reached the same results as the prior study, but

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they found a difference in social acceptance between student with and without learning difficulties in favour of students without learning difficulties. It is obvious from the previous study that students with learning difficulties have a similar general self-concept to students without learning difficulties, but they tend to have lower scores in their self-concept associated with academic settings.

Since 1990, students with learning difficulties have been considered like their typical peers to be educated and existing in general education classrooms. Inclusion of students with learning difficulties, and other special needs, between kindergarten and grade12 in regular classrooms provide these students with extensive opportunities to socialise and build strong friendships with peers. Students without learning difficulties become more understanding and accepting of the differences between them and others and refer to it as a natural event in human life (Lamport, Carpenter-Ware and Harvey, 2012). In the inclusion schools, students with learning difficulties tend to have lower academic self-concept than students without learning difficulties and students with (SEN) (Moller et al., 2009). There is a tendency for students with learning difficulties view themselves more negatively than students without learning difficulties. These students have lower academic self-concepts compared with the typically developing students (Burden, 2008).

Students with learning difficulties between the ages 7:6 and 12:9 have low self-concept, external locus of control and low performance (Rogers and Saklofske, 1985). Furthermore, comparing students with learning difficulties themselves to others without learning difficulties in school achievement they tend mostly to lower their academic

self-concepts. Their repeated failure in class leads them to blame the success in school to external causes, such as teachers' methods of teaching, tasks, and luck, not to their lack of ability and effort. Students with learning difficulties have more tendency to have negative academic self-concepts due to their poor educational performance and learning difficulty labelling (Banks and Woolfson, 2008). When the students are labeled as having learning difficulties they may receive some lessons separately which will increase the likelihood of obtaining negative academic self-concepts and educational performance consequently (Trautwein, Liidtke, Koller and Baumert, 2006).

2.5.4 Differences between students with and without learning difficulties in academic self-concept

The researcher reviewed the literature regarding the differences between students with and without learning difficulties and their academic self-concept. After the researcher reviewed the literature, she found there were thirteen studies between 1979 and 2013. The researcher divided these thirteen studies into three periods namely, research conducted before 1990, research conducted between 1990-1997, research conducted between 2002-2009 and research conducted on 2013. The researcher divided the studies by considering them from the oldest to the newest to allow the readers easily to recognise which period (a decade) the researchers conducted more researches regarding the differences between students with and without learning difficulties and their academic self-concept, which are discussed below.

2.5.4.1 Research conducted before 1990

There are two studies, which were conducted to investigate the differences between students with and without LD and academic self-concept. Chapman, Frederic and Boersma (1979) measured academic self-appraisal using the Student's Perception of ability Scale for their participants in purpose of data collection. There are 81 students with LD and 81 students without LD who attended primary schools from grade3-6. The results indicated that students with LD had significantly more negative self-assessments of their abilities with mathematics, spelling and reading than students without LD. These students had lower scores in general, lower levels of confidence and a negative attitude towards school (1979).

Boersma and Chapman (1981) conducted a study on 81 students with LD and 81 students without LD who enrolled from grade3 to 6 aged in primary school. These students completed three scales; the Students' Perception of Ability Scale, Projected Academic Performance Scale and Intellectual Achievement Responsibility Questionnaire. The researchers found that there was a significant difference between students with LD and those without, in the academic self-concept and achievement expectations. Students without LD had higher scores than students with LD in the academic self-concept and achievement expectation.

2.5.4.2 Research conducted between 1990-1997

There are four studies, which were conducted to investigate the differences between students with and without LD and academic self-concept. Ayres, Cooley and Dunn (1990) selected 49 students with LD and 57 students without LD who were taught between grades5 to 7. These students completed Piers-Harris Children's Self-concept Scale and the Intellectual Achievement Responsibility Questionnaire. The results show

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that students with LD obtained lower scores in the self-concept categories related to academic achievement, than students without LD. Students with LD were more likely to demonstrate attributions of failure than those without LD. The findings in this study indicate that students with LD tend to be inactive students.

Leondari (1992) undertook a study among 72 Special Class (SC), 79 Low Achievement (LA) and 273 Normal Achievement (NA) for students in primary school between grades3-6 aged (9-12). These students completed the following scales; Perceived Competence Scale for children (PCS), Self Description Questionnaire (SDQ) and the Intellectual Achievement Responsibility Questionnaire (IAR). The results indicated that SC students were different to NA students on the academic self-concept and global self-esteem. The difference between NA and LA students on global self-esteem was non-significant, but there were significant differences between these two groups in academic self-concept. SC Students attribute their failures and successes to external factors, while LA and NA students attribute their successes to their effort and their failures to internal factors. Students show internal locus of control, as they grow older. The findings suggest that SC students develop a more negative academic self-concept as they get older.

In 1993, Leondari administered the Perceived Competence Scale for Children Scale for students attending from grades3 to 6 age (8-12) in primary school. The students were divided into three groups; students who were normally achieving (N= 273), students who were low achievers (N=79) and students with LD (N=72). The results show that students with LD rated themselves more negatively than students who were normally achieving on global self-worth and academic self-concept. Students with

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LD negatively rated themselves on the academic self-concept more than those who were low achievement as well, but there were no differences between these two groups in global self-worth.

The researcher did not find more studies conducted for children regarding the differences between students with and without LD in academic self-concepts. However, she found a study conducted for adults with similar results to those of the studies conducted for young children. Cosden and Mcnamara (1997) administered the Self-Perception Profile for College Students and Individuals in my Life to 100 college students, who were divided equally to 50 students with and 50 students without LD. The results suggest that students with LD obtained lower scores in test grades, intellectual abilities and perception of their academic capabilities. However, there was no difference between the two groups in global self-worth and rating academic competencies. Students with LD had more social support than students without LD. There is a correlation between campus organisational support and self-esteem of students with LD. There is also a relationship between instructor support and self-esteem for those without LD.

2.5.4.3 Research conducted between 2002 and 2009

The researcher identified seven studies, which were conducted to investigate the differences between students with and without LD and the academic self-concept between 2000-2009

Tabassam and Grainger (2002) administered different scales to 44 students with LD, 42 students with LD/ADHA and 86 students without LD who attended primary

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school. These students completed the following scales namely, the Self-Description Questionnaire, the Academic Attribution Style Questionnaire and Academic Self-Efficacy Beliefs Scale. The results indicated that students with LD/ADHA and students with LD received significantly lower scores in academic attribution style, academic self-concept and academic self-efficacy than students without LD. There were no differences between students with LD and with LD/ADHD on the scores of the three scales, except that students with LD/ADHD obtained significantly lower scores on peer-relation self-concept than students with and without LD. There was a strong correlation between the total scores of the three scales used in this study.

Dyson (2003) conducted a study on 19 pairs of children with LD with their sibling without LD, with an age difference of between 1 and 3 years between each pair. The age range of 19 children with LD was between 8 and 13 years old. Their siblings without LD were aged between 7.5 to 14 years old. The children administered different scales as follows: the Piers-Harris Children's Self-concept Scale, the Perception for Ability Scale for Students, the Child Behaviour Checklist, the Questionnaire on Resources and Stress and finally the Family Environment Scale. The results showed that there was no significant difference between children with LD and their siblings without LD in the academic self-concept and global academic self-concept. Parents scored children with LD higher in behavioural problems and lower in academic competences, when compared to their siblings. There is a link between children with LD behaviour problems and social competences, as well as parental stress.

Gans, Kenny and Ghany (2003) undertook a study of 50 middle school students with LD and 70 students without LD who were attending middle school. The

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researchers used the Piers-Harris Children's Self-concept Scale, which contains six sub-scales. The results of this study suggested that students without LD obtained higher scores in academic achievement and had better attitude toward their school. They also did better with behaviour subscales than students with LD. However, there was no difference found in global self-concept between these two groups.

In addition, Zeleke (2004) state that in his review of studies, he found that 89% of studies indicates that students with learning difficulties have negative academic self-concept than low, average and high achievers and just about 7% of studies states that no differences between students with learning difficulties and others, (low, average and high achievers), in academic self-concept.

Zeleke (2004 A) conducted a study of students in grades4 to 6 aged (9-12). There were 24 students in each of the following three groups: students with Mathematics Difficulties (MD), students with Average Mathematics Achievement (AMA), students with High Mathematics Achievement (HMA). All these students completed the following scales namely, the Culture-Free Self-esteem Inventories, the Nonverbal Ability test and Mathematics Achievement Tests. The results showed small significant differences between MD and AMA and no differences between AMA and HMA in mathematics self-concept. Students with MD obtained more negative ratings on academic, maths and global subscales than HMA students. That difference between MD and AMA groups in academic and general self-concept disappeared when the researcher controlled the variations on maths self-concept. However, there was a more pronounced difference between MD and HMA groups in maths self-concept. Overall,

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the differences between groups were limited to maths self-concept, which is related to students' difficulties in maths.

Polychroni, Koukoura and Anagnostou (2006) undertook a study of 32 students with LD, 115 students of low and average achievement and 95 students of high achievement in grades5 and 6 aged (10and above) in primary school. They administered the Students' Perception of Ability Scale and Reading Attitude Scale. Their results showed that students with LD received lower scores in self-concept relating to their school satisfaction, reading ability, arithmetic ability, general ability and penmanship. The total score of the academic self-concept for students with high achievement was more than other groups; with exception of practical ability. There were no differences between students with LD and students with low and average achievement in the surface approach of learning but there were significant differences between students with LD and those with higher achievement using the same approach. Students with LD had lower scores in the deep approach of learning than other groups. Students with LD were less likely to link their reading ability to personal abilities and development.

Zisimopoulos and Galanaki (2009) conducted their study among 40 students with LD and another 40 students without LD, who were studying in grade5 and 6 aged (11 -12) in primary schools. The 80 students completed the following scales for the purposes of data collection: the Scale of Intrinsic versus Extrinsic Orientation in the Classroom, Children's Academic Intrinsic Motivation Inventory and Perceived Scholastic Competence Subscale. The results suggest that students who have LD displayed lower scores in all subscales of perceived academic competence, except in history and science subjects, and lower scores in all subscales of intrinsic motivation,

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except interest and curiosity where the LD children scored higher than children without learning difficulties.

2.5.4.4 Research conducted on 2013

The researcher did not find more studies conducted for children regarding the differences between students with and without LD in academic self-concept after 2009. However she found a study conducted for adults, focusing on female students, with results confirming the differences between students with and without LD in academic self-concept.

Further study has been done for students at undergraduate level in universities. For example, on a study by Shany, Wiener and Assido, there were 52 students without LD and 50 students with LD. These students completed different measures as follows: the Self-Perception Profile for College Students, the Friendship Questionnaire and Intimate Friendship Scale. This data collection presented some interesting findings. Students with LD obtained lower scores in academic self-concept, but higher in global self-worth than those without LD. Additionally, female students had greater differences in both variables. Students without LD had less stable friendship than those with LD. Students with LD who had stable friendships had more possibilities to have positive self-concept and global self-worth. Stable friendship among students with LD in the university level has a strong relation to social self-concept and global self-worth (2013).

In summary of these thirteen articles, all of the studies highlighted the differences between students with and without LD, expected Zeleke study on (2004 A). All studies included participants from primary schools and between age 8-13 except

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Coselen and Mcnamara, (1997) and Shany, Wiener and Assido (2013) who focused on college level students, and Gans, Kenny and Ghany (2003), who selected middle school students. All studies found that there is a significant difference between students with and without LD in academic self-concept, except Dyson's (2003) research, which did not find any difference in the academic self-concept between children with LD and their siblings, who do not have LD.

2.5.5 Gender and school achievement

In the UK, girls tend to regulate their learning and have more motivation towards academic tasks than boys who are affected by their male peers, which might cause them to fail to value academic tasks. 70% of students who are identified as having special educational needs are boys. They are four times more likely to have emotional, behavioural and social problems and difficulties than girls. Girls show better achievement in reading while boys achieve better maths performance (Department for Education and Skills, 2007). Vassiliou (2010) states that in Europe, girls are better readers than boys and both genders have similar results in reading and maths. However, boys show better interest, enjoyment and achievement in high school. Girls achieve one-third lower level than boys regarding mathematics in Europe's education system. It is common that boys are more likely to leave school, fail and have to repeat their school years than girls. Girls are more likely to obtain higher scores in their examinations and gain higher education degrees.

In another study that investigated the gender difference in school achievement among 25 different countries, the study results found the following. Boys achieved significantly higher

average mathematics and science performance than males in eight countries for students attending fourth grade. By grade eight boys had significantly higher science literacy than girls in 16 countries (Mullis, Martin, Fierros, Goldberg and Stemler, 2000). In most of the 64 countries in this study, females underperform males in mathematics due to their poor motivation and self-belief. On the other hand, females outperform males in reading in all countries (OECD, 2014). Another study stated that there is a significant difference between the mean scores of males and females in grade 8 in science achievement in favour of males (Bacharach, Baumeister and Furr, 2003).

In most Arab countries, females achieve better scores compared to males in literacy. Female enrolment and achievement is higher than for male in humanities, arts and health care while male enrolment and achievement is higher than for females in sciences, engineering and industry (Masri, 2009). Al-Brhan (2001) stated that there is a significant statistical difference between male and female students in their mean scores in critical thinking in favour of females. Al-Jabri (2016) found that there is a significant difference between the mean scores of students' attitudes to computers. He found that females are more anxious about using or learning about computers. They are less confident about their ability to use computers and they are not enjoying working on the computers compared to males. Saudi males held a positive self-concept about mathematics and science and females held more self-improving in both subjects (Abu-Hilal et al., 2014). There is a difference between male and female students who attend 6th grade in thinking skills during solving mathematics problems in favour of males (Al-Manssor, 2011). Al-Hamori and Ksawnah (2011) found in their study that there is a significant statistical difference in the mean scores of working memory capacity and reading comprehension between males and females in favour of females. Furthermore, working memory capacity affects students' reading comprehension and female students perform better in reading comprehension compared to males.

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2.5.3 Measures of academic self-concept

The researcher reviewed two the academic self-concept scales in which the standardized age sample matches the ages of the participants in the current study. These two scales are the Academic Self-description Questionnaire (Marsh, 1992) and the Myself-As-A-Learner Scale (Burden, 1998).

a) Academic Self-description Questionnaire

Marsh (1992) has devised the Academic Self-description Questionnaire using the 1976 Shavelson et al. Scale. He developed this questionnaire because of his conviction that self-concept influences psychological well-being and positively influences educational achievement (Rhonda and Marsh, 2008). This questionnaire measures various dimensions of the Academic Self-concept such as art, music, religion, reading, handwriting, social studies and science. In the current study measures of music, health and computer science were not applicable so the Academic Self-description Questionnaire was considered to the participants, inappropriate on this occasion, even though the age range was appropriate.

The median coefficient alpha of Academic Self-description Questionnaire is .909 which make the researcher of this study trust its reliability (Marsh, 1990). However, the researcher has related this high reliability to the numerous items and responses. This questionnaire contains 85 items and measures academic self-concept: 77 items measure core the Academic Self-concept and 8 items measure the non-academic self-concept, physical ability and appearance and peer and parent relations. Also, responders could respond to eight different response options ranging from

Definitely False to Definitely True. The lowest possible score is 85 and the maximum score is 680 (Marsh, 2014). This lengthy questionnaire make it hard to understand and difficult to administer, particularly for young students with specific learning difficulties. Finally, the standardized sample of the previous questionnaire contains 234 boys, in contrast to the current study, which will focus just on female students (Marsh, Smith and Barnes, 1983).

b) The Myself-As-A-Learner Scale

Another measure of the academic self-concept is the "Myself-As-A-Learner Scale" (MALS) developed by Burden (1998). This scale measures students' self-concept of their school ability and problem-solving. In this scale participants could reponse to five different response options. This scale is easy to administer to young students therefore, some researchers use it in their studies such as Hakki, 2015; Bayraktar and Hakki, 2014; Norgate, Osborne and Warhurst, 2013; Trickey and Topping, 2006 (This scale in more detailed in Chapter 3- Methodology). There are three core terms in this thesis; the researcher provides more details in the first two terms (learning difficulties and academic self-concept). The third and last core term in this thesis, which affects the previous two terms of academic self-concept for students with learning difficulties, is self-regulation. This term is located towards the end of this chapter to address the need of developing the proposed intervention programme to improve self-regulation skills and to investigate its impacts on academic self-concepts for students with learning difficulties in Saudi.

2.6 Self-regulation

2.6.1 Terms related to self-regulation

William James' work on Psychology in the 1890s and his interest in the study of human selfhood, developed several terms related to selfhood that have since entered and indeed shaped the discourse. For example, he developed the terms 'self-esteem' and 'self-consciousness', instigated extensive research interest. While these terms formed the foundation of the field, the term self-regulation only appeared in the field of Psychology relatively recently (Forgas, Baumeister and Tice, 2013). In 1979, John Flavell coined the term 'meta-cognition', which defines how a person manages his/her thinking. This term is more related to critical thinking and motivation, however, than to pure Psychology. Numerous Psychology research studies have focused on meta-cognition for educational purposes related to students' underachievement in class and explore the reasons why some students encounter difficulty using cognitive processes for educational tasks. Flavell refers to these problems as 'production deficiencies', which are caused by problems in meta-cognition (Flavell, 1979). Flavell 1979 introduced a new term in the Psychology field, which might complete James' (1890) investigation of selfhood. The new term is called 'self-regulation' (Wong, 1998).

Researchers also use other terms to discuss self-regulation or metacognition, including 'self-control' or 'self-management' (Sturmey, 2008), while 'self-determination', 'self-motivation' and 'self-agency' are similar terms used by educators for the same process (Alderman, 2004). In 1977, Albert Bandura developed cognitive theory and social learning theory, which led to the creation of social cognitive theory,

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the primary grounds for the development of the term self-regulation Moore (1999). Boekaerts, Pintrich and Zeidner (2005) consider 1980 as the first decade for self-regulation research, while Forgas et al., (2013) assert that this did not start until the 1990s. Since then, research on self-regulation has sought to clarify the meaning of this term. Specialists in Psychology have provided many definitions of this term, which will be addressed in the following section.

2.6.2 Definition of self-regulation

Self-regulation is considered to be a core term in academic research on skills of learning and problem-solving. Since Flavell's work in 1970, many definitions of self-regulation have appeared, related to systems as diverse as memory, cognitive processes and learning process on academic performance (Wong, 1998). Definition of self-regulation can be divided into processes and performance.

2.6.2.1 Processes

Self-regulation refers to 'The knowledge and beliefs about one's cognitive processes and the monitoring and control of these processes' (Alderman, 2004, pp.150). This definition refers to self-regulation as a cognitive process that uses skills such as monitoring and controlling self-regulation skills. Boekaerts et al., (2005, pp. 305) define self-regulation as:

> 'Processes that enable an individual to guide his/her goal-directed activities over time and across changing circumstances (contexts). Regulation implies modulation of thought, affect, behaviour or attention'.

This definition focuses on self-regulation skills that allow individuals to maintain and direct their goals under different situations. By using self-regulation skills an individual can modify their behaviour positively. This definition is similar to that put forward by Torgesen and Wong (1986), who suggest that self-regulation processes allow individuals to regulate or direct their performance toward a goal, but takes into account the recent definitions, which add that the processes of self-regulation continue during the life span of an individual and operate many different contexts. Boekaerts et al.'s (2005) maintain that self-regulation can change individual's thoughts and behaviours. The limitation of this definition is that it does not include examples of self-regulation skills, such as in Torgesen and Wong (1986) or Alderman (2004).

Wong (1998, pp.281) refers to self-regulation as:

'The active monitoring and consequent regulation and orchestration of these cognitive processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective'.

This definition sees self-regulation as a cognitive process that can be monitored actively to help a person reach their goal. It is similar to Torgesen and Wong's (1986) and Alderman's (2004) definitions of self-regulation, but it do not include the idea that these cognitive processes are maintained under any situation (Boekaerts et al., 2005). On the other hand, Florez (2011, pp.46) refers to self-regulation as 'Several complicated processes that allow children to appropriately respond to their environment'. This definition states that self-regulation comprises many complex processes that enable children to respond appropriately to their environment. This

definition is different to the prior definitions because it focuses on children and their response to the environment, in addition to using self-regulation skills in social interaction. The limitation of this definition is that it does not take into account the complex processes that characterise self-regulation. The majority of the previous definitions provide some examples of self-regulation skills or domains such as Planning and self-monitoring. However, these definitions do not mention key self-regulation skills that the following section will examine.

2.6.2.2 Performance

Torgesen and Wong (1986, pp.396) define self-regulation as

> 'Awareness of the person, task, and skill variables affecting cognitive performance, along with the use of that knowledge to plan, monitor, and regulate performance.'

This definition describes self-regulation as a process by which individuals use skills such as Planning, and monitoring to achieve their goals, which influences their cognitive achievement. Self-regulation uses cognitive processes as a central mechanism that allows a person to reach her/his goals.

Cleary and Zimmerman (2004, pp.538) define the term as

> 'Self-generated thoughts, feelings, and behaviours that are planned and cyclically adapted based on performance feedback to attain self-set goals'.

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This definition focuses on using self-regulation skills, such as planning to control how a person thinks, feels, and behaves depending on achievement feedback, to reach their goals. This definition is similar to those of Torgesen and Wong (1986), Alderman (2004) and Wong (1998) in defining self-regulation as cognitive processes that use many skills to achieve particular goals. However, it adds that Individuals who use self-regulation skills cannot reach their goals without receiving feedback from their achievements.

2.6.3 Self- regulation dimensions (skills or domains)

There are several domains (skills or dimensions) of self-regulation. For example, Torgeson and Wong (1986) state that self-regulation involves self-monitoring, self-instructions and self-reinforcement. Others state that goals and goal setting are specific results that a person aims to achieve, and note that these play an important role in self-regulation skills (Alderman, 2004). Baron (2000) asserts that good thinking should contain decision-making, personal goals and those individuals should make plans and keep them. Zydan indicates self-regulation domains as Planning, self-monitoring and Self-evaluation (2009). Others say that self-regulation dimensions include goal setting, Planning, self-reflection, self-rewarding and self-talk (Wolters, 2010). In addition, Kyal (2006) states that goal-setting, planning, self-monitoring, self-evaluation, and Self-reinforcement is important components of self-regulation. Turki (2004) and Al-Qimesh et al. (2008) mention that self-regulation is the most recently developed term in Psychology and identify the domains of self-monitoring, self-evaluation, self-reinforcement and stimulus control. Cleary and Zimmerman (2004) indicate that self-

regulation comprises goal-setting, self-observation, self- evaluation, self-reflection, planning, self-monitoring and self-instruction. Finally, Forgas et al. (2013), set the domains as including goal-orientation, goal setting, goal-direction and goal-achievement. Ali (2012) states that self-regulation for learning focuses on learning processes using the following skills: instructions, planning, self-evaluating and monitoring.

There are many steps for improving self-regulation for learners; these steps include both external and internal sources. The external sources are goal-setting, planning skill, implementation, skill outcome and self-reinforcements. The internal sources are observation, imitation, self-control, Self-evaluation and self-instructions (Kyal, 2006). Lienemann and Reid suggested that there are six steps for self-regulation skill development which are as follows: developing background knowledge, discussing skill, modelling skill, memorizing skill, supporting skill and using the skill independently (Lienemann and Reid, 2006). Teachers should know and implement self-regulation skills by identifying the students' abilities required to achieve specific goals, they then can assess students' knowledge and abilities to acquire these skills. Teachers need to collaborate with students and other teachers in implementing self-regulation skill. Teachers must monitor and evaluate these skill developments frequently and should evaluate the skill after instruction to assess whether students maintain the use of skill under any circumstances (Hacker, Dunlosky and Graesser, 2009). Since self-regulation is a relatively new term in Psychology, it depends on a strong theoretical background, which will be described in the following section.

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2.6.4 Self-regulation theories

This thesis looks at three major theories in Psychology and the Humanities, which explain how humans develop self-regulation. These theories are social cognitive theory, social learning theory and self-efficacy theory, and are detailed in the following sections.

2.6.4.1 Social cognitive theory

a) Overview of the theory

Social cognitive theory assumes that a person has many important factors in his/her life and has the ability to reach individual goals. This theory confirms that individuals can regulate and motivate the social, cognitive and behavioural aspects of their functioning (Lamport et al., 2012). This theory helps individuals to understand, predict and change personal behaviour. It provides skills that enable individuals to modify their behaviour and explains that individual's behaviour is a result of interaction between three factors: behaviour, personal, and social factors (Davis, 2006). Pajares (2002) and Furnish (2013) provide examples of the interaction between these three factors in a school setting. The studies state that teachers can change their students' way of thinking (personal factor) and promote educational skills (behavioural factor) and guide students to be successful (social factor). This theory states that individuals who use self-regulation skills should participate actively in learning, since there are many different skills. It also notes that not all individuals use self-regulation in their learning. It holds that individuals who use self-regulation always evaluate their progress toward their goal and use this information to decide if the skill they adopted is effective (Pintrich, 2004).

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For social cognitive theory, self-regulation occurs when a human uses different skills to manage their behavioural actions in different situations in their life. Social cognitive theory focuses on the influence of meta-cognitive, motivational and behavioural skills on an individual's learning process. This theory asserts that self-regulation comprises many processes such as Planning, self-monitoring, self-judgement, self-reaction, self-instruction and decision-making, which work in conjunction to help Individuals reach their desired goals (Zimmerman, 1989; Bandura, 1991; Pajares, 2002).

Students with learning difficulties often experience unsuccessful educational outcomes, which may be related to the inability to use skills or a lack of skills that help them succeed in school. Cognitive skill instruction affects the performance of students with learning difficulties and is the most effective skill of instruction (Lienmann and Ried, 2006). Zimmmerman (2002) states that social cognitive studies focus on developing self-regulation skills for children by using their teachers, parents, and peers as models and encouraging these students to use self-monitoring and goal setting skills. Students who use self-regulation skills can direct their learning processes by applying their cognitive abilities into educational setting, which help to provide these students with learning life skills. Students who regulate their learning independently are more likely to be successful in school.

b) Dweck's Growth Mindset theory

Dweck's theory (1980), which is considered a social cognitive theory, demonstrates that individuals tend to have two types of mindsets, the fixed mindset and the growth

mindset. In a fixed mindset, the individual avoids challenges, because s/he thinks that their intelligence level is low and, therefore, even if they work hard, they will not achieve success. Those with a growth mindset tend to meet challenges and make progress in their work because they work hard. They understand others' feedback as positive and helpful, which will improve their performance; while individuals with fixed mindsets perceive others' feedback as negative and unhelpful and which highlights their weaknesses (Petty, 2011; Molden and Dweck, 2006). Individuals, who follow incremental theory, believe that intelligence is not fixed and they could improve or overcome their life situation with extra effort. In contrast, individuals who follow entity theory believe the intelligence is fixed and their abilities and intelligence will never change, causing their failure and preventing them from achieving their goals. Individuals who believe on incremental theory understand that negative feedback affects their effort; and when they encounter unsuccessful performance results they try different skills and a remedial approach towards improving their life situation. On the other hand, individuals who believe in the entity theory, usually consider their abilities and intelligence to be behind their unsuccessful outcome (Hong, Chiu, Dweck, Lin and Wan, 1999).

Mueller and Dweck (1998) stated that highlighting to students their IQ led them to focus more on achieving their task specific goals, instead of learning goals, contrastingly, students who were reminded of their hard work focused more on their learning goals rather than their task specific goals. These students demonstrated less perseverance, poor task achievement and less interest in their task, compared with the students who were praised based on their hard work. Individuals who believe in the

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entity theory are more likely to achieve their task's goals than those who believe in incremental theory who seek for learning goals. For example, 80% of students who believe in the entity theory chose the achievement of task's goal, and 50% of them selected an easy task to avoid negative feedback. 60% of students who classified as believing in incremental theory selected a learning task's goal, and just 10% of them chose an easy task (Gollvitzer and Largh, 1996). Students who believe in incremental theory predicted an upward trajectory in maths during the next two years in high school, while those pursuing the entity theory performed on a flat trajectory. Students in the experimental group, who practise incremental theory intervention, presented an upward trajectory; while those in the control group demonstrated a downward trajectory in their maths achievement (Blackwell, Trzeniewski and Dweck, 2007). Moore and Shaughessy (2012) revealed that students who believed in the entity theory achieved less than students who believed in the incremental theory.

Individuals who believe in the entity theory tend to achieve their task goals, and their self-esteem decreased during college; while those under the incremental theory believed in learning the tasks goal that their self-esteem increased (Robins and Pals, 2002). The results of a study by Ommundsen, Haugen and Lund (2005) shows that there is a relationship between incremental theory and self-regulation skills, while fixed (entity) theory have a correlation with self-handicapping. Academic self-concept has a positive relation with learning skills and a negative correlation to self-handicapping. This demonstrates the importance of improving academic self-concepts and incremental theory about students' abilities. Sriram (2010) investigated the influence of the growth mindset intervention in students with high risk. The experimental group showed

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changes in the students' growth mindsets, with a positive trend. Moreover, there was a big difference between experimental and control groups with academic effort, academic self-confidence, determination and study skills; in favour of the experimental group. However, there was no strong difference between these groups in terms of academic performance.

2.6.4.2 Social learning theory

a) Rotter's theory

Locus of control is a social learning theory developed by Rotter (1954), who strongly influenced the Psychology field because his theory depends on individual's behaviour and personality, ignoring psychological instincts. He believed that personality and behaviour can be changed; therefore, he stated that when we change a person's way of thinking, or the environment that a person lives in, this person's behaviours will change accordingly. He proposed that to make this change, individuals must have more life experiences, make more effort and receive guidance through interventions. Finally, Rotter believed that humans can be motivated and make progress toward their goals by gaining positive reinforcement and avoiding punishment (Wiener, Niernberg and Goldstein, 2006; Mearns, 2013). Rotter, in his locus of control theory, focused on how Individuals respond to the objects in their environment. This theory is divided into internal control and external control. In internal locus of control, the human depends on their skills and abilities to manage/organize themselves and to explain any situation that may occur in their lives. This group of individuals thinks that they can build their future by themselves; therefore, they are more confident and take greater responsibility for

their own behaviour. On the other hand, individuals who possess an external locus of control tend to believe that what happens to them depends on external factors over which they do not have control (Weiner, 1985; Mearns, 2013).

Stability affects both internal and external locus of control in terms of understanding the causes of a situation. There are four settings for locus of control types and stability. Individuals with stable internal locus of control attribute their failures to their abilities; but those with stable external locus of control attribute it to the difficulty of the task. Individuals with unstable internal control attribute their failure to their effort and those with unstable external of control attribute it to bad luck. It is argued that individuals of around middle-age tend to possess internal locus of control, while older and younger individuals possess more external locus of control (Wiener et al., 2006; ChangingMinds, 2013). Bendellet, Jollefson and Fine (1980) conducted a study on locus of control in adults with learning difficulties (LD). They found that adults with LD, who displayed internal locus of control, achieved more with little reinforcement; but those with an external locus of control performed better in high reinforcement situations. Moreover, a study on students with and without learning difficulties, between the ages of 7-12, found that students with LD were significantly different from students without learning difficulties in their general and academic self-concept, general and academic locus of control and academic performance expectations. Students with LD had a lower self-concept and performance expectation. Additionally, they had greater external locus of control (Rogers and Saklofske, 1985).

b) Differences between students with LD and students without LD in locus of control

The researcher reviewed the literature and she found nine studies regarding the differences between students with and without LD in locus of control. These studies were between 1981 and 2010. These studies are presented below.

Boersma and Chapman (1981) studied locus of control in 81 students with LD and 81 normal achieving children in grades3 to 6 in primary school. These students were assessed using three scales: the Students' Perception of Ability Scale, Projected Academic Performance Scale and Intellectual Achievement Responsibility Questionnaire. The researchers found that there were significant differences in scores between students with LD and those without LD, in terms of locus of control, academic self-concept, and performance expectations. The findings were more positive for students without LD.

Coggins (1984) used the Children's Nowicki-Strickland Internal-External Control Scale to measure locus of control among 25 students with cognitive impairment, 25 students with LD, 22 emotionally disturbed students, and 79 normally achieving students. These students were in grades6, 7 and 8 aged (12 and more). The results indicated that more students with cognitive impairment have an external locus of control compared to students with LD and students who are emotionally disturbed. There is no difference between the two last categories on locus of control. Students from the three special education categories have a greater external locus of control compared with typically developing students.

Rogers and Saklofske (1985) conducted a study of 45 learning disabled (LD) and 45 normally achieving (NA) children aged 7:6 to 12:9 years. The results indicated

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that students with LD were significantly different from those without LD in terms of self-concept, locus of control and educational expectation. Students with LD scored lower on self-concept and educational performance. These students are more likely to exhibit an external locus of control.

Leondari (1992) investigated 72 Special Class (SC), 79 Low Achievement (LA) and 273 Normal Achievement (NA) students who were enrolled in grades3-6 aged (8-12) in primary school. These students were assessed using the following scales: Perceived Competence Scale for children (PCS), Self Description Questionnaire (SDQ) and the Intellectual Achievement Responsibility Questionnaire (IAR). The results indicated that SC children were different from NA children on academic self-concepts and global self-esteem. There were no significant differences between NA and LA students on global self-esteem, but there were significant differences between these two groups on academic self-concept. SC students attributed their failures and successes to external factors, while LA and NA students attributed their successes to their own efforts and their failures to external factors. Students tend to show internal locus of control, as they grow older. It was also found that SC children tend to develop more negative academic self-concept, as they get older.

The researcher discovered three articles focusing on the differences between students' with and without learning difficulties concerning locus of control amongst adult students, all of which produced results, which are interesting to highlight. Harshbarger (1998) examined the self esteem, locus of control and time perspectives in 56 college students without LD and 51 college students with LD. These students were

assessed using the following scales namely, Rosenberg Self-Esteem Scale, Multidimensional-Multi-attribution Causality Scale, Hope Scale, Long-Term Personal Direction Scale, Time Utilisation Scale and a personal information sheet. The results showed there were no differences between college students with LD and college students without LD on the following variables: self-esteem, locus of control, and integrated time perspective. Furthermore, this study also found there were no significant relationships between the students' gender, age and socioeconomic status, and their locus of control, self-esteem and integrated time perspective.

Estrada, Dupoux and Wolman (2006) argued that locus of control is related to university students' social and personal/emotional adaptation to life at university. They conducted a study among 30 students without LD and 31 students with LD who studied at undergraduate level. The researchers used the Adult Nowicki-Strikland External/Internal the Locus of Control Scale and Students Adaption to College Questionnaire to measure social adjustment and personal/emotional adjustment to university life. The results indicated that there is a relationship between locus of control and social adjustment and personal/emotional adjustment for students with and without LD. Students who have higher scores in external locus of control are more likely to have higher scores in social and emotional adjustments than others. There are no differences between the two groups on locus of control and personal/emotional adjustment. Students with LD scored higher in social adjustment than students without LD.

Cooper (2006) administered the following scales to 13 students with LD and 13 students without LD aged between 19 and 25 years old: Coping Orientation to Problem Experience (COPE) Inventory, the Adult Nowicki-Strickland Internal-External Scale (ANSIE) and Quality of Life Inventory (QOLI). The results indicated that there were no significant differences between students with LD and students without LD in coping skills, life satisfaction, and locus of control. Students from both groups obtained higher scores in ANSIE and an average range on QOLI.

Firth, Cunningham and Skues (2007) compared 102 students without LD and 93 students with LD between grades7 and 9 aged using the Mastery Scale and the Children's Internal Coping Self-efficacy Scale. The two scales were used and it was found that students with LD scored lower on both measures.

Shogren et al. (2010) conducted a study, which examined the development of locus of control orientations in 564 students without difficulties (mean age 12.5), 532 students with LD (mean age 12.1) and 248 students with cognitive impairment (mean age 14.2). Two measures of locus of control orientations were administered to the students: The Nowicki-Strickland Internal–External Scale (ANSIE) and Intellectual Achievement Responsibility Questionnaire (positive response toward educational success) (IAR-P) and (negative response toward educational failure) (IAR-N). The results indicated that students without difficulties present higher scores on general and academic locus of control compared to students with LD and those with cognitive impairment. Students with LD present higher scores on general and academic locus of control compared to students with cognitive impairment. Students with cognitive

impairment have a little to no development on the variables used in this study as they grow up. Students with LD and without disabilities show changes in ANS-IE and IAR-P as they get older.

In summary, all of the previous studies mentioned students with LD except Leondari (1992) who referred to them as 'Special Class' students. Boersma and Chapman (1981), Rogers and Saklofske (1985), Leondari (1992) and Shogren et al.. (2010) selected students in primary schools, while Coggins (1984) and Firth, Cunningham and Skues (2007) studied students in high schools. The remaining three studies selected students at university level. Most of the studies indicated that there is a difference between students with LD and students without LD in terms of locus of control. It was found that students with LD are more likely to present with an external locus of control. However, three studies Harshbarger (1998), Estrada, Dopoux and Wolman (2006) and Cooper (2006) found no differences between students with LD and students without LD concerning locus of control. Albert Bandura looked at self-regulation and broadened the idea to self-efficacy, a theory that will be examined in the following section.

2.6.4.3 Self-efficacy theory

Zimmerman (2000) asserts that self-efficacy theory is an important factor in social cognitive theory because the quality of outcomes for individuals depends on evaluation of their own ability to perform in different circumstances. It holds those students who use different self-regulatory skills, such as goal-setting and self-monitoring are more able to learn effectively. Having a student self-regulate and be self-efficient means that

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they will be able to be better engaging with the school curriculum. Students with high self-efficacy have a better understanding of using self-regulation skills in their learning. Furnish (2013) indicates that individuals evaluate their efficacy based on performance accomplishments and vicarious experience. These two components enable individuals to realise their ability to complete a task. Students with strong self-efficacy understand a hard task as challenging, and therefore they will try to build knowledge and promote their effort to master the difficulty while students with weak self-efficacy view hard tasks as disastrous and impossible to achieve.

Bandura (1993) confirms that individuals with high self-efficacy tend to set high goals for themselves and focus their efforts on achieving those goals. He found that students who set easier goals for themselves do not achieve high self-efficacy because these goals do not provide knowledge to them regarding their ability. Self-efficacy affects effort and performance. Therefore, individuals with high self-efficacy actively attend to completing a task, while those with low self-efficacy avoid the task altogether. Students who reach their goals slowly are more likely to have low self-efficacy and do not work hard, often giving up when they encounter challenge and difficulty. Students who set goals for themselves can direct their learning, which improves self-efficacy (Bandura, 1977; Schunk, 1990; Furnish, 2013).

Self-efficacy directly affects different domains of self-regulation, such as monitoring and achievement, which are used for learning and overcoming academic challenges. This leads to successful educational achievement (Bandura, Barbaranelli, Caprara and Pastorelli, 1996). There is positive relationship between academic self-

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efficacy and self-regulation skills, which contribute to effective learning and academic achievement. Students who have high self-efficacy are more likely to use different self-regulation skills for better educational outcomes (Joo, Bong and Choi, 2000). Students with learning difficulties have difficulty using self-regulation and focus more on concrete aspects of a given task as opposed to skills for completing it. Seventy-six per cent of students with learning difficulties are less able than their normally achieving peers to analyse a difficult mathematics task. Students with LD often need greater ability and skill to achieve a task successfully; they also need self-efficacy to use these skills and ability (Klassen, 2002).

Students with learning difficulties have a lower ability to use self-regulation skills compared to typically developing students, which lowers their ability to develop self-efficacy (Lamport et al., 2012). Margolish (2005) says that students with learning difficulties have low self-efficacy, and as a consequence they avoid undertaking hard tasks and give up quickly, which in turn contributes to their underachievement at school. Furthermore, students with learning difficulties use test scores to inform their idea of academic self-concept, academic attribution style, and academic self-efficacy. Since their scores are lower than those of students without learning difficulties, they are less motivated to succeed. However, there is no a significant difference between students with learning difficulties and those with learning difficulties and ADHD regarding the academic self-concept and academic self-efficacy (Tabassam and Grainger, 2002).

2.6.4.4 Self-determination theory

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The initial work of self-determination theory started during 1970s and the first comprehensive work related to this theory appeared in the middle of 1980s. Self-determination theory (SDT) is based on the work of Edward Deci and Richard Ryan. This theory is considered as a motivation and personality theory, which supports our intrinsic tendencies to act in an effective manner without external influence. The theory focuses on innate psychological needs and the main intrinsic needs involved in self-determination, comprising three key needs, which are competence, autonomy and psychological relatedness. These three psychological needs directly affect motivation (Deci and Ryan, 2008).

Motivation is an important element of biological, cognitive and social regulation. There are different types of motivation related to SDT: first, intrinsic motivation, which is the tendency of an individual to seek out challenges, novelty, and learning with enjoyment. An individual performs a task because he/she is satisfied by doing this task in itself through internal regulation (Hagger and Chatzisarantis, 2005). Cognitive evaluation theory emerged in 1985 and focuses on environmental and social factors which facilitate and stimulate intrinsic motivation. In addition, it is concerned with the effects of reward and positive feedback on enhanced intrinsic motivation through a sense of autonomy and competence. Second is extrinsic motivation, which refers to the performance of a task by an individual in order to obtain external reward. In this case individuals may achieve the target goal with external motivation and without enjoyment (Ryan and Deci, 2000, A).

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Individuals who are internally controlled are more confident and interested in learning compared with those who feel externally controlled by a situation. Intrinsic motivation is considered an important factor for educators in learning and achieving in an academic setting, because it allows high-quality creativity and learning. However, many tasks students are requested to complete are not interesting or enjoyable for the students. Therefore, educators attempt to increase the engagement of students in an education setting through extrinsic motivation. There are four types of autonomous extrinsic motivation: first, there is external regulation, in which individuals perform to receive external reward such as, money or gift. Second, interjected regulation; considered as an internal regulation because individuals behave in a manner, which avoids any feeling of guilt or anxiety, or in order to feel pride. Third is regulation through identification; in which individuals perform an action because they identify this action as important for them personally, and take responsibility for their behaviour. Finally, there is integrated regulation in which individuals identify regulation which they understand and can therefore evaluate themselves and recognise their personal needs (Ryan and Deci, 2000, B; Vallerand, 2000).

Students who develop intrinsic motivation and have autonomous extrinsic motivation tend to be more likely to stay at school, enjoy school work and achieve positive educational outcomes, than students with less motivation (Deci, Vallerand, Pelletier and Ryan, 1991). In general, students with learning difficulties develop strong relationships between their low intrinsic and high extrinsic reading motivation. Consequently, they often experience poor educational performance in their reading (McGeown, Norgate and Warhurst, 2012). Students with learning difficulties can be

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become autonomous learners if their teachers allow them to make their own choices, work in their own way, encourage them to do work, support their initiatives, let them share their feelings, provide them with the aims and value of their academic tasks and understand their interest and enjoyment in tasks. Teachers can response to their students competence needs through providing them with immediate feedback, supporting active response, incorporating games in the learning setting and teaching lessons, which incorporate real-life situation. Finally, related needs can be encouraged by allowing students to adopt cooperative learning with peers through group investigation and jigsaw activities (Brophy, 2010).

2.6.5 Development of Self-regulation

Florez (2011) indicates that self-regulation begins to develop when a child is born and starts the process of communicating with others. Communication reinforces positive development for social self-regulation. Infants can regulate sensory and motor responses to different aspects in their world. For instance, an infant may cry when he or she hears a noise. Toddlers develop more complex forms of self-regulation because they can produce different responses when they face different situations, such as clapping their hands after formal speeches but not during the time when their parents is taking to them (2011). Kopp (1982) states that infants from 9 months develop sensory-motor responses to different interactions with their environment. From 12-18 months, Kopp says that infants can understand social interactions such as continuing or stopping a behaviour and responding to other requests like grabbing a piece of napkin. By 24 months, his theory holds that infants become able to self-control by regulating their

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behaviour without monitoring from others. According to Kopp a child of 36 months can regulate processes when they face challenges, such as problem-solving.

Hashem (2003) claims that regulating cognitive process is essential since it allow children to control their memory process. Organizing an environment leads to the development of healthy self-regulation abilities, and states that unhealthy environments lead to a delay in cognitive self-regulation. Children in nursery and pre-school have the ability to regulate their knowledge by using problem-solving and have increased abilities in self-regulation when entering primary school because they can choose different means to reach their goals. Florez (2011) says that children need supports from adults to develop self-regulation. They need opportunities to practise and learn self-regulation skills from adults and peers. Alderman (2004) indicates that children can learn self-regulation through interacting with parents, siblings and teachers who all play an important role in promoting self-regulation skills, which benefit children both inside and outside school. Whitebread and Basilio (2012) indicate that infants before 12 months participate in their environment and can predict the result of their behaviour (for example repeating a word) because they interact with family members. Between the ages of 12-36 months, children can choose and use skills to attain goals, like using a chair to reach chocolate in a high place. From 3-6 years, children are able to control their attention, use more complex problem-solving skills and participate in activities that match their ability level.

However, Dignath, Buettner and Langfeld (2008) add that students in primary school can have difficult practicing self-regulation skills. The researchers showed a

notable increase in self-regulation skills between students in kindergarten and sixth aged (5-12) years. Gradeand self-regulation skills became more sophisticated by the end of primary school. Teachers who deal with students with and without learning difficulties must play an effective role in teaching self-regulation skills because both students and instructors benefit from the teaching and implementing of self-regulation. Lienemann and Reid proposed that self-regulation training for teachers is crucial for preparing teachers to manage students with learning difficulties (Lienemann and Reid, 2006). The training for teachers should show them how to encourage students with learning difficulties to implement self-regulation skills in their educational activities and in their daily life (Imamm, 2004).

2.6.6 Factors Contributing to high self-efficacy

There are four factors, which contribute to high self-efficacy, namely, personality, individual experiences, peers and teachers. These factors are discussed in detail below.

a) Personality

There are many factors that contribute to high self-efficacy; personality being considered a key factor. Individuals with high self-esteem have been found to have high self-efficacy, and they create more challenging goals for themselves compared to those with low self-esteem. Furthermore, individuals with high levels of positive emotion have been found to overcome threatening situations. There is a correlation between self-efficacy and personality (self-esteem, self-regulation and orientation) with a moderate effect (Luszczynska, Gutierrez-Dona and Schwarzer, 2005). Students with LD have

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lower reading self-efficacy and lower self-efficacy for self-regulated learning than students without LD. Students with LD who acquire low scores in self-efficacy for self-regulated learning are significantly more likely to have lower scores in English by the end of the term compared to students with LD with higher self-efficacy scores for self-regulated learning (Klassen, 2010).

b) Individual experiences

Individual experiences are a second factor, which can affect self-efficacy. Successful experiences develop a sense of positive self-efficacy for a person, while failure can lead an individual to expect negative self-efficacy which then they become frustrated with their failure. Moreover, a person who observes a success, achieved through effort and perseverance in others, is likely to be inspired to gain the skills that are required to achieve their own goals. That highlights the importance of social modelling in developing self-efficacy (Bandura, 1994; Bandura, 1997).

c) Peers

Peers also affect an individual's self-efficacy, because when a child observes their friend's success, their self-efficacy is ignited and this encourages them to achieve success in tasks. School activities that allow children to feel both autonomous and relatedness allow children to gain high self-efficacy (Schunk and Pajares, 2001). Klassen and Krawchuk (2009) state that collective efficacy predicates performance, based on a study controlling self-efficacy for students working on three co-operative tasks. Students in groups with higher collective efficacy and group cohesion had higher scores than groups with low cohesion and efficacy.

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d) Parents

Bandura (1997) asserted that parents' treatment to their children, in terms of encouraging their children to communicate effectively within their environment, would highly affect children's self-efficacy in a positive way. Parents who provide richer and more stimulating experiences for their children help to build high self-efficacy in their children. Parents who encourage their children to meet and solve various problems tend to help their children believe in their abilities, in order to overcome obstacles. Social persuasion allows students to think that they have the ability to work hard to achieve success; which builds self-efficacy. Eaton (2007) established in his study that the higher the level of maternal depression, the lower the level of self-efficacy a mother presents. Moreover, mothers who received less social support experienced lower levels of self-efficacy.

e) Teachers

Teachers' verbal encouragement, that is reinforcing their students to make more effort and to do their best to improve their school work, is also thought to enhance students' self-efficacy (Bandura, 1999). Furthermore, positive learning situations using technology and appropriate teaching skills can promote students' self-efficacy. Teachers can improve self-efficacy for underachieving students by teaching learning skills in order to create a correlation between textual information and students' interest. Teachers could let students make their own choices, in aspects such as grading, and they can also provide positive verbal reinforcement, explaining their failures in relation to their effort instead of their cognitive ability. In addition, teachers should compare

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student performance to their own prior performance, rather than to the performance of others; and, finally giving their students tasks with a middle level of difficulty (Kirk, 2013).

f) Gender and age

In terms of gender, Klassen and Chiu (2010) indicated that female teachers had lower self-efficacy than male teachers in managing classrooms, and experienced greater stress than their male colleagues as a result of challenging student behaviour in the class. In terms of age, it is argued that when individuals become older, they gain more experience and try to solve problems they may encounter, which in turn enhances their self-efficacy. It appears that the higher the educational level of a person, the higher their self-efficacy. Changes are now appearing with self-efficacy among students in primary schools, and the differences become more apparent as they enter middle or high school (Schunk and Pajares, 2001).

2.6.7 Measures of Self-regulation

The researcher reviewed five the Self-regulation Scales in which the standardized age sample matches the age of participants aged 10-12 in the current study. These five scales are, namely, the Self-Control Rating Scale, Child Self-Control Rating Scale, Self-Regulation Skills Scale, Children's Perceived Self-Efficacy Scale and the Self-efficacy for Self-regulated Learning Scale. Each of these measures will now be outlined.

a) *Self-Control Rating Scale (SCRS)*

There are a number of the Self-regulation Scales, which researchers have adopted, especially for research into young students at primary schools. Kendall and Wilcox (1979) developed the Self-Control Rating Scale (SCRS) for cognitive-behavioural self-control. This scale was developed for students from the third to the sixth grade aged 8 to 12 years and 6 months, which matches the age and grade level of participants in the current study. The SCRS contains 33 items, which makes it easier for young students to use. These items measure self-control and impulsivity, although most of the items measure behavioural self-control rather than cognitive self-control, which is the opposite of the current study. Looking closely at these items demonstrates that some items measure self-monitoring, which is one of the seven self-regulation skills the current study planned to investigate and then exclude. In this scale teachers have to answer 33 questions with seven different responses (Kendall and Wilcox, 1979). Also, teachers and parents can respond in seven different ways, from Always to Never (Rohrebeck, Azar and Wagner, 1991). The minimum score in this scale is 33 and the maximum score is 231. This scale has content validity because it correlates with the Peabody Picture Vocabulary Test. It has high reliability because the coefficient of the Cranach alpha is .98 and test-retest reliability is .84 (Kendall and Wilcox, 1979). This scale was translated into Chinese to study self-control in Chinese students, and so may also be translated into Arabic for the current study.

Wang (2002) examined the use of the SCRS for children who attend preschools of both genders between the ages of 2 years to 6 years and 4 months. He asked the permission of the original developers of SCRS to translate it into Chinese, then from Chinese to English, and did not find any significant opposition. Administrators and

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teachers stated that this scale measures self-control, which gives this scale content validity. However, professionals state that it measures impulsiveness more than self-control, which reduces its content validity. The internal reliability of the Cronbach alpha is .956 and test-retest reliability is .949, which means it has high reliability.

b) Child Self-Control Rating Scale (CSCS

Another scale, which focuses on self-regulation, is the Child Self-Control Rating Scale (CSCS), which was developed by Kendall and Wilcox (1979). The items on this scale are rewritten to be easier for children to understand. There are 33 items in this scale with four different responses, the minimum score is 1 and the maximum is 4, meaning the lowest possible score is 33 and the highest is 132. Kendall and Wilcox sampled children from the third to fifth grades aged 8 to 11, which is similar to the current study sample. The children were of both genders and from various ethnic backgrounds, in contrast to the current study, which will take into account only Arabian female students. This scale measures behavioural self-control more than cognitive self-control, which is different from the current study, which aims to focus on the latter. The internal consistency is .90 alpha Cronbach, and test-retest reliability is .84. There is a significant relationship between the CSCS and both the Self-Control Rating Scale and the Nowicki-Strickland Internal-External Locus of Control for children, with low self-control leading to a high external locus of control. This means that this scale has high validity and reliability, which may encourage researchers to use it as a scale to measure self-control (Rohrebeck et al., 1991).

c) Self-Regulation Skills Scale (SRSS)

The Self-Regulation Skills Scale (SRSS) items are based on the scale developed by Kendall and Wilcox (1979), and so will measure behavioural self-regulation more than cognitive self-regulation. The test-retest reliability for just 30 students is .84 alpha Cronbach, and it has a high content validity. This scale contains 30 items, which is easy for young children with learning difficulties to use. These items measure the following dimensions of self-regulation; self-monitoring, self-evaluation, self-reinforcement, stimulus control and impulsivity. 90% of specialists in Education and Psychology state that this scale is useful and can measure self-regulation for students with learning difficulties.

A study conducted in Jordan which had been used SRSS. The study involved children with learning difficulties in the sixth aged 12 years old, which is similar to the current study which will investigate children with learning difficulties between the fourth and sixth grades in Saudi. There are thus similarities between this study and the current one as regards the type of difficulties that students have, their gradelevel, and their ethnic background (Al-Qemish et al., 2008).

d) Children's Perceived Self-efficacy Scale

Bandura, Barabaranelli, Caprara and Pastorelli (1996) conducted a study to examine the influence of self-efficacy on educational performance. The participants in this study were 279 children ranging in age from 11 to 14 years. The researchers used the Children's Perceived Self-efficacy Scale, which provides insight into three key dimensions of self-efficacy: academic self-efficacy, social self-efficacy and self-regulatory efficacy. The reliability of these subscales is .87, .75 and .80 respectively. In

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another study, the researchers investigated the reliability of the factor structure of Children's Perceived Self-efficacy Scales in Italy, Hungary and Poland. The participants in this study were 1180 children between the ages of 10 and 15 years. The Children's Perceived Self-efficacy Scale contains 37 items to measure academic self-efficacy, social self-efficacy and self-regulatory efficacy, which is more comprehensive than the current study, which focuses on self-regulatory efficacy. The reliability coefficients were high, between .72 and .87 for academic self-efficacy, social self-efficacy and self-regulatory efficacy for all three countries except Hungary, which showed a lower value of .57 for self-regulatory efficacy. The researchers used congruence coefficients to obtain the factorial structure of the scale. Academic and social self-efficacy demonstrates high convergence among all three countries but low convergence for self-regulatory efficacy between Hungary and Poland. Italy and Poland show high convergence for self-regulatory efficacy (Pastorelli et., 2001).

e) The Self-efficacy for Self-regulated Learning Scale

Usher and Pajares (2008) employed the Self-efficacy for Self-regulated Learning Scale, using statements taken from Bandura's Multidimensional Perceived Self-efficacy Scale. The participants in this study were 3,670 students ranging in age from 8 to18 years, studying in primary, middle and high schools (between the third and twelfth grade). The scale contains 7 items and students are required to respond by rating their answers from 1- Not very well at all to 6-Very well. It has high reliability that allows researchers to use it to measure self-efficacy for self-regulation learning (for further information about this scale see chapter 3- Methodology).

2.6.8 The Differences between students with and without learning difficulties in self-regulation

The researcher reviewed the literature related to the differences in self-regulation between students, with and without LD. The researcher found ten articles conducted regarding the differences in self-regulation between students with and without LD. The ten articles were written between 1985 and 2015 and detailed below.

Slife, Weiss and Bell (1985) conducted a study on 24 students with LD and 24 students without LD, from 1st to 6th grades aged 6-12 years in primary school, using the Comprehensive Tests of Basic Skills and Battery, which measure reading, language and mathematics. The results showed that students without LD are more likely to predict problems and then solve them than those with LD. Students with LD are likely to be less skilled in two areas of meta-cognition forms than those without LD, namely what they know about skills to solve problems in mathematics and their monitoring ability during the problem-solving process.

A study was undertaken by Grolnick and Richard (1990) on 148 students without LD and 37 students with LD who attended primary school from grades3 to 6 aged 8 to 12 years. The researchers used different measures for the purpose of data collection. These measures were Perceived Competence Scale, Multi-dimensional Measure of Children's Perception of Control, Teacher rating Scale and Teacher-classroom Adjustment-rating Scale. The results showed that students with LD obtained lower scores in academic self-regulation and perceived cognitive competence than students without LD. There was little difference between these groups in general self-

perception of competence and control. Teachers' ratings were lower among students with LD than those without LD.

Pintrich, Anderman and Klobucar (1994) implemented their study among 19 students with LD and 20 students without LD who attended 5th grade. For data collection, a variety of measures was used: Motivated Skills for Learning Questionnaire (MSLQ), Intrinsic Orientation Self-efficacy for reading Scale, the Anxiety scale, the Internality Reading scale, the Controllability Reading scale, the Index of Reading Awareness and Two Comprehension measures for Reading. These results showed that students with LD had lower scores in reading comprehension tasks and reading cloze than students without LD. Students with LD also displayed weaker awareness of metacognitive skills on the Index of Reading Awareness. No differences were found between the two groups in intrinsic orientation, self-efficacy or anxiety. Students with LD were more likely to explain their success in reading to luck, getting help or easy tasks than those without LD. Students with LD explained external causes for successes and failure.

The researcher did not find great number of articles regarding the difference between young students with and without LD in self-regulation. Therefore, she decided to include some articles conducted for students in higher education. The results of the articles show that the differences between students with and without LD in self-regulation are maintained even at an older age. Ruban, McCoach, McGuire and Reis (2003) carried out a study with 53 students with LD and 421 students without LD at university undergraduate level. Learning skills and study skills survey were used to

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gather the data. The results showed that students with LD are significantly different to those without LD, in favour of students without LD. There were differences between these two groups of students in the relation to students' motivation and use of self-regulation and compensation skills, which reflected a difference between students with and without LD in educational performances, in favour of students without LD.

A study was conducted by Trainin and Swanson (2005) with 20 students with LD and 20 students without LD at university undergraduate level. For data collection purposes, the researchers used the following measures: Woodcock Reading Mastery Test, Test of Word Reading Efficacy, Cognitive Processing Test, Rapid automatic naming, Wechsler Adult Intelligence Scale-Revised, Peabody Picture Vocabulary Test-Revised, the Raven's Advanced Progressive and Matrices Test and Motivated Skills for Learning Questionnaire. These results indicated students with LD displayed slower performance in reading tasks, semantic processing, speed tasks and cognitive function. However, there was no difference between the two groups in motivation, meta-cognitive and reading skills. Students who highly use meta-cognitive skills are more likely to have higher GPA. Using help assistants among students with LD is highly related with their performance, but that does not hold true for students without LD.

Further studies were undertaken by Kirby, Silvestri, Allingham, Parrila and La Fave (2008) with 36 students with dyslexia and 66 without dyslexia at the university level. The researchers used different measures for data collection; namely, Nelson-Denny Reading Test, the Adult Reading History Questionnaire-Revised, Woodcock Reading Mastery Test-Revised, Learning and Study Skill Inventory and Study Process

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Questionnaire. The results showed that students with dyslexia had significantly lower scores than those without dyslexia in reading rate and comprehension. Students without dyslexia had significantly higher scores in learning and study skills, selecting a main idea and test taking in contrast students with dyslexia have low scores in learning and study skills which tend to form their difficulties in reading.

Another study was carried out by Baird, Scott, Dearing and Hamill (2009). The researcher selected a sample of 107 students with LD and 1411 students without LD between ages of 10 and 19. Four measures were used to gather the data as follows: Academic self-efficacy questionnaire, learning vs. Performance Goal Preference Scale and Effort Attribution Scale. These results indicated that students with LD have a higher possibility to have low academic self-efficacy; low chances in liking achievement over learning aims, low in explaining the importance of effort in work, and refer it to their low ability. There is a notable difference between students with and without LD when preferring goals, learning and effort because students without LD have a better understanding of intelligence and higher academic self-efficacy (Baird, Scott, Dearing and Hamill, 2009).

Klassen (2010) conducted a study with 73 students with LD with a median age of 13 years and 8 months, and 73 students without LD with mean age of 13 years and 9 months in grades8 and 9. Different measures were used to collect data as follow: Woodcock-Johnson III Test for achievement, Efficacy for Self-Regulated Learning and Producers outline of Bandura, used to measure reading self-efficacy. Teachers provided the students' scores at the end of the term. The results showed that students without LD

had a significantly higher median than students with LD from 0.63 in reading self-efficacy to 0.99 in reading. Students with LD had low self-regulatory efficacy and reading self-efficacy than those without LD. Students with LD who receive low scores in self-regulatory efficacy significantly achieved lower scores at the end of term than those with LD, who gained high scores in self-regulatory.

Bergey, Deacon and Parrila (2015) undertook a study with first year students at university undergraduate level. There were 244 students with a history of reading difficulties (RD) and 603 students without a history of reading difficulties. To collect data these researchers used the Adult Reading History Questionnaire–Revised, Learning and Study Skills Inventory, Analytical scale of the Meta-cognitive Reading Skills Questionnaire and academic achievement measured by GPA, credit hours attempted and credit hours completed. The results showed that students with a history of RD gained lower GPA in their first year than those without RD. Students with RD also had lower scores in motivation, meta-cognitive skills, information processing, attitude, testing skills and study skills.

In another study, Ashour, Veysi, Azadikhah, Sheykhlar and Shayan (2015) used the Educational the Self-regulation Scales and Cognitive Failure Scales, to collect data from 30 students with dysgraphia and 30 students without dysgraphia. These students were between the ages of 9 and 12 years old. The results indicated that there were significant differences between students with and without dysgraphia in educational self-regulation (p<0.001), in favour of students without dysgraphia. Students with

dysgraphia had higher levels of cognitive failure and lower levels of educational self-regulation than student with dysgraphia.

Amongst the ten research articles, which examine self-regulation, six articles mention the differences between students with and without LD. Kirby, Silvestri, Allingham, Parrila and La Fave (2008) and Bergey, Deacon and Parrila (2015) studied students with and without dyslexia or history of reading difficulties. Ashour,Veysi, Azadikhah, Sheykhlar and Shayan, (2015) looked specifically at dysgraphia. The studies that included participants in primary schools between the ages of 10 to 12 as the current study were Slife, Weiss and Bell (1985), Grolinick and Richard (1990), Pintrich, Anderman, and Klobucar (1994), Baird, Scott, Dearing and Hamill (2009) and Ashour, Veysi, Azadikhah, Sheykhlar and Shayan (2015). Klassen (2010) study focused on high school students. The rest of the studies involved students at university undergraduate level. All studies found that there were differences between students with and without LD in self-regulation, except Trainin and Swanson (2005), which did not find the same results as other studies.

2.6.9 Self-regulation for students with learning difficulty.

Students with learning difficulties often encounter problems in choosing and applying self-regulation skills, resulting in poor performance at school. They also frequently experience self-regulation problems compared to students without learning difficulties. This is because they may have lower attention levels and tend to use passive methods, which cause a lack in their self-regulation learning through cognitive processes. Therefore, students with learning difficulties need to learn self-regulation skills to

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enable them to progress at school (Wong, 1998). Monyalvo and Torres (2004) indicate that students with learning difficulties and other underachieving students should be in an environment that can promote self-regulation skills (such as, planning and setting personal goals). Sideridis (2006) states that students with learning difficulties often have difficulty participating in school tasks because of their lower level of motivation and higher levels, of anxiety and depression when compared to their classmates. Teaching these students self-regulation skills can help to develop their abilities to understand and implement self-regulation skills, which will then allow students with learning difficulties to be more successful at school (Butler, 2002). For example, Mason, Harris and Graham (2011) have shown that students with writing difficulties have problems regulating their writing or using effective skills for improving their writing performance. By teaching these students self-regulation skills, an educator can have a significant influence at both primary and secondary school level, as self-regulation is an important element in ensuring success at school.

Lamport et al. (2012) state that teachers play a very important role in supporting students' psychological needs. Teachers need appropriate programmes and sources such as training, planning and checking performance, which allow their students to be successful at school. Teaching students who find mathematics challenging about self-regulation skills, can increase their mathematics scores (Montague (2007). Bandura (1993) asserts that teachers who understand the meaning of regulation to increase learning can have a positive influence on their students' academic performance. Also, students who can regulate themselves can improve their level of motivation, aspirations and educational performance. Students indicated that there is strong relationship

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between self-regulation and a positive mood, which encompasses hope, self-esteem and psychological well-being (Human-Vogel, 2006). Students can regulate their learning by monitoring their academic response, and as a result, this would increase their self-efficacy, motivation and academic performance positively (Zimmerman, 1990).

2.7 Existing Self-regulation programmes

The researcher reviewed eleven studies looking at self-regulation skills were conducted between 1980 and 2012. These studies are organized in chronological order, starting with the programmes for the youngest children and ending with those at University level. The researcher includes some studies regarding self-regulation programmes with adult participants since she discovered few studies, which focus on students at a young age. Therefore, she importantly reviewed these studies to benefit the self-regulation skills used in these studies, measures and their results.

2.7.1 Self-regulation programme in Primary school

According to the available literature, the most successful self-regulation programmes under review here in decrease misbehaviours are: Barkley, Copeland and Sivage (1980), looked at the effective of using self-control in a classroom. The study focused on six boys who were hyperactive between ages of 7 to 10. These students were observed through a one-way mirror and researchers documented the number of misbehaviours per minute during individual and large group activities. These data enabled the researchers to draw a baseline and compare students' behaviour before and after the intervention programme was implemented. The self-control intervention

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programme was effective in improving attention to task and misbehaviour during individual work but not during group instruction. In this study the majority of boys (n=5, 83.33%) increased the time they spent on activities which led the researchers to implement self-monitoring and Self-reinforcement procedures during individual work, because it decreases participant misbehaviour. That is because self-monitoring and Self-reinforcement mechanisms of self-regulation allow these students to observe themselves during work activities and to record their misbehaviour, and then to reward themselves when they act appropriately during their activities. The self-instruction skill was not effective because it did not reduce inappropriate behaviour during large group work. Finally, students did not generalize the tools that the programme provided during regular classroom activity. On the other hand, this study was limited to just six boys with hyperactivity disorder in elementary school. The implication of this study for the current study is the importance of self-reinforcement of self-regulation skills in improving student behaviour in class, which could be valuable in terms of increasing student attention and improving educational achievement.

Ronen (1994) also carried out a rigorous study, which involved 312 students between ages of 8-12. The aim of this study was to develop a programme for increasing self-control, by teaching various skills and investigating its effectiveness for the target students. Students were asked to identify their behavioural problems and then taught how to change them. For example, students gain basic information in how to improve their behaviour through being allowed to choose a problem, identify a goal for change, select a skill, use it and then evaluate the influence of this skill in changing their inappropriate behaviour. It was also effective in increasing self-control ratings for

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students in second gradebut not those in sixth grade. The programme was effective in changing students' inappropriate behaviour, such as hitting, talking without permission, impudence and moving inside classroom. Despite its strengths, this study focuses only on typically developing students in the second and sixth grades, and the programme was not effective for children in the sixth grade. The benefit of this study for the current study is that it illustrates how students can acquire and implement self-control even at a young age.

Kang (2010) offers an intervention programme, which designed, implemented and evaluated the effectiveness of a self-regulation programme for students in primary school. There were four fourth grade whole classes aged 9-10 years, which divide equally into experimental and control groups. Two measures were used namely, Self-regulation Leaning and Study Skills for children, which were designed by the researcher. Teachers' views on the programme were collected by interview. The programme significantly improved the children's learning motivation, self-regulation learning and decreased anxiety for the intervention group. Girls increased their motivation more than boys. However, the intervention group encountered difficulties in acquiring goal-setting and self-monitoring skills. This study did not differentiate students based on their abilities, but rather took all students from the four fourth gradesclasses as participants in the study.

Johnson, Graham and Harris (1997) developed an intervention programme to investigate the importance of instruction, goal setting and self-instruction skills in improving reading comprehension for students with learning difficulties. There were 47

students with learning difficulties, between the fourth and sixth grade aged 9-12 years, who were divided equally into experimental and control groups.

The researchers used five stories extracted from the stories used in Bednarczy's (1991) study; these stories were at upper second grade level. The participants received three probes retelling format, which a probe administered before the skills start (pre-test), a probe after finishing the skills (post-test) and maintain probe administered after the instruction completed within four weeks. Students were asked to read each story and recalled as much information as they could remember on a tape recorder. With respect to generalization of stories, students were asked to answer 25 multiple-choice questions to evaluate comprehension by using a probe before and another one after they had taught the skills. Results showed that instruction in the reading skills was effective on students' story comprehension skills. Moreover, skill instruction was found to play an effective role in increasing the comprehension skills of students with learning difficulties. However, goal setting and self-instruction did not augment the comprehension performance of students with learning difficulties. The limitation of this study is that students could not maintain the use of the skills during their regular classroom lessons. This study indicates the importance of teaching self-regulation skills to students with learning difficulties to improve their reading comprehension skills.

Turki (2004) conducted a study looking at the effectiveness of cognitive/ behavioural education programme, in developing self-regulation skills in students with learning difficulties and in changing classroom behaviour. The sample involved 40 students with learning difficulties who were divided randomly into two equal groups of

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20 students for the experimental and control groups (sixth grade, aged 12). The scales used in this study were developed by the researcher, namely the Self-regulation Scale and the Estimate of Classroom Behaviour Checklist. The experimental group took part in the programme while the control group did not receive any additional support. The programme focused on developing four self-regulation skills: self-mentoring, self-evaluation, Self-reinforcement and stimulus controlling. The programme consisted of 18 training sessions twice a week and the duration of each Session between 45-50 ($p<0.05$) between the experimental group that received the intervention and the control group in both self-regulation skills and classroom behaviours, with the results in favour of the experimental group. Moreover, there was a negative correlation with significant statistic ($p<0.05$) showing between obtaining of self-regulation skills and classroom behaviour problems with value of -.60. The developed programme was successful in developing self-regulation skills and decreasing negative classroom behaviour. However, the programme is limited to use with students with learning difficulties in sixth grade. Nevertheless, this study demonstrates the potential of an intervention programme to develop self-regulation skills, such as self-reinforcement and self-evaluation for students with learning difficulties in primary school.

A study undertaken by Al-Qemish, Al-Adaelah and Al-Turki (2008) who focuses on developing students' self-regulation skills, they developed by researcher an effective programme implemented that improved self-regulation skills for students with learning difficulties, by running a programme that developed by researcher four self-regulation skills, namely, self-monitoring, self-evaluation, self-reinforcement and stimulus control. There were 40 students in six grades (aged 12) who were divided

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equally into experimental and control groups. The researchers used the Self-control Rating Scale (Kendall and Wilcox, 1979). The programme was effective for the experimental group in improving self-regulation skills for most students in upper primary school and it maintained improvements a month after the programme had ended in favour of experimental group. However, success was limited to students with learning difficulties in the sixth grade. From this study, it is clear that self-regulation skills can be developed through an intervention programme, even for young students.

2.7.2 Self-regulation programme in middle school

Montague (1992) also carried out an excellent study, which combined cognitive and meta-cognitive skills of instruction and investigated its effectiveness on math Problem-solving in one, two and three step word problems. There are six students with learning difficulties in middle school. These students completed the Mathematical problem-solving Assessment of Cognitive and Meta-cognitive Interview for mathematical Problem-solving (Montague and Applegante, 1991). In addition, they were asked to answer 35 test items on three different tests, each test includes 3 problems in (one-step solution), 4 problem in (two-step solution) and 3 problems in (three-step solution). These mathematical problems were taken from their mathematics textbook. Students with learning difficulties improved their math problem-solving in one, two and three-step solution for a problem. However, the weaknesses of this study are that it includes just six students with learning difficulties in middle school. The implication of this study for the current study is the importance of meta-cognitive skills in enhancing the

learning outcomes of students with learning difficulties at school, especially in math problem-solving.

A study by Jitendar, Hoppes and Xin (2000) also implemented an effective programme for 33 students in middle school with learning problems. The researchers implement self-monitoring skills for students in the experimental group to investigate its effectiveness in enhancing reading comprehension. They prepared 10 training passages for the intervention programme. Three equivalent test forms (pre-test, post-test and delayed post-test) were used to evaluate the effectiveness of the programme. Each test contains 36 comprehension items; 12 focuses on the main idea, 12 focuses on narrative passages and 12 focuses on expository passages. The results indicated that the skills used increased reading comprehension for students in the experimental group. The experimental group obtained better results statistically than the control group on post-test and delayed post-test assessment. However, this study was limited to students with learning problem in middle school, and the programme focused on self-regulation (self-monitoring). This study demonstrates that self-regulation skills assist students with learning difficulties to acquire better performance in reading comprehension at school.

2.7.3 Self-regulation programme at University

Zydan (2009) implement a self-regulation programme and investigate its effectiveness on developing planning, self-monitoring and self-evaluation skills. There were 38 students with poor self-regulation skills in their fourth years of chemistry studies. These students divided equally into experimental and control groups. The participants asked to complete Meta-cognitive Skills Scale by (Saeed, 2006). The results showed a

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significant statistical improvement in self-regulation skills in favour of experimental group. However, this study had limited results, focusing on typically developing students in their fourth year of undergraduate Chemistry studies. Students in this study did not develop a planning skill after implementation of the programme, but they did develop self-monitoring and self-evaluation skills. Therefore, University professors can introduce the self-monitoring and self-evaluation programme used in this study to benefit students in fourth year Chemistry. This study showed that self-regulation skills can be improved for students with poor self-regulation skills.

Zydan and AbdualRaseg (2009) studied the effects of a proposed intervention programme in developing motivation and academic achievement in gifted University students with learning difficulties (low achiever). The researchers implemented the programme and they examined the effectiveness of the programme, which depends on self-regulation skills that allow students with learning difficulties to achieve motivation and greater academic outcomes. The study sample looked at 120 students with learning difficulties divided randomly into two equal groups; an experimental group and control group with students between the ages of 18-22 years old who were in fourth years of educational studies. The experimental group took part in a special programme while the control group did not. The researchers used the following two measures namely, Students Educational Studies Achievement Motivation Test and Self-regulation Test, which were developed by researchers. The programme focused on developing three self-regulation skills: self-mentoring, self-evaluation and self-reinforcement. The programme was taught over seven training sessions that were held once a week for 90-120 minutes.

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In Zydan and AbdualRaseg (2009) the results of their study show that there is a significant difference between the experimental group and control group in the achievement of motivation and educational outcomes in favour of the experimental group. The programme was effective because it increased students' self-regulation skills at post-test for the experimental group. Implementation of the programme in the study showed that it would improve university students' academic scores and motivational performance. However, this programme was developed for gifted students at University, who also had learning difficulties. This study demonstrates the importance of teaching self-regulation skills, especially Self-evaluation and self-reinforcement, to enhance student performance and motivation.

Ali (2012) developed an intervention programme focusing on self-monitoring, goal setting, self-reinforcement and planning skills and their impact on self-esteem and academic outcomes for students' second year University undergraduate. There were 40 students who divided equally into experimental and control group who were studying in the Psychology Department. The researcher used Self-regulated learning Scale (Pintrich) and Self-esteem Scale (Al-Dreen et al., 2006) as the outcome measures. The results of this study show a significant difference between the pre-test and the post-test scores in self-esteem and educational outcomes of the experimental group in favour of post-test. Moreover, there is a difference in scores of the experimental and control group in self-esteem and educational outcomes in favour of experimental group. The limitation of this study is that it was only undertaken with typically developing second year undergraduate in Psychology Department and it does not elucidate how they measured educational outcomes. However, the intervention programme is very effective

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in improving self-esteem and educational outcome as long as it is implemented as it was designed. This study shows the importance of mastering self-regulation skills for psychological and academic aspects for students.

2.7.4 Implications of studies reviewed for current study

Overall, the implications of the previous studies for the current study are the importance of teaching students through intervention programme self-regulating skills. Students can learn these skills from primary school through to University level. The participants with learning difficulties in studies reviewed attending primary school were 40 students or fewer. The students were able to acquire self-regulation skills and increase their psychological aspects and academic performance. In terms of measuring the self-regulation skills and psychological aspects, some studies used an existing scale and others used scales developed specifically by the researchers in question.

3.7.5 Address the need for the current study

The literature review in this chapter suggests that students with and without learning difficulties can increase their self-regulation skills through interventions (Monyalvo and Torres, 2004). An extensive number of studies have conducted interventions in order to promote self-regulation skills for students without learning difficulties, and a smaller number for students with special needs; particularly those with learning difficulties. The majority of these research studies focused on the impact of the students' self-regulation intervention for academic progress or achievement (Montague, 1992; Johnson et al., 1997; Jitendra et al.., 2000; Zydan and AbdualRaseg, 2009; Kang, 2010; Ali, 2012). Barkley et al. (1998) and Turki (2004) looked at developing self-regulation skills and

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their positive impact on classroom behaviour. A few of these research studies focused on the impact of their programmes in terms of psychological aspects such as self-esteem (Ali, 2012) and looked at developing self-regulation skills and its positive impact on self-esteem. No study has looked at the impact of developing self-regulation skills in terms of academic self-concept. A review of the literature proposed that 89% of studies in this filed state that students with learning difficulties have a more negative academic self-concept than those without such difficulties (Zeleke, 2004)

In terms of previous studies regarding the effectiveness of a self-regulation programme for students with learning difficulties and its impact on academic self-concept, a few studies in the Arabic region investigated the effect of self-regulation intervention for students with learning difficulties (Turki, 2004; Al-qemish et al., 2008;Zydan, 2009; Zydan and AbdualRaseg, 2009). However, there has been no study conducted in Saudi; except the Al-Sobaae (2007) study, which examined the relationship between parenting methods, self-regulation and behaviour disorders in high school students in Riyadh. All of the experimental studies conducted in Arabic and foreign regions have included both genders in their studies; no one of them focuses on just one gender (Barkley, 1980; Montague, 1992; Johnson et al., 1997; Jitendra et al.., 2000; Turki, 2004; Al-qemish et al., 2008; Zydan and AbdualRaseg 2009; Kang, 2010).

The intervention programmes developed in the studies aimed to improve students, self-regulation skills and educational performance or decreasing inappropriate behaviours (Bartley et al.., 1980; Montague, 1992; Jitendra et al., 2000; Turki, 2004; Al—qemish et al., 2008; Zydan, 2009; Zydan and AbdualRaseg, 2009; Kang, 2010; Ali, 2012). Barkley et al., (1980), Ronen (1992), Turki (2004), Al-qemsih et al.. (2008) and

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Zydan and AbdualRaseg (2009) worked to develop self-monitoring, Self-evaluation and self-reinforcement. Zydan (2009), on the other hand, was interested in improving Planning, while Johnson et al.. (1997) and Kang (2010) looked at goal-setting. Barkley et al. (1980), Montague (1992) and Johnson et al., (1997) focused on enhancing self-instruction; while other researchers looked at specific types of self-regulation skills, or did not mention them at all. Turki (2004) included stimulus controlling, while Kang (2010) included self-reflection.

There have already been a number of studies conducted, which have focused on developing programmes to improve self-regulation skills in students without learning difficulties. However, there has been a clear lack of studies focused on programmes to enhance the self-regulation skills of pupils with special needs, especially those with learning difficulties. In summary, in undertaking a review of the literature, there is no study that has used more than four skills to develop self-regulation skills. The researcher has been unable, after extensive search, to identify literature in Arabic about developing programmes in self-regulation skills and determining its impact on academic self-concept. It is evident that there is a need to address the theoretical and practical aspects of programmes to improve self-regulation skills for students with learning difficulties.

To address the gap in the literature the researcher in this study has developed a programme to improve self-regulation skills and to measure its impact on the academic self-concept for students with learning difficulties in Saudi. The participants in the programme are focused on female students in primary schools. Moreover, the

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programme includes more than four skills of self-regulation. The five skills to be examined in the current study are namely, Self-reinforcement, Self-evaluation, Decision-making, Problem-solving and Planning. There has been no study that mentions decision-making, and there is no study that has investigated more than four self-regulation mechanisms. In this thesis, the researcher will investigate the effectiveness of a specific intervention programme in improving self-regulation skills, as well as its impact to the academic self-concept in students with learning difficulties. This study will consider self-regulation skills programme development in Arabic countries, especially Saudi. Evidence from previous research prompts the present study on the development of a programme in improving self-regulation skills and the possible impact on self-concept for students with learning difficulties in Saudi. Based on the findings of the available research and the aims of the current research, the main research questions and their related hypotheses for the current study are detailed below.

Research Question 1:

Is the reliability and validity of the three existing scales and three developed by researcher scales acceptable for use in Saudi?

> *1a) Does the Self-regulation Scale (developed by researcher) have acceptable reliability and validity in Saudi?*
>
> *1b) Does the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) have acceptable reliability and validity in Saudi?*
>
> *1c) Does the Situation Judgment Test (developed by researcher) Scale have acceptable reliability and validity in Saudi?*

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1d) Does the Locus of Control Scale (Nowicki and Strickland, 1973) have acceptable reliability and validity in Saudi?

1e) Does the Academic Self-concept Scale (developed by researcher) have acceptable reliability and validity in Saudi?

1f) Does the Myself-As-A-Learner Scale (Burden, 2008) have acceptable reliability and validity in Saudi?

Research Question 2:

Is there a difference between students with and without learning difficulties (LD) in self-regulation, the academic self-concept and locus of control?

2a) Is there a significant statistical difference between students with and without learning difficulties on the Self-regulation Scale (developed by researcher)?

2b) Is there a significant statistical difference between students with and without learning difficulties on the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

2c) Is there a significant statistical difference between students with and without learning difficulties on the Locus of Control Scale (Nowicki-Strickland, 1973)?

2d) Is there a significant statistical difference between students with and without learning difficulties on the Academic Self-concept Scale (developed by researcher)?

2e) Is there a significant statistical difference between students with and without learning difficulties on the Myself-As-A-Learner Scale (Burden, 1998)?

Research Question 3.

Is the proposed intervention programme effective in developing self-regulation skills for students with learning difficulties?

3a) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in the experimental group for (Self-regulation Scale developed by researcher)?

3b) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in experimental group on Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

3c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test for the Self-regulation Scale (developed by researcher)?

3d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test

assessment of students in the control group in favour of post-test for the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

Research Question 4.

Does the intervention programme have a positive impact on the academic self-concept of students with learning difficulties?

4a) Is there a significant statistical difference in the academic self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group for the Academic Self-concept Scale (developed by researcher)?

4b) Is there a significant statistical difference in the academic self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group on the Myself-as-A-Learner Scale (Burden, 1998)?

4c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test on the Academic Self-concept Scale (developed by researcher)?

4d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test

assessment of students in the control group in favour of post-test on Myself-as-

A-Learner Scale (Burden, 1998)?

The following chapter is chapter number three, which will focus on the methodology method used in this study in favour of addressing these research questions and their related hypotheses.

Chapter Three

Methodology

Chapter 3: Methodology

3.1 Chapter overview

This chapter will be presented according to the following sections: research questions, research design, stages of the current study, selection of schools, selection of participants, profile of participants, procedure of current study and ethical consideration.

3.2 Research questions

The purpose of this study is to develop implement and evaluate an intervention programme and investigate its effectiveness for students with LD and to see if there is a correlation between self-regulation and academic self-concept. The main research questions and their related hypotheses are detailed below.

Research Question 1:

Is the reliability and validity of the three existing scales and three developed by researcher scales acceptable for use in Saudi?

> *1a) Does the Self-regulation Scale (developed by researcher) have acceptable reliability and validity in Saudi?*

> *1b) Does the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) have acceptable reliability and validity in Saudi?*

1c)Does the Situation Judgment Test (developed by researcher) Scale have acceptable reliability and validity in Saudi?

1d) Does the Locus of Control Scale (Nowicki and Strickland, 1973) have acceptable reliability and validity in Saudi?

1e) Does the Academic Self-concept Scale (developed by researcher) have acceptable reliability and validity in Saudi?

1f) Does the Myself-As-A-Learner Scale (Burden, 2008) have acceptable reliability and validity in Saudi?

Research Question 2:

 Is there a difference between students with and without learning difficulties (LD) in self-regulation, the academic self-concept and locus of control?

2a) Is there a significant statistical difference between students with and without learning difficulties on the Self-regulation Scale (developed by researcher)?

2b) Is there a significant statistical difference between students with and without learning difficulties on the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

2c) Is there a significant statistical difference between students with and without learning difficulties on the Locus of Control Scale (Nowicki-Strickland, 1973)?

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2d) Is there a significant statistical difference between students with and without learning difficulties on the Academic Self-concept Scale (developed by researcher)?

2e) Is there a significant statistical difference between students with and without learning difficulties on the Myself-As-A-Learner Scale (Burden, 1998)?

Research Question 3:

Is the proposed intervention programme effective in developing self-regulation skills for students with learning difficulties?

3a) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in the experimental group for (Self-regulation Scale developed by researcher)?

3b) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in experimental group on Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

3c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test for the Self-regulation Scale (developed by researcher)?

3d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test for the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

Research Question 4:

Does the intervention programme have a positive impact on the academic self-concept of students with learning difficulties?

4a) Is there a significant statistical difference in the academic self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group for the Academic Self-concept Scale (developed by researcher)?

4b) Is there a significant statistical difference in the academic self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group on the Myself-as-A-Learner Scale (Burden, 1998)?

4c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test on the Academic Self-concept Scale (developed by researcher)?

4d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test on Myself-as-A-Learner Scale (Burden, 1998)?

A quantitative method was used in order to address the research questions and the hypotheses developed for this study. To address the first two research questions, six quantitative scales were used, and to address the last two research questions, an intervention programme was developed by researcher based on self-regulation, and four quantitative scales (derived from the previous six scales) were used. The specific design of the current study is detailed below.

3. 3 Research design

Each research study is unique and the selection of appropriate methods for the purpose of data collection is influenced by the population, hypotheses, research questions and variables particular to each study (Creswell, 2008). The following section explains how and why this study adopts a quasi-experimental intervention design.

3.3.1 Quasi-experimental design

The current study is designed to follow a quasi-experimental design as it aims to compare the outcomes for one group (Experimental Group) which receives the intervention, to one or more groups (Control Groups) which may not receive any intervention at all or receive an alternative intervention. Quasi-experimental design is

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considered as a legitimate type of experimental design, which is used most frequently to evaluate various psychological interventions and social programmes in the fields of Psychology and Social Science (Thyer, 2012).

In this study there are two independent groups, the Experimental and the Control Groups. The participants' scores are compared across the two groups on the pre- and post-test Scales, by using the Statistical Package of Social Sciences (SPSS) software. The grouping of the participants in this study did not follow random selection (Keppel, 1991). In social psychology studies, participants may be allocated to groups, dependent on their teacher's evaluation or because of practical or ethical reasons (Shadish, Cook and Campbell, 2002). In this design, groups are formed according to the scores of participants using non-random assignment to groups (Trochim, 2006).

The researcher formed the groups in this study in a non-random method and according to the participants' scores on the Self-regulation Scale (developed by researcher) because this scale's items were developed specifically to measure the five self-regulation skills, similarly to these skills in the proposed intervention programme activities. In this study, students with high scores on the Self-regulation Scale comprised the Experimental group in School A and those with low scores comprised the control group and the opposite occurred to students in School B. Table 3.1 below presents the experimental and control groups' scores on the Self-regulation Scale in both schools.
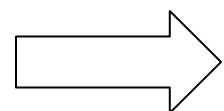
Table 3.1 Groups the Self-regulation Scale scores in School A and B

Scores on the Self-regulation Scale	School	
	A	B
High	Experimental Group	Control Group
Low	Control Group	Experimental Group

Quasi experimental design is a useful method with which to assist the researcher to conduct research in educational settings (Kelly and Perkings, 2012).

3.3.1.1 Quasi-experimental study in Saudi culture

Harris et al. (2006) conducted a systematic review for the Journal of American Medication Information Association over the last four years and they found that among 25 quasi-experimental designs, there were just nine studies that mentioned the limitation of using a quasi-experimental design. This design is ubiquitous in medical literature. In a study in Saudi, the researchers found that 86.7% of the participants in the national paediatric residency programme stated that they had never published scientific manuscripts and 85.6% of them stated their deep need to be educated about the research methodologies (Alhaider, Alshehri and Almedhesh, 2015). Ussems, Boomsma and Snijder state that in their review of 18 journals in education, psychology, criminology and sociology, the quasi-experimental design does not apply usually in the 180 journals with only 4.4% of 2,474 studies using this design. This design is more often likely to be used in educational science rather than in other fields (2009).

In an article that investigated the use of randomized control designs, which is one type of quasi-experimental design, the research found that in developing countries randomized control design is implemented successfully in different settings and programmes. This type of design is used much less frequently than other methodologies and a lot less often than it is used in industrial countries with less than 5% of studies depending on randomized control design conducted in developing countries and all fields. Recently, more studies in developing countries have carried out their researches based on a randomized control design (Newman, Rawlings and Gertler, 1994). In developing countries the chance to implement a quasi-experimental design is much greater than for randomized control design because in many situations the randomization design was not used and pre-test and post-test design is more likely to be used (Bamberger and White, 2007). There are few experimental design studies in the education field because schools consider it a more complex environment than others. The quasi-experimental design in education provides little confidence about the effectiveness of its outcomes (Cook, 2001). Hamdan showed in her study that among university faculties in Saudi there are 70% of these faculties that do not have the appropriate skills in analysing the data by using different statistical software. The study also indicated that there is a stronger relationship between scientific majors and quantitative research than in humanities majors. 82% of them state that there is no research centre in their university and 75% of them said that the university does not provide funds to help them write research papers (2015). In the Saudi education system, there is a lack of research funding which is considered an obstacle to conducting researches using a quasi-experimental design, which is known as the most valuable

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research method in the education field (Alamri, 2011). However, researchers in the education field are required to use this design during the implementation of their intervention programmes to achieve conclusions for their treatment and its effectiveness.

Developing programmes in education settings is found mostly helpful in increasing and modifying students' psychological, behavioural and educational aspects positively (Meece and Eccles, 2010). The quasi-experimental design is not a popular method used in Saudi education researches but many educational researchers implement their intervention programmes by applying this method in their studies. Quasi-experimental design is adequate and appropriate for implementation in Saudi culture if the researchers follow its methodology with close supervision from a specialist. The researcher's educational background, she holds two Master's degrees, one from Saudi Arabia and another from the United States of America, allowed her to gather deep knowledge about the research methodologies during her Master's courses. Furthermore, every step taken in this quasi-experimental design was supervised by Dr. Poppy Nash who develops and implements many intervention research studies.

3.3.2 Intervention research design

The aim of intervention research is to evaluate the extent to which the intervention or the skills used with the participants assist them in improving their outcomes and enhancing specific skills and behaviour. Intervention research design is known as a unique form of research, which helps the researchers to reach the conclusion of how well an intervention programme affects certain participants' outcomes (Fraser,

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Richman, Galinsky and Day, 2009). This study is considered to be a quasi-experimental intervention study, because it provides an intervention for the Experimental group, no additional support for the Control group and allocates students to either the Experimental or Control groups in non-randomised assignment. This type of intervention research design is particularly appropriate for investigating real-life situations (Melnyk and Morrison-Beedy, 2012).

In this study, the researcher developed the intervention programme on self-regulation skills to implement with the Experimental group, but did not provide an alternative intervention for students in the Control group for two reasons. Firstly, due to the time constraints there was no opportunity to devise another intervention programme for the Control group. Secondly, this existing intervention programme is umique in focusing on five different self-regulation skills.

In summary, this study employs on quantitative research methods based on a quasi-experimental intervention design. It uses non-equivalent group design with its structure containing pre-and post-tests with a lack of randomised samples. Students in the Experimental group received the intervention programme, which related to five different self-regulation skills and students in the control group did not receive any additional support. The researcher implemented four scales to select participants and to evaluate the effectiveness of the intervention programme namely, the Self-regulation Scale (developed by researcher), the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), the Academic Self-concept Scale (developed by researcher)

and the Myself-As-A-Learner Scale (Burden, 1998), for students in both the Experimental and Control groups.

3.4 Stages of current study

This study contains seven stages as outlined in the chart below.

Figure3.1 The main stages of the intervention programme study

1.Instruments for Data Collection		
2. Validation Study 1	3. Data Analysis	4. Development of Intervention Programme

5.Pilot Study	6.Amend Intervention Programme	7. Implemented of Intervention Programme Study 2
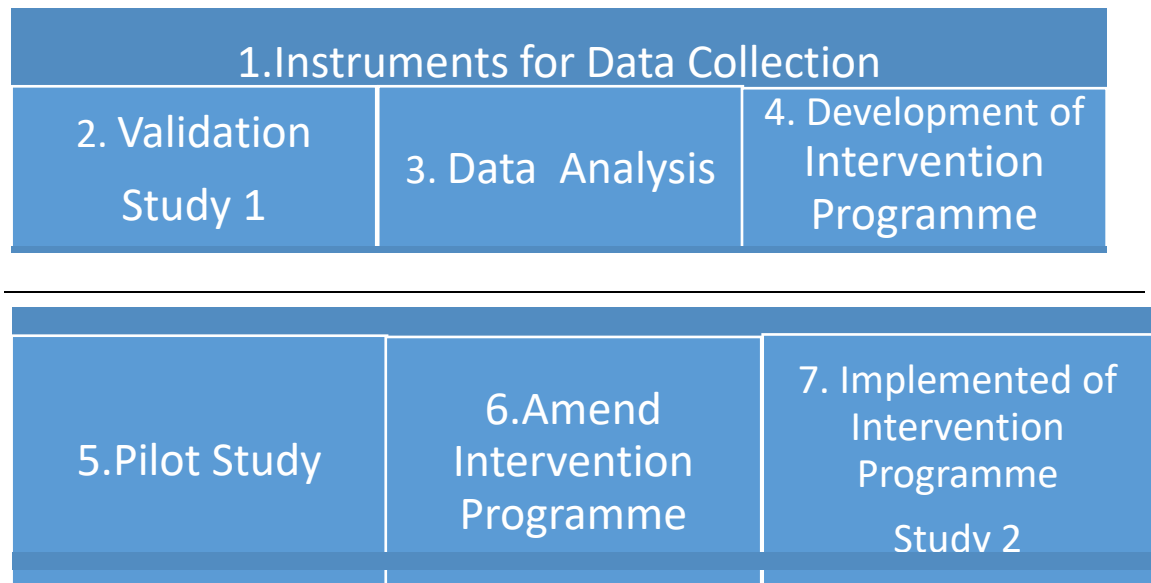
Each of the seven stages featured in Figure 3.1 will be described further in 3.7 section.

3.5 Selection of schools

This study was implemented in Al-Riyadh City, the capital city of Saudi. The researcher selected Al-Riyadh City for two reasons: Firstly, the Ministry of Education and the Department of Learning Difficulties are located there, which saves the researcher's time in receiving approval to visit schools. Secondly, the researcher was raised and works in this City, so she is familiar with schools in this city. The selected schools in this study

were from the south region of Al-Riyadh City. This is because in this part of the city each school has a large number of students enrol, which maximises the chances of recruiting the appropriate number of students for the study.

The researcher obtained contact details from the Department of Learning Difficulties girls' section (Ministry of Education), which provides the names of the primary schools in Al-Riyadh, which accommodate students with LD. Three schools were randomly selected for participation in the main study. This process involved the researcher selecting the first school from each page of the three-page directory of primary schools in Al-Riyadh. Even though three schools were chosen, the plan was to implement the intervention programme in two schools. Three schools were initially chosen to determine which two of them included the most students with LD, for inclusion in the study. Having identified the two schools, the researcher named these School A and School B. The Department of Planning and Development gave the researcher a letter to present the primary schools in Al-Riyadh entitled, 'Facilitate the task of researcher', which contained the researcher's personal details, the study topic, the self-regulation intervention programme and the scales. The researcher then took this letter to public primary School A and B to recruit students with and without LD for participation in the study.

The selected schools did not provide special education services for students in upper grades (4-6) and there was limited access to lower grades (1-3), due to there being only one Resource Room teacher in School A and two resource room teachers in School B. The Resource Room is an academic setting, which provides a learning environment for students with LD during the school day, regularly every week. Students attend the

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Resource Room for a period of time (twice a week for 45 minutes per session) to receive support for their difficulties and then spend the rest of the school day in the general education classroom. The Resource Room is small compared to general education classrooms. It contains a table, chairs, blackboard, chalk, school equipment, a computer and printer (only in School A), school curriculum (Language and Mathematics), reward board, sensory tools (only in School A) and worksheets to practise during the session or as homework. Resource Room teachers provide one-to-one instruction and teaching for each student in their area (s) of difficulty.

These students receive the same information as their peers in general education classrooms with extra support through instruction, practise and homework. Usually, there are two Resource Room teachers in each primary school who provide support to students referred to them by the general education teachers. Each teacher typically provides support to 15 to 20 students, which sometimes results in a lack of Resource Room support to some students, due to the large number of students in need and the limited number of Resource Room teachers. Many students, especially those from lower social classes do not receive any education before they enter primary school. This is due to the fact that pre-primary school education costs money, which many parents are unable to afford for their children. Moreover, a significant number of parents from lower social classes are not educated or may have only completed primary school education. Therefore, their children often encounter difficulties in school, especially in reading and writing, and some of them repeat the first gradeat least twice.

Both School A and B are very large urban schools in Riyadh, Saudi, accommodating around 600 students who are between the ages of 6 and 15 years old.

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Both schools have Resource Room teachers but there are no teaching assistants in these schools, or any other Saudi schools. Students in School A are typically from low to middle class families, but students in School B are typically from lower class families. All 26 students in School A are Saudi students except seven students who are immigrant. All 24 students in School B are immigrant children, except five students who are Saudi. In the current study, all 26 students in School A are Saudi students except seven who are immigrants. All 24 students in School B are immigrant children, except five who are Saudi. The immigrant and Saudi students have similar Arabic cultural traits with the same religion (Islam) and language (Arabic). All the immigrant students were from the Middle East and born and raised in Al-Riyadh city. The majority of them are from Yemen, Jordan and Palestine and a few from Syria and Iraq. The environment of School A is little conducive to learning than School B in term of students' behaviour, school cleaning, lighting and provision of school equipment, such as computers.

3.6 Profile of participants

Having approached the participant in School A on the pilot study and schools A and B on the intervention programme study, the researcher asked each school to provide a list of students in Grades3, 4 and 5 (last year) aged 9-11 years. The mathematics and languages teachers in these years were contacted and asked to identify students with LD. These teachers were asked to complete a 'Recruitment of Participants for Intervention Programme form, which required the teacher to select students who have

one or more difficulties according to the criteria described in section 3.6.1 which were developed by researcher for the purpose of this research study (see Appendix, J and K).

3.6.1 Selection criteria for participants

The researcher selected eight criteria to identify students with learning difficulties, who may experience difficulty in one or more areas. These criteria were chosen based on the literature review and the experience of the researcher in Saudi schools for students with learning difficulties. Students with learning difficulties face various difficulties in an educational setting in terms of mathematics, reading and writing (see Chapter 2, Learning Difficulties, for further details). The first criterion for selection is a score of 3 or 4 obtained from school assessments in mathematics and language (reading and writing in Arabic), taken from the Saudi school system for grading students.

A score of 3 indicates that a student has mastered 60% of a particular skill, and a score of 4 indicates that a student has mastered less than 60% of a particular skill. Teachers often assess students' progress in primary school in each subject at least four times per term. A student who receives a score of four in all her/his assessments in one subject is kept from entering the following grade and he/she must repeat the gradeagain (Al-Sahoom, 2010). The remaining seven criteria were based on the literature review of students with learning difficulties (Lerner and John, 2009; Schunk and Zimmerman, 1997; Gresharm and MacMillan, 1997; Melekoglu and Wilkerson, 2013; Kavale and Forness, 1995).

The following eight criteria were chosen for this study to select the participants with learning difficulties.

a) Score of 3 or 4 in school assessments.

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b) Difficulty following the teacher's instructions in class.

c) Difficulty in remembering information.

d) Difficulty in sitting still during lessons (for example, some students cannot sit in a chair for long).

e) Difficulty focusing on a task or test during the lesson.

f) Difficulty remembering to bring school equipment to school.

g) Low motivation towards learning

h) Hold a negative attitude towards school and subjects.

The researcher combined teachers of mathematics and literacy (my language) responded on the recruitment of participants for intervention programme form in each School and noted the number of students with LD. There were approximately n=24-28 students in each school during the pilot and intervention programme study Furthermore, the researcher contacted the teachers in the Resource Room, a room which provide educational support to students with learning difficulties, and asked about the students who had attended the Resource Room in the past. The teachers in the Resource Room indicated that all children with LD attend the Resource Room after a referral by their teacher due to academic difficulties with mathematics, reading or writing, or due to their misbehaviour, which affect their tests' scores in Arabic (reading and writing) and in mathematics.

Then, the researcher administered six scales during the validation study namely, Self-regulation Scale, Situation Judgment Test, and Academic Self-concept Scale, which are (developed by researcher), Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), Locus of Control Scale (Nowici and Strickland,1973) and

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Myself-As-A-Learner Scale (Burden, 1998). In addition, four scales were administered during the intervention programme study, namely, Self-regulated Scale, Academic Self-concept Scale which are (developed by researcher), Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) and Myself-As-A-Learner Scale (Burden, 1998) for all students with learning difficulties. Attention is now turned to the selection of participants for the current study.

3.6.2 Selection of participants

The researcher decided to work in School A and B because they have larger numbers of students with LD than found in the third school. There were 40 female students with LD, who met the selection criteria as delineated above. In addition, they had referral by their general education teachers to the Resource Room in the past in view of their difficulties. These students have had the opportunity to attend the Resource Room from one to three years during the first to third grade aged 6-9 years, twice a week, for 45 minutes per session. Students who participants on the current study are all different nationalities and between grades4-6 and aged between 10-12.

In order to identify potential participants, students were arranged according to the lowest to the highest scores on the 'Self-regulation Scale', which developed by researcher) because the programme was developed to enhance self-regulation for these students. In School A, the researcher allocated students with the highest scores in Experimental group and students with the lowest scores in the Control group. The students with the lowest scores in Experimental group were placed and those with the highest scores in the Control group in School B. The researcher obtained the approval

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from the students' parents to attend this study through signed informed consent forms seat via each school (see Appendix, H).

There were five students with high scores in School A and three students with low scores in School B, whose parents refused to allow them to participate in this intervention study, which reduced the number of students in both schools to 21 students. The researcher selected ten students with the highest scores in School A to be in the Experimental Group and ten students with the lowest scores in the Control group. Ten students with the lowest scores in School B were allocated in the Experimental group and ten students with the highest scores were placed in the Control group. The range of the Self-regulation Scale scores for both Experimental and Control group as follows:

Table 3.2 The range of scores for students in School A and B in the Self-regulation Scale

| School name | Scores | |
	Experimental Group	Control Group
A	31-38	20-29
B	21-26	26-34

3.7 Seven Stages regarding the current study

Each of the seven stages featured outlined in Figure 3.1 will now be described in further detailed.

3.7.1 Instruments for data collection

A total of six instruments were used in this study to measure Self-regulation Scale, the Academic Self-concept Scale and Locus of Control Scale (see Appendix, C).

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3.7.1.1 Self-regulation: three scales were used to measure self-regulation in this study namely, the Self-regulation Scale (developed by researcher), the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), and the Situation Judgment Test (developed by researcher). The nature of these three scales was described below in turn.

a) The Self-regulation Scale

The researcher studied the available existing scales and reviewed the literature related to self-regulation to create the Self-regulation Scale which focuses on seven self-regulation skills namely, Self-reinforcement, Self-monitoring, Self-evaluation, Problem-solving, Decision-making, Goal attainment and Planning. The researcher used the existing scales and combined the items in the self-regulation literature to create 21 statements on the Self-regulation Scale except item (13) which was taken exactly from Carey et al. (2004, 256). The researcher used these items to devise a new the Self-regulation Scale which focuses on seven self-regulation skills (For the Self-regulation Scale developed by researcher see Appendix, A)

The researcher then composed items related to the seven skills that were developed in this study: Self-reinforcement items (1, 11, and 17), Self-evaluation items (10, 12, 16), items Self-monitoring (5, 9, 19), items Planning (3, 14, 20), Decision-making items (2, 6, 18), Problem-solving items (8, 13, 21) and Goal Attainment items (4, 7, 15). The first version of this scale, (a copy of which can be found in the Appendix, C), contains 21 positive statements measuring the seven skills of self-regulation; each skill has three statements.

Students must respond to each statement by choosing one of four options and the scoring of each option are as follows: Always=4, Sometimes=3, Seldom=2 and

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Never=1 with the maximum score of 84 and minimum score of 21. The rationale and development of this scale is described further in the next chapter (4.4.1.1).

b) Situation Judgment Test

A further measure for self-regulation skills is a set of 14 situations; the researcher developed this scale based on her review of the literature. The first version of this scale that proposed that included 14 situations with two choices, two situations for each skill of the seven skills included in this study. The items related to the seven skills that were developed in this study are as follows: Self-reinforcement items (1, 8), Self-evaluation items (6, 12), Self-monitoring items (5, 11), Planning items (2, 14), Decision-making items (4, 10) Problem-solving items (7, 13) and Goal attainment items (3, 9). In this scale, students have to choose one of two choices, A or B, for each situation. Letters presenting self-regulation gather 2 score and the letters, which did not present self-regulation gather 1, score in the SPSS. The minimum score is 14 and the maximum score is 28.

c) The Self-efficacy for Self-regulated Learning Scale

c1) Rationale for selecting the Self-efficacy for Self-regulated Learning Scale

The researcher of this study reviewed scales published in the literature, which measure self-regulation (see Chapter 2). On the basis of her literature review, she selected the Self-efficacy for Self-regulated Learning Scale by Usher and Pajares (2008) to measure self-regulation for several reasons. Firstly, it has high validity and reliability. Secondly, its standardised sample is the same as the participants' grade and age of the current study's sample. Thirdly, it is relatively short (7 items) which is useful for young students with learning difficulties.

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Usher and Pajares (2008) developed the Self-efficacy for Self-regulated Learning Scale, using statements taken from Bandura's Multidimensional Perceived Self-efficacy Scale (1990). The participants in this study were 3,670 students ranging in age from 8 to18 years, studying in primary, middle and high schools (third to twelfth grade). Researchers read aloud each statement from the Self-efficacy for Self-regulated Learning Scale to students at primary school, but students in middle and high schools read these items independently. The scale contains 7 items and students were required to respond by rating their answers from 1 - Not well at all to 6 - Very well. The interval consistent alpha value for this scale was .83. The Self-efficacy for the Self-regulated Learning Scale presents positive correlation with self-efficacy, self-concept, achievement and task orientation.

A study conducted by Zimmerman, Bandura and Martinez-Pons (1992) shows that longer version of the Self-efficacy for Self-regulated Learning Scale involves 11 items taken from the Children's Multidimensional Self-efficacy Scale. The statements of this scale measure how students regulate their learning cognitively and the students' ability to use self-regulated learning skills. Students were asked to select one choice as honestly as possible from the following: 1 not well at all, 3 not too well, 5 pretty well, and 7 very well (Zimmerman, Bandura and Martinez-Pons, 1992). The participants in this study were 52 children from a UK primary school ranging in age from10 to 12 years. The internal consistency presents high reliability with Cronbach's alpha between .81 and .90. (Webb-Williams, 2006).

The relevance of using the Self-efficacy for Self-regulated Learning Scale (7 items) for the current study is that it is appropriate to measure how students regulate

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their learning cognitively and use self-regulation skills in their learning, which are pertinent for the current study. Moreover, the sample students in the previous studies are of the same age and grade as those in the current study, that is, students between 10 and 12 years old, studying in primary schools. The Self-efficacy for Self-regulated Learning Scale has high validity and reliability that researchers can accept to use it in their studies.

3.7.1.2 Academic self-concept

Two scales were used in this study to measure academic self-concept. One is a scale developed by researcher, which is the Academic Self-concept Scale and the other is the Myself-As-A-Learner Scale which published by Burden (1998). These scales were described below as follow.

a)The Academic Self-concept Scale

The researcher chose five domains of the Academic Self-concept after reviewing the related literature and discusses this in Chapter 2 of this thesis. Following a review of the existing scales concerning the Academic Self-concept namely, the Self-description Questionnaire II (Marsh 1992), the Academic Self-concept Questionnaire (Coetzee 2011) and the Academic Self-concept scale (Flowers et al., 2013) (see Appendix, B) The researcher decided to choose these five domains because they present internal and external dimensions regarding academic self-concept. The first version of the researcher's Academic Self-concept Scale included 22 positive and negative statements divided equally and all relating to academic self-concept. The items included in each dimension are as follow: Academic Confidence items (2, 5, 12, 17, and 18), academic ability for schoolwork items (6, 7, 10, and 11), academic attitude items (9, 15, 16, and

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21), academic high performance items (3, 4, 14, and 20) and academic low performance items (1, 8, 13, and 19). Students completed the scale by selecting a response of 'True' or 'False' for each statement. The positively worded statements are items (3, 4, 6, 7, 9, 11, 14, 16, 17, 20, and 21), the scoring for each option in this scale is as follows: True=1, False=0. The negatively worded statements are item (1, 2, 5, 8, 10, 12, 13, 15, 18, 19, and 22) corrected in the opposite way: True=0 and False=1. The maximum score in this scale is 22 and the minimum score is 0. Further information regarding this scale could be found in the next chapter (4.4.3.1).

b) The Myself-As-A-Learner Scale

b1) Rationale for selecting the Myself-As-A-Learner Scale

The researcher of this study reviewed scales published in the literature, which measure the academic self-concept (see chapter 2). She selected Burden (1998) scale to measure the academic self-concept because it has high validity and reliability.

b2) Description of the scale

This scale measures students' self-concept of their learning and problem-solving abilities. It is easy to administrate this scale for young students, particularly those with learning difficulties, because it contains just twenty items that cover personal enjoyment, learning style, problem-solving and use of vocabulary. Students can choose between five different responses, which are Definitely True, A Bit True, Sometimes True and Sometimes Not, Not Very True and Definitely Not True. This scale contains 15 positive statements and five negative ones (6, 8, 12, 16, and 20). Additionally, students can complete it between 20-30 minutes. The minimum possible score is 20 and the maximum possible score is 100. The standardized sample age is between 11-16

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years old and researchers can implement it for students between 9-16 years old. This standardized sample is similar to the age sample of the current study, which is between the ages of 10-12.

The correlation between MALS and the Connell Children Perception of Control Scale for each item is significant at 0.001. The reliability of this scale is 0.8464 alpha. Also, researchers use it for young students and those with learning difficulties. It is a very useful scale to use with students with specific leaning difficulties or attention deficient and hyperactive disorder. All the advantages of this scale allow the researchers of this study to use it as a scale for measuring academic self-concepts, except this scales focus on problem-solving. The standardised sample of this scale contains both genders (389 boys and 217 girls), which differs from the female-only sample of the current study (Burden, 1998). It is easy to translate and transfer this scale across different cultures. MALS confirms its high reliability and validity with participants' age sample between 10-12 over a different study as shown below. In Turkey, Bayraktar and Hakki have used the Myself-As-A-Learner Scale (MALS) to measure the Turkish version of academic self-concept. The Turkish researchers translated the MALS into Turkish, which encouraged the author of the present study to translate it into Arabic. This study used the MALS to measure academic self-concepts in both girls and boys in Grade6 with an average age of 12 years. Bayraktar and Hakki included both genders in their sample, but the current study will sample only girls. However, the fact that no significant differences were found in the academic self-concept of girls and boys allows the current study to demonstrate that the MALS is useful for both genders. The Cronbach alpha reliability of MALS in the Turkish version is .83 which demonstrates a

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very high internal consistency, and is similar to the UK version reliability which is .84 Cronbach alpha (Bayraktar and Hakki, 2014).

Trickey and Topping (2006) used the MALS to measure self-esteem of students in primary schools aged 11 and 12 years. In this study, the split-half reliability of MALS is .85 and test-retest reliability is 96. There is a high correlation between the MALS and Connell's Children's Perception of Control Scale, which gives MALS concurrent validity (Trickey and Topping, 2006). The high validity and reliability of the MALS for students aged 11 and 12 supports the use of it by the current study as a scale for measuring academic self-concept.

Burden (1998) states that Chinese researchers have translated the MALS into Chinese and that it has been used in three Hong Kong schools, which demonstrates that MALS is a useful scale, which can be translated effectively across cultures. MALS maintains its high validity and reliability when used in different languages and cultures.

3.7.1.3 *Locus of Control*

a) Nowicki-Strickland the Locus of Control Scale for Children (CNS-IE)

The researcher used Nowicki-Strickland the Locus of Control Scale for Children (CNS-IE) and further information about this scale is described below.

a1) Rational for selecting Nowicki-Strickland the Locus of Control Scale for Children (CNS-IE)

The rational for selecting this scale is to look at the population profile and its high validity and reliability with the same age, grade of this study's sample and students with and without learning difficulties. Students with learning difficulties fail in one or more of their classes because they refer success in school to external reasons such as

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teaching methods and good luck rather than to their ability and efforts (Banks and Woolfson, 2008).

There are different studies, which confirm that this scale has acceptable reliability and validity as described below. Rohrbeck, Azar and Wanger (1991) used the CNS-IE's 40 items for 103 students between the third and fifth grade. The reliability of the test was .63 for grades3, 4 and 5 and the CNS-IE showed a signification correlation with other LOC scales. The Nowicki and Strickland (1971) CNS-IE scores tend to become more internal as age increases and there is consistent correlation between items and total score for all ages. There is a significant correlation between CNS-IE and achievement for students in the fifth and seventh grades.

Gorden applied the CNS-IE (40 items) to 113 students in grade four of a mean age of 10-years-old. The scale reliability and validity presented in more than 2,500 studies indicates that the CNS-IE is an ideal scale to measure the LOC. The results of this study show that there is a positive relationship between internal LOC and high self-concept, self-esteem and educational performance. Moreover, LOC scores for boys has a relationship with grade point average but girls' LOC scores have a relationship with effort and test performance (Gorden, 1977). Rogers and Saklofske's (1985) study included 90 students, 45 with severe LD, who were classified by their school. These students were from 7 years 8 months to 12 years 9 months old. The CNS-IE was used to measure the locus of control and the results indicated a significant difference between LD and NA students, LD students obtaining the negative score. Students with LD have low expectations for their educational outcomes, low general and the academic self-concept and external in general and academic LOC.

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The CNS-IE has high reliability and validity, which has encouraged researchers to translate it into different languages. Li and Lopez (2004) translated the CNS-IE into Chinese and administered the scale to 237 primary school students' from7 to12-years-old. They used 19 items from the CNS-IE to create a Chinese version (CCNS-IE). The reliability of the CCNS-IE by test-retest is .94 for 7-8-year-olds and .91 for 9-12-year-olds. The alpha coefficients are .62-.64 for ages 7-8 and .73-.78 for ages 9-12. All of the scales' items have a positive relationship with the total score with five items for ages 7-8 and two items for ages 9-12. Moreover, there is a high validity correlation (.96) between the CNS-IE and CCNS-IE. In addition, a medium negative correlation exists between the CCNS-IE and age and the CCNS-IE and GPA. Older students who have an internal LOC have higher educational outcomes. Lastly, a high positive correlation exists between the CCNS-IE and the CSAS-C during pre-examination and a positive medium correlation during two post examinations (Li and Lopez, 2004). After the developers of the CNS-IE completed data analysis for each grade, it was shown that grade3-6 students formed the primary group and grade7-12 students the secondary group. The results were used to create two shorter versions of the original 40-item scale. One scale contains 20 items for grade3-6 students; the other scale contains 21 items for grade7-12 students. These two new scales must be used cautiously, until further reliability and validity results can be obtained, but they are a fast and reliable method to assess LOC generally (Nowicki and Strickland, 1973).

a 2) Description of the scale

Nowicki and Strickland developed the Nowicki-Strickland the Locus of Control Scale for Children in 1969. The range of the scores is between 0 (internal locus of control) to

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40 (external locus of control (Li and Lopez, 2004). The Nowicki-Strickland the Locus of Control Scale for Children (CNS-IE) is a very well-established questionnaire; and measures young children's locus of control. It contains 40 items and the participants respond by indicating 'Yes' or 'No' next to each item. The scale used in this study started with 102 items, which were reviewed by 9 clinical psychology staff. Following this review, the items on which the clinical staff could not agree were removed, and the scale was then reduced to 59 items. These items were presented to 152 children in U.S.A from the third to ninth grades. The reliability measured by test-retest is .67 for 8-11-year-olds and .75 for 12-15 year-olds. After the items' analysis and comments received from teachers and children, a new form of this scale was devised with 40 items. These items were given to 1,017 students in primary and high school. Following data analysis, the internal consistencies by split-half were .63 (grade3-5), .86 (grade7-8), .74 (grade9-11) and .81 (grade12). Moreover, the test-retest reliability results were .63 (grade3), .66 (grade7) and .71 (grade10). There is a significant correlation between the CNS-IE and other locus of control scales, which affirm its concurrent validity (Nowicki and Strickland, 1973).

In administering the scale to students, each item must be read by the examiner. The students are then asked to select 'Yes' or 'No' which the students can easily follow items. One study used the CNS-IE 40 items for 267 students between the fifth and eighth gradesand the result indicated a significant correlation between the CNS-IE with both A-State and A-Trait scales and a strong relationship between the external LOC and increased anxiety (Nunn, 1988).

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From the information above, it is clear that the CNS-IE is a useful scale because it has high reliability and validity. Moreover, this scale for children matches the sample age of the current study and its successful translation into Chinese encouraged the researcher of the current study to translate it into Arabic. Both the 40-item CNS-IE and the 20-item CNS-IE are useful but the developers of the 20-item CNS-IE suggest it be used cautiously as only a small number of studies have used this form. However, the 40-item CNS-IE is more useful as this occasion because of its high reliability and validity and most studies have used it to measure the locus of control for children between the ages of 7 and12 years, which matches the sample age of the current study. Therefore, the 40-item CNS-IE was used to measure the locus of control of students between the ages of 10-12 in Saudi public primary schools. In this study, this scale used with other scales for validation to examined any correlation between locus of control and self-regulation or academic self-concept. Furthermore, it used to see if there is a difference between students with and without learning difficulties in locus of control. This scale used during the validation stage but will not use for the pilot and main intervention study because the intervention programme did not include any activities related to locus of control.

3.7.1.4 *Translation of the six scales*

All the six scales were developed and published in English. As the participants of this study are native Arabic speakers. The researcher translated the six scales into Arabic. In the translation process there are different translation techniques that may be used in cross-cultural studies. The researcher used a committee approach in the translation process of the six measures which was performed by asking Khaled Fahad Al-Salem

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Certificated Translations (STC) to do the following below and receive the Arabic versions of the six measures that were used in this study:

First, the researcher requested STC to use a committee approach to ensure that no significant semantic loss occurs between the Arabic and English versions. The researcher asked STC. Second, she asked STC to translate the English version measures with the purpose of making the translation expressing the content in natural Arabic as far as possible. The translation was done by a team of three professional English-Arabic translators who held a Master's degree in English, worked in translation offices for more five or more years and now work in Khaled Fahad Al-Salem Certificated Translations (STC) in Al-Riyadh city. Third, the researcher asked to check the semantic and conceptual equivalence between Arabic and English versions. This technique provides six instruments with clear translation because if one committee member makes a mistake this can be identified quickly by others. The team of experts who are bilingual translators must agree that the Arabic and English versions of the questionnaires are identical and they do not have any errors in the meaning.

The researcher decided to use this approach because the bilingual translators preferred the Arabic language due to all of them being Arabic native speakers who were raised and learned English in Arab countries. In addition, there is a limited number of professionals who are available in STC to do the back translation procedure (Cha, Kim and Erlen (2007). Furthermore, this technique is considered as a shorter approach in the translation method due to the PhD being time consuming which encouraged the researcher to select this approach. Also, due to the significant difference in the cost of

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the committee approach and other methods, this approach is considered the cheapest, and time saving and appropriate for the translators who work in STC.

Fourth, the researcher received the six questionnaires in Arabic versions with STC official papers. The layouts of the six questionnaires were kept as in the original English versions. However, these scales changed in the Arabic version of the questionnaires from left to right because Arabic writing goes from the right to left. Following translation into Arabic, the six scales were ready for use in the selected Saudi schools.

3.7.4.1.1 How the researcher deal with US focus to some of the survey questions in term of Saudi context

There are three existing scales that were used in this study, namely the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), Myself as a Learner Scale (Burden, 1998) and the Locus of Control Scale (Nowicki and Strickland, 1973). All these scales were translated into Arabic language via Khaled Fahad Al-Salem Certificated Translations (STC) by using a committee approach in translations. Following some discussion between the researcher and STC staff, some items were modified and carefully treated to adapt them to Saudi culture. The modified items in each scale are as follows: in the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) for item number 7 the word "discussion" was changed to "answering the questions". The original item is "How well can you participate in class discussion?", the researcher modified it to "How well can you participate in answering the questions in class?". In the Myself as a Learner Scale (Burden, 1998) for item number 5

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"discussing things" was changed to "answering questions". The original item "I am good at discussing things" was modified to "I am good at answering questions". In the Locus of Control Scale (Nowicki and Strickland, 1973), the researcher modified three items, which are number 10 and 21 as below. In item 10 the word "wishing" was changed to "prayers". In this item the original item is "Do you believe that wishing can make good things happen?", it was changed to "Do you believe that prayers can make good things happen?". Item number 21 "four leaf clover" was changed to "owl" and "good" was changed to "bad". The original item "If you find a four leaf clover, do you believe that it might bring you good luck?" was modified to "If you find an owl, do you believe that it might bring you bad luck?".

3.7.2 Validation This stage contains three steps as follows

3.7.2 Step 1 Access Saudi School

The researcher complete and obtained all the paper works required to enter Saudi school with acceptance from the Ministry of Education. More detailed about accessing Saudi school can be found in (Chapter 4-Validation, 4.2.2).

3.7.2 Step 2 Implementation of the scales

These six scales were implemented during April, 2014 which was administered for a specific school on the same day, with a total number of 802 participants, with and without learning difficulties. The researcher then administered the Academic Self-concept Scale (developed by researcher), the Locus of Control Scale by Nowicki-Strickland 1973 and the Myself-as-Learner Scale by Burden in the first session (start of school day). Subsequently, the Self-regulation Scale (developed by researcher), Situations Scale (developed by researcher) and the Self-efficacy for Self-regulated

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Learning Scale, by Usher and Pajares, were administered in the second session (late morning).

3.7.2   Step 3 Validation

After the researcher had gathered data from 802 female students on the six scales, she entered the student' responses for each scale onto computer software SPSS. Following data analysis, the researcher used the alpha method to obtain the scales' reliability and to demonstrate the correlation between the scales. She completed Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) for each scale to determine the validity of these scales (for further information see Chapter 4- validation, 4.5.3).

3.7.3 Data Analysis

Following data analysis, the Situation Judgment Test (developed by researcher) was dropped from the study due to its low internal consistency reliability and the remaining five scales were used to address the research questions and hypotheses. Some amendments in the number of items on three scales were made following data analysis.

1. *The Self-regulation Scale (developed by researcher)*

After data analysis, the researcher focused on just five rather than seven skills in her intervention programme that is because there are big differences between the lowest and high scores in Self-regulation Scale. In addition, because she decided to develop her proposed intervention programme on just five skills to increase the sessions for each skill from two as planned before to three sessions. She thought that will able students with learning difficulties to obtain more knowledge and practise on the five skills, which hopefully assist them to focus on these skills and improve their self-regulation. The researcher decided to focus on self-reinforcement, self-evaluation, problem solving,

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Planning and decision making, therefore dropping items related to goal attainment and self-monitoring (4, 5, 7, 9, 15 and 19). There were 15 items remaining, which were used to gather the results by using Exploratory and Confirmatory Factor Analysis (see Chapter 4-validation, 4.5.3).

After data analysis , the second version of this scale contains 13 items; three skills have three items which are Self-evaluation (12, 13, 16), Planning (10, 14, 20) and Decision making (2, 6, 18) with the exception of problem solving (3, 8) and Self-reinforcement (1, 11) skills, which have two items for each skill. The highest score being 52 (selecting Always for each item) and the lowest score being 13 (selecting Never for each item). The meaning of self-regulation for each number estimated is as follows: 13-20 very low; 21-28 low; 29-36 moderate; 37-44 high; and 45-52 very high. The researcher followed Diener, Sandvik, Seidlitz and Diener (1993) to categories self-regulation of her scale developed by researcher in five different categories because there are a big difference between the lowest and high scores in it and because she would like to extended the gap between self-regulation level which worth easier diagnoses for a score. Furthermore, she used these specific bands that are because she determined to make an equal gap between each two numbers in one category. In this scale, there is a difference of 7 between each two numbers in a self-regulation category. The items related to the second version of this scale used to collect data during the pilot study (a copy can be found in The Appendix, D).

Subsequently, the researcher read (Conway and Husscutt, 2003) that Exploratory Factor Analysis EFA is adequate for developing a questionnaire. However, Confirmatory Factor Analysis (CFA) must match the theoretical factors and in this

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study, it is in the 15 items form (first version). Therefore, the researcher split data into two parts and run EFA and then do CFA depending on that EFA according to (Ng, Niti, Chiam, and Kua, 2006). Then, the researcher did EFA then the items composed related to the five skills that were developed in this study: Self-reinforcement items (1, 11), Self-evaluation items (12, 16), Planning items (14, 20), Decision-making items (6, 18) and Problem-solving items (8, 21). The third version of this scale contains 10 items; two items for each skill. The highest score being 40 (selecting Always for each item) and the lowest score being 10 (selecting Never for each item). The meaning of self-regulation for each number estimated is as follows: 10-16 very low; 17-22 low; 23-28 moderate; 29-34 high; and 35-40 very high. The researcher followed Diener, Sandvik, Seidlitz and Diener (1993) to categories self-regulation of her scale developed by researcher in five different categories because there are big difference between the lowest and high scores in it and because she would like to extended the gap between self-regulation level which worth easier diagnoses for a score. Furthermore, she used these specific bands that are because she determined to make an equal gap between each two numbers in one category. In this scale, there is a difference about 5 between each two numbers in a self-regulation category. The items related to the third version of this scale used to collect data during the intervention study (a copy can be found in the Appendix E).

2. The Academic Self-concept (developed by researcher)

After implementing this scale for 802 students, 22 items (see Appendix, C) were used to gather the results by using Exploratory and Confirmatory Factor Analysis (Validation Chapter, 4.5.3). The final version of this scale contains 16 items; three dimensions have four items, except high and low performance dimensions, which each has two items.

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The highest score in the second version is 16 and the lowest score is 0, and the meaning of the academic self-concept for each number estimated is as follows: 0- 5 low, 6-11 moderate and 12-16 high academic self-concepts. The researcher followed Diener, Sandvik, Seidlitz and Diener (1993) to categories the academic self-concept of this scale developed by researcher in three different categories because there are small difference between the lowest and high scores in it and because she would like to extended the gap between the academic self-concept level which worth easier diagnoses for a score. Furthermore, she used these specific bands that are because she determined to make an equal gap between each two numbers in one category. In this scale, there is a difference about 5 between each two numbers in academic self-concept category. This scale was used in the pilot and the intervention study as outcome measure, (a copy can be found in the Appendix, D and E).

3. The Locus of Control Scale for Nowicki-Strickland

After EFA had been undertaken by using SPSS with extraction method Principal Component Analysis and rotation method: Oblimin with Kaiser Normalization. The output finding with absolute value of (.4 or above) and after exceed items which are loaded on two factors or not loaded which are item number 2,3,6,9, 11,12,13,16, 18,20,22,23,25,26,28,30,34,35,38,40. There is 20 items are loaded and form eight factors as follows: items 10,21,24 which present believe in luck, items 33,36,39 which present give up quickly, items 5,27 which present refer mistake to other, items 4,7,37 which present believe in trying at school, item 15,17 which present believe in kids ability, item 1,19,32 which present how to deal with problems, item 8,14 which present believe in effort and item 29,31 which present believe in trying in life . Nowicki and

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Strickland (1971) state that depending on the correlation and variance for every items in Nowicki-Strickland Scale (40 items); the items which have good correlation or variance estimation are selected. The data recorded on the computer and combined with elementary students between grades3-6 in primary school. After data analysis, a short reliable form of 20 items gathers to use with students to measure their locus of control. However, he recommended further analysis on this for reliability and validity (Nowicki and Strickland, 1971). This Scale used to look at the population criteria (802 students) and to answer the third hypotheses (2c) in the second question, which had been dressed in this study but did not use during pilot and main intervention study due to it does not have any relationship with the programme aim and activities.

After data analysis, the Myself-As-A-Learner Scale (20 items) by Burden, 1998 and the Self-efficacy for Self-regulated Learning Scale (7 items) by Usher and Pajares, 2008 were used without any change during the pilot and intervention study (see Appendix D and E).

3.7.4 Intervention Programme (Outline of Intervention Programme).

The intervention programme in this study included 19 sessions, which included pre- and post-intervention assessment sessions, an initial introductory and a concluding session of the programme. The remaining 15 sessions related to five skills of self-regulation: each skill covering three sessions (Lienmann and Ried, 2006; Pajares, 2002). These skills are Self-reinforcement, Self-evaluation, Decision-making, Planning and Problem-solving. Each skill was presented in fifty minutes per a session. The topics covered over the sessions are detailed in table 3:3 below (for further information see Intervention Progarmme Chapter 5 and Appendix, P).

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Table 3.3 Topic of each Session in the intervention programme

Session number	Topic
1	Introduction
2,3 and 4	problem-solving
5, 6 and 7	Self-reinforcement
8, 9 and 10	Self-evaluation
11, 12 and 13	Planning
14, 15 and 16	Decision-making
17	Conclusion

3.7.5 Pilot Study

3.7.5. 1 The intervention programme sessions

The researcher chose to implement the first session for each skill in her pilot study due to they include the definition of each skill which able the students to understand their meaning. In addition, they contain the steps or methods of each skill, which allow students to know how they can implement these skills in their real-life as well as activities related to these aspects (definition and steps or methods). The first session for each skill was chosen by the researcher, to implement in her pilot study. These sessions were chosen due to they include the definition, steps or methods of the target skill and some related activity. The total numbers of sessions were seven; five sessions related to the five skills (Problem-solving, Self-reinforcement, Self-evaluation, Planning and Decision-making) and the pre- and post intervention assessment sessions.

The five sessions were translated into Arabic and the researcher confirmed these translations were accurate with the assistance of a contact bilingual that is fluent in both English and Arabic. He made some amendments and the researcher took these amendments into consideration.

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3.7.5.2 Steps to enter Saudi school

The researcher received a letter from her advisers and sent it to the Saudi Embassy giving permission for her to administer these scales to female students in Saudi. In Saudi the researcher visited the Ministry of Education for Girls and the Department of Planning and Development. After evaluating the two letters, they accepted the researcher's request and reviewed the relevant paperwork, self-regulation programme and scales, which were stamped and approved for use in Saudi.

The Department of Planning and Development gave the researcher a letter for all of the primary schools in Al-Riyadh entitled 'Facilitate the task of researcher', which contained the researcher's personal details, the study topic, self-regulation programme and the scales. From the Department of Learning Difficulties, girls' section, the researcher was able to obtain the names of primary schools, which accommodate students with learning difficulties, their telephone numbers and the regions in which they are located. One school is randomly selected, the researcher wrote each school's number in the south region in a piece of paper and pick one, in which to implement the researcher's pilot study in. After the scales and activities were photocopied, the researcher went to the selected public primary school for students with and without learning difficulties.

3.7.5.3 Implementing the pilot study

Once the principal of this school saw the 'Facilitate the task of researcher' letter, she allowed the researcher to commence her research project. To administer the scales, the researcher first asked the managers of School A to arrange an appropriate time for students with learning difficulties to implement the scales twice, once at early morning

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and the other late morning, during the same morning. The researcher contact teachers in the Resource Room and asked them to provide students names from grade four to grade six between ages of 10-12. These students were attending the Resource Room during lower level (grade1-3) for extra learning assistance because they are struggling at school.

In Saudi, general education teachers refer students who face difficulties on one or more subjects, due to their low scores in their schools' subjects, to the Resource Room where the teachers of the Resource Room required IQ test, always done in the hospital, which must demonstrate the discrepancy between a student IQ and her academic achievement. After that, the teachers in the Resource Room accept a student to join the resource room service if they found that there is a discrepancy between IQ test and students' achievement at school. Furthermore, maths and language general education teachers were asked to complete recruitment of participants (See Appendix J and K). Teachers should select one or more of the eight criteria to identify students with learning difficulties. These eight criteria were highlighted earlier in this chapter. After that, the researcher administered the pre-intervention assessment session for students with learning difficulties who were selected due to their general education teachers and teachers in the Resource Room. The measures were applied according to the instructions attached to the scales and in collaboration with the school' staffs who volunteered to participate in the completion of the scales. As acknowledgment of student participation in the study, the researcher offered each child a ruler after completing the scales. The researcher administered the four scales namely the Self-regulation Scale (13 items), the Self-efficacy for Self-regulated Learning Scale (7

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items), the Academic Self-concept Scale (16 items) and the Myself-As-A-Learner Scale (20 items) for 28 students. Following this, the researcher scored the four scales and collected the principal and parent signatures for the consent forms (see Appendix, F and G). After that, the researcher chose 6 students with LD between ages of 10-12 who had the lowest scores for all the four scales within the group (28 students). There were six students chosen to participate in the pilot study due to their criteria but one of these students did not attend two sessions, which led the researcher to eliminate her from the data analysis. The final sample for the pilot study comprised 5 students with LD between ages 10-12 in grade4-6 and has low score in low scores on all the four scales.

3.7.5.4 Description of the pilot study' sample

The researcher entered the data collected from the pilot study into the SPSS and there was a population sample, and a sample was chosen to participate in the intervention programme. The following table describes these two samples of pilot study in more details.

Table 3.4 Pilot Sample

Sample's categories	28 Students		5 Student	
	N	P	N	P
10-10: 11 month	9	32.14%	2	40 %
11-11:11 months	4	14.28%	1	20 %
12-12:11 months	15	53.57%	2	40%
Grade4	8	28.57%	-	-
Grade5	9	32.14%	4	80 %
Grade6	11	39.28%	1	20 %
Total	28	100%	5	100%

Note; N= number of students and P=Percentage of students in each category.

From the table above, the largest number of 28 students was in grade six (11 with 39.3%) and the highest number of 28 students demonstrates students between 12 years to 12 years and 11 months (15 with 53.6%). There is no students presented in grade 4 for the 5 students sample (selected for the intervention programme) and the lowest number presents students of students in age 11 years to 11:11 months (1 with 20%). Implementation of the programme began with the direction, steps and activities for each session. The researcher visited the school over an eight day period and carried out her sessions 50 minutes) twice a week. The sessions took place after break between 9:30-10:30 am. The researcher subsequently entered the pilot study data onto SPSS computer software to analyse (the descriptive analysis for the pilot study can be found in Chapter 6, 6.3.2).

3.7.6 Amendments to intervention programme

As a result of the pilot study and its activities, the researcher recognized the student's level of understanding, their academic problems and some activities were too time-consuming. Consequently, the researcher reviewed the intervention programme session by session and made some modifications in some activities. These adjustments included adding pictures, reducing the length of some activities and adding homework sheets to some sessions (More detailed about the amendments made for the intervention programme can be found in the Appendix, L).

3.7.7 Intervention Study

This last stage contains six steps, which described as follows,

3.7.7 Step 1 Completed the paper work

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In this stage the researcher prepared the four scales in their final version in Arabic as follows: the Self-regulation Scale (10 items), the Self-efficacy for Self-regulated Learning Scale by Usher and Pajears, 2008 (7 items), the Academic Self-concept Scale (16 items) and the Myself-As-A-Learner Scale by Burden, 1998 (20 items) (see Appendix, E). Translation programme was begun of documents, from English to Arabic. Then, the researcher translated the intervention programme and then double-checked this translation with collaboration from a personal contact that is fluent in both English and Arabic. He made some amendments and changes, which the researcher took into account. The 'Recruitment of Participants for Intervention' form (see Appendix, J and K) was also translated, with details relating to the students who have LD in the participating schools. Furthermore, the Parent Consent Form (see Appendix, H) was translated into Arabic, which allowed parents to understand the study and give their approval to allow their child to participate in the study. In addition, the Principal Consent Form (see Appendix, I), which gives more knowledge about the study and provides agreement to accept this study to be done in their schools.

In the meantime, the researcher received letters from advisor to the Saudi Embassy, giving permission to administer the intervention programme and four scales to female students' schools in Saudi. In Saudi, the researcher went to the Ministry of Education for Girls and the Department of Planning and Development to obtain a list of the names of schools which had a Resource Room. The researcher received approval by Department of Planning and Development to administer the intervention programme, four scales, recruitment of participants for intervention form and details related to students who have LD in school form to be admitted in Saudi school. Finally, from the

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same previous department in Ministry of Education 'Facilitate the task of researcher' letter was obtained, which allowed the researcher to enter Saudi primary schools. One the head teachers consent had been received from both head teachers the researcher was able to administer the intervention programme and the assessment battery.

3.7.7 Step 2 Recruiting participants

The researcher followed the same steps as the pilot study in selecting students with learning difficulties (see section 3.7.5.3 in this chapter). Having selected three potential participating schools, the researcher visited each one to collect further details of students with LD. The participants were chosen according to the selection criteria mentioned earlier in this chapter (see Appendix J and K). All target students with LD who were identified by their teachers were given a parents' consent form (See Appendix, H).

3.7.7 Step 3 Pre-intervention assessment.

The pre-intervention assessment took place in September 2015 in Al-Riyadh City. There were 26 students with LD in School A and 24 students with LD in School B. All of these students completed the four scales for the pre-intervention assessment. The researcher administered these scales with an assistant (School Staff) in each school. In administering these scales, the researcher read aloud each statement and explain this statement if necessary. In each school students completed the scales in two sessions due to time-consuming (reading and explaining the statements) and the participants' criteria (students with LD). Two scales related to the academic self-concept took place in early morning namely, the Academic Self-concept Scale (Developed by researcher) and the Myself-As-A-Learner Scale (Burden, 1998). The two other scales related to self-

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regulation, were administered later in the same day namely, the Self-regulation Scale and the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008). After that, the researcher calculated the scores for the four scales for each student, which allowed the researcher to form the experimental and control groups.

3.7.7 Step 4 Experimental and Control group.

In the intervention study, the profile of the participants (40 students), for both experimental and control groups in School A and B, has been categorised into three domains. The following table will explain the profile of participants in terms of age, gradeand nationality.

Table 3.5 Profile of participant students in School A and B

Students' category	Experimental Group	Control Group
10-10:11 months	4	6
11-11:11 months	7	4
12-12-11 months	9	10
Year 4	4	4
Year 5	9	9
Year 6	7	7
Saudi students	8	10
Immigrant students (i.e all others)	12	10

The researcher arranged the scores of 26 students in School A and 24 students in School B from the lowest to the highest scores; in the Self-regulation Scale for each school, (section 3.6.2 shows the range of students' scores in both schools).

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Once parental consent form had been received for all participating students, there were 20 students with LD in each school who were divided into experimental and control groups, depending on their scores in the Self-regulation Scale for each school. These 20 students in both schools who were divided into ten students in the Experimental group and ten students in the control group for each school, depending on their scores in the Self-regulation Scale as mentioned above. The Experimental and Control groups were created in School A by placing students with the highest scores in the Experimental group and students with the lowest scores in the Control group. In School B, the researcher allocated the students with the lowest scores in the Experimental group and the students with the highest scores to the Control group.

The number of students with LD in experimental and control groups who displaying behaviours specified in the eight selection criteria as mentioned earlier under section (3.6.1) can be seen in table 3.6.

Table 3.6 Behaviours specified in selection criteria.

Students' parameters	Experimental Group	Control group
LD in my language	8	11
LD in maths	6	4
LD in both subjects	5	6
Difficulty following teacher's instruction	2	1
Difficulty remembering information	5	7
Difficulty in sitting still	2	1
Difficulty focusing on a task or test	6	4
Difficulty in bring school equipment	1	-
Low motivation	3	2
Have a negative attitude	-	-

A nine week (17 sessions) self-regulation programme was implemented for 20 students in the Experimental groups whilst 20 students in the control groups did not

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receive any additional intervention. Students in the Experimental groups attended the sessions twice a week. They participated each Monday and Wednesday for School A and on Tuesday and Thursday for School B. The researcher used these days because Wednesday and Thursday are the last two days in the school week in general education schools in Saudi, with a free class in the end of school day taken by the children, to attend the intervention programme. For the other days, the researcher agreed with the Principal of each school, to have one day a week when students will be asked to buy and eat their own breakfast in class or at home before the breakfast time, which is at 9 a.m. The researcher had 15 minutes from their fourth class, which are normally non-core lessons such as religion, family, patriotism and art. Additionally, all students who attend Experimental group (intervention programme) in both schools obtained approval from their parents to participate in this study.

3.7.7 Step 5: Experimental group

The intervention programme took place in October 2015 and was implemented by the researcher of this study. There were ten students in the Experimental group for each school who attended the intervention programme. These students attended 17 sessions, twice a week related to self-regulation skills and the programme ended in the middle of December 2015. During the first session, (introduction), participants were informed about why they had been selected for this study, as well as the aims and purpose of the intervention programme. In the same session, children were informed that they would receive a treat for each session they attend, and any child attending 14 or more sessions would receive a certificate and a gift as a reward for collaboration and regular attendance. These motivations were intended to encourage students to attend the

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programme. In the event, no child withdrew from the study and students with LD in both participating schools recorded a good attendance during the 17 sessions of the intervention programme (See Appendix M and N). Table 3.7 shows the average attendance of students in both school A and B over 17 sessions.

Table 3.7 Average attendances over 17 sessions for School A and B

School	Participants (max.n=10)
A	9.1
B	8.6

Max.n=maximum number

The remaining ten students in the control groups for both schools did not receive any intervention, but completed the assessment battery at the same time as the students in the two Experimental groups (pre and post intervention assessment).

3.7.7 Step 6: Post-intervention assessment

All students in the Experimental and Control groups in both schools were assessed again at the end of December 2015. The researcher administered four scales with an assistant (School Staff) in each school. In administering these scales, the researcher read aloud each statement and explained this statement as required. In each school, students in the Experimental group completed the assessment battery at the same time as the students in the control group administered their scales. Furthermore, similar to pre-intervention assessment the four scales were administered at two different times; the two scales related to the academic self-concept were completed in early morning and the two other scales related to self-regulation, were administered later the same day. After that, the researcher analyzed the assessment data, to investigate the effectiveness of the intervention programme.

3.8 The current study and its findings fit within an authenticised approach

The current study follows an authenticated approach because its design depends on the quasi-experimental design to evaluate the effectiveness of a proposed intervention programme by comparing the outcomes for the experimental group (receive an intervention programme) and control group (do not receive any alternative intervention programme) (Thyer, 2012). This study follows six stages, therefore it is more likely to be considered as using an authenticated approach.

For the first stage, there are three existing scales used in this study, namely the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), Locus of Control Scale (Nowicki and Strickland, 1973) and Myself as a Learner Scale (Burden, 1998). Three other scales were developed in this study, which are the Self-regulation Scale, Situation Judgement Test and Academic Self-concept Scale (for more information about developing these three scale see Chapter 3).

In the second stage, the researcher analysed the data for all these six scales showing acceptable reliability through alpha Cronbach and construct, content and criterion validities by applying Exploratory Factor Analysis and Confirmatory Factor Analysis for all scales except the Situation Judgement Test which was excluded from further analysis due its low reliability (for further information see Chapter 4). In the third stage, the research developed the intervention programme in five self-regulation skills based on social cognitive theory and she used different sources in developing this programme (for more information see Chapter 5). In the fourth stage, the researcher

implemented five sessions with one session per strategy to evaluate the activities and how appropriate these activities are for the female students between the ages of 10-12 and grade 4-6. For the fifth stage, the researcher made some modifications to the intervention programme activities to make them more appropriate for these students' age and level of understanding by adding pictures and reducing the length of some activities (for further information see Appendix L). In the sixth stage, the researcher implemented the main intervention study through different steps as follows: first step, the researcher selected the first school from pages, which include the names and addresses of primary schools in Al-Riyadh. These schools involve students with and without learning difficulties, which the researcher received from the Department of Learning Difficulties, girls' section. Second step, the researcher identified students with learning difficulties by asking maths and mu language teachers to complete the "Recruitment of Participants for Intervention Programme Form". This form contains eight different criteria, which describe the target students (for more information see Appendix J and K). The resource room teachers were contacted and they provided the names of students who had attended the resource room in the past for one or more years. The researcher combined the information and found that there are 24 students with LD in School A and 26 students with LD in School B.

In the third step, all these students completed the five validated scales except the Locus of Control Scale, as the intervention activities did not include any information related to locus of control. The researcher divided students with LD in each school into two groups, experimental and control groups. There are 20 students with LD in each school who formed control and experimental groups after the researcher received the

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parents' consent forms for students participating in the experimental group. In the fourth step, 10 students in each school received the intervention programme and 10 students did not receive any alternative programme. These students attended 17 sessions twice a week and the researcher personally implemented the intervention programme due to her academic background and experience in working with these students, to ensure the intervention programme was delivered equally in both schools and finally because there is no time to train others regarding implementing the intervention programme.

In the fifth step, after the intervention finished all of the 40 students participated in post-intervention assessment. Students from both groups and schools completed the four scales similar to those in the pre-intervention assessment. For the sixth step, each child was identified as a number when entering their data into the SPSS for analysis. The researcher used an independent sample t-test to investigate the differences between experimental and control groups on the four scales. This study was conducted after the researcher received approval from the following: the Department of Education Ethical Committee of the University of York, The Department of Planning and Development in the Saudi Ministry of Education, Principal consent form and parents consent form.

3.9 Ethical consideration

This research study obtained approval from the Department of Education Ethical Committee of the University of York, with confirmation that all the actions taken in this research are ethically appropriate for the children. Before collecting data, the researcher sent the Principal of each school 'Principal consent forms' which explained the study, the purpose and the

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benefit of the intervention programme. Both Principals at School A and B agreed to participate in this study in their school by providing their signature and stamp. Furthermore, Parent Consent Forms were also sent to the parents of the child participants to explain the study, the purpose and the benefits of the intervention programme for their child. All children in the Experimental group in both schools had approval from their parents to participate in this study.

With regards to data confidentiality, the researcher kept all the papers from pre- and post-intervention assessments and attendance sheets in a secure place. The data files in SPSS were also kept safe and nobody had access to the data except the researcher. The name of each child was identified as a number when entering their data onto SPSS to further ensure the anonymity for these participants. The data were analysed using T-tests to investigate any differences between the Experimental and Control groups on the four scales. The researcher further plans to give each school a report on the findings of the current study, which should increase the chance for this programme to be implemented in Saudi schools in the future. In the following chapter (Chapter 4, Study I, Results I-Validation of Scales), the results of the study are presented with reference to the validation process of the six scales used in this study.

Chapter Four

Study 1

Results I-Validation of Scales

Chapter 4: Study 1, Results I-Validation of scales

4.1 Chapter overview

This chapter will examine the procedure adopted for administering and validating the six scales used in the current study. In this chapter, the objective is to address the first and second research questions with their related hypotheses as detailed in the end of Chapter 2 and in (3.2) in Chapter 3.

4.2 Procedure for implementing the six scales

In this section, attention will be given to preparing the scales, accessing Saudi primary schools and administering the scales to the student participants.

4.2.1 Preparing the scales

Once the researcher had reviewed the literature, six scales were chosen for use with students both with and without learning difficulties. Three of these scales are already published, namely the Locus of Control Scale for Children (Nowicki-Strickland, 1973), the Myself-as-Learner Scale (Burden, 1998) and the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008). The remaining three scales were developed by researcher for the purposes of the current study, namely the Academic Self-concept Scale, the Self-regulation Scale and the Situation Judgment Test (For further information about these scale see Methodology Chapter section 3.7.1 and 3.7.3). These scales were created with a view to evaluating the effectiveness of the intervention and addressing the research questions. As yet, the three scales are unpublished. Then the

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researcher numbered each scale, naming them as follows: the Self-regulation Scale (Questionnaire 1); the Situation Judgment Test (Questionnaire 2); the Self-efficacy for Self-regulated Learning Scale by Usher and Pajares (Questionnaire 3); the Academic Self-concept Scale (Questionnaire 4); Nowicki-Strickland The Locus of Control Scale for Children (Questionnaire5) and the Myself-as-Learner Scale by Burden (Questionnaire 6) (See Appendix C).

For administration purpose, the following three scales were combined into one booklet namely, the Academic Self-concept Scale (developed by researcher); the Nowicki-Strickland the Locus of Control Scale for Children (CNS-IE); and the Myself-as-Learner Scale by Burden. The researcher created a friendly looking cover page with general information questions such as name, age and school for students to fill in. The remaining three scales were combined in a separate booklet, that is, the Self-regulation Scale (developed by researcher), the Situation Judgment Test (developed by researcher) and the Self-efficacy for Self-regulated Learning Scale by Usher and Pajares. As before, the researcher included a cover page for students with general information questions for students to fill in (see Appendix, C). She gave careful consideration to the layout of these scales for the children concerned. She chose to include pictures and large font sizes. Bell (2005) stated that if a scale looks attractive with an interesting layout, it may positively encourage the participants to complete the scale.

The researcher then translated all six of these scales into Arabic. The accuracy of these translations was then confirmed and double-checked by the professional translator office in Al-Riyadh.

4.2.2 Access to primary School in Saudi

The researcher received a letter from her adviser about the purpose of her visit to Saudi. Then, she sent this letter to the Saudi Embassy in London and received permission to administer these scales to female students in Saudi, to which she travelled in order to collect the data. In Saudi, the researcher visited the Ministry of Education for Girls and the Department of Planning and Development. Upon review of the two letters, they accepted her request and assessed the relevant papers and scales, which were then stamped and approved for use in Saudi. The Department of Planning and Development gave the researcher a letter, written for all of the primary schools in Al-Riyadh, entitled 'Facilitate the task of researcher'. This letter contained the researcher's personal details, the study topic and the six scales and enabled the researcher to have access to the primary schools for research purposes.

The researcher subsequently went to the Department of Learning Difficulties, (girls' section), and enquired about primary schools in Al-Riyadh catering for students with learning Difficulties. The Department provided her with the relevant primary school names, their telephone numbers and the regions in which they were located. The researcher then counted the number of schools that cater for students with learning difficulties for each region, and determined that the east and central regions of Al-Riyadh have fewer primary schools for students with learning difficulties than other regions. Each region has two pages, excluding the East and Middle regions, which have one page. Each page involved (21) schools providing educational support to students who struggle at school. Therefore, the researcher randomly selected two schools from

the North, West and South regions, and one school from the Central and East regions.

The researcher selected the first school listed at the top of each page in each region.

However, the first listed school in the first page concerning the school in the North

region, School (F), refused to administer the scale, and therefore the researcher selected

the second school (G) from the same list.

Table 4.1 School and their regions in Al-Riyadh

Regions	Primary schools (n=9)
South	A and B
West	C and D
East	E
North	F, G and H
Middle	I

After the scales were photocopied, the researcher went to public primary schools

for students with/without learning difficulties. Most of these schools welcomed the

researcher and collaborated with in administering, excluding F School (north), which

refused to administer the scales because the 'Facilitate the task of researcher' letter was

a general letter addressed to all schools and not specifically to this school. Each of the

remaining 8 primary schools was visited by the researcher twice, except School H

(north) and the School B (south), which she visited over three days. The reason for

visiting School H over three days that is because this school had meeting for parents,

which enabled the researcher conduct the second session in the late morning. Therefore,

she was asked to administer the scales the following day. In School B, children in grade

6 (aged 12 years) had an important test that day which meant that the researcher had to make an additional visit to the school.

4.2.3 Administering the scales to be validated

In order to administer the scales, the researcher first asked the managers of each school to arrange for the students to complete the scales over two sessions, once in early morning and the other later in the morning, on the same day. Students completed the Academic Self-concept Scale (developed by researcher, 22 items); the Nowicki-Strickland the Locus of Control Scale for Children (Nowicki and Strickland (1973), 40 items); and the Myself-as-Learner Scale (Burden (1998), 20 items) in the early morning, because their attention span was better at this stage of the day and so they were given the longer scales. However, the Self-regulation Scale (developed by researcher, 21 items), the Situation Judgment Test (developed by researcher, 14 items) and the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares (2008), 7 items),, took place in the late morning as they contain fewer statements and students' concentration and activity levels lessen as the day progresses. The researcher administered these scales in two sessions due to time-consuming.

Before distributing the scales to students, the researcher introduced herself, chatted with them, explained the purpose of the Scales, and informed them that their names would not be used and that they would be recognized by their ID number only. She encouraged them to participate in this study by offering them a ruler after they had completed the scales. Then the researcher randomly chose a sample by select the first class in each grade (grade4/A, grade5/A and grade6/A) and then allocated students in

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groups of 40-50 students. The measures were applied according to the instructions attached to the scales and in collaboration with the teachers who volunteered to participate in the application of the scales. In each school, two to three volunteer teachers supported the researcher in administering the scales. Some students with learning difficulties were placed in very small groups of 5-7 with a volunteer teacher. The researcher explained to their teacher how to administer the scales. The administrators of scales read each statement for children and explained its meaning if necessary.

All students, with and without learning difficulties, provided their names, however, not all knew their date of birth, age and grade levels. Thus, the researcher obtained this information from the school by recording dates of birth from files at the school or by printing the information from the school offices. With the help of teachers and Resource Room teachers, the researcher was able to identify students with learning difficulties. Finally, the researcher of this study assigned each student with an ID number from 1-814 and recorded their personal data and responses on the six scales and used SPSS to input the data for analysis.

4.3 Profile of participants

There were 814 female students with and without LD, 12 responses were rejected and withdrawn from analysis due to the quantity of missing data on all scales. Data analysis was therefore based on 802 female students with and without LD. The table below describes the number of students in each category.

Table 4.2 Participants in Validation of Scales Study

Student categories	N	%
Students' without LD	712	88.8
Students' with LD	90	11.2
Total	802	100%

LD=learning difficulties.

From the table above it is clear that the majority of students do not have learning difficulties (n=712, 88.8%).Students with learning difficulties represent (n= 90, 11.2%) of the participants in the validation study. Table 4.3 indicates the participants' grade at school (ages 10-12 years).

Table 4.3 Number of Students in Grade4, 5 and 6

	Grade4		Grade5		Grade6		Total	
Student categories	N	%	N	%	N	%	N	%
NLD	151	21.20	331	46.48	230	32.30	712	88.8
LD	8	8.88	48	53.33	34	37.77	90	11.2
Total	159	19.82	379	47.25	264	32.91	802	100

NLD= Students without learning difficulties and LD= students with learning difficulties.

From the table above the majority number of students was in grade5 with (n=331, 46.48%) students without LD and (n=48, 53.33%) students with LD. The minority of students was in grade 4 with (n=151, 21.20%) students without LD and (n=8, 8.88%) students with LD. The participants were drawn from five regions in Al-Riyadh City and the table below shows the number of students in each region.

Table 4.4 Number of Students in Each Region

	N		S		W		E		M	
ST	N	%	N	%	N	%	n	%	n	%
NLD	191	26.82	177	24.85	185	25.98	85	11.93	74	10.39
LD	31	34.44	14	15.55	24	26.66	16	17.77	5	5.55
T	222	27.68	191	23.81	209	26.05	101	12.59	79	9.85

ST= student category; N=North region; S=South region; W=West region; E=East region; M=Middle region; T=Total.

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Table 4.4 above indicates that the majority of students are located in north region with (n=191, 26.82%) students without LD and (n=31, 34.44%) students with LD. The west region is the second with (n=185, 25.98%) students without LD and (n=24, 26.66%) students with LD. The south region is the third (n=177, 24.85%) regarding to students without LD and the fourth for students with LD (n=14, 15.55%). The east region the fourth regarding to (n=85, 11.93%) students without LD and the third for students with LD (n=16, 17.77%) and finally the central region (n=74, 10.39%) students without LD and (N=5, 5.55%) students with LD.

In summary, the majority of students were located in the north region for both categories and the minority students were located in the middle region for both categories. In addition, the number of students in each age was calculated and the table below describe that in detailed.

Table 4.5 Descriptive of Students' Age

	1		2		3		Total	
SC	N	%	N	%	N	%	N	%
NLD	226	31.74	297	41.71	189	26.54	712	88.8
LD	23	25.55	38	42.22	29	32.22	90	11.2
Total	249	31.04	335	41.77	218	27.18	802	100

Age in bands: 1=10:00-10:11 months; 2=11:00-11:11 months; 3=12:00-12:11 months; SC=Students Category.

The table above presents the number of students between ages 10 to 12:11 for students with and without LD. It shows that the majority of students without LD were aged between (11:00-11:11years old, 41.71%) and the minority of these students were aged between (12:00-12:11 years old, 26.54%). The majority of students with LD were

aged between (11:00-11:11 years old, 42.22%) and the minority of these students were aged between (10:00-10:11 years old, 25.55%).

4.4 Development of scales

The researcher of this study developed three scales for the purpose of the current study namely the Self-regulation Scale, the Situation Judgment Test and the Academic Self-concept Scale. The procedure for developing these scales is described below.

4.4.1 The Self-regulation Scale

4.4.1.1 Rationale for developing scale

The researcher reviewed the existing scales (see chapter 2) regarding the self-regulation skills. These scales include the Usher and Pajeras (2008) scale, with seven items, which cannot measure the specified self-regulation skills that the researcher wished to incorporate in the intervention programme. The specified self-regulation skills are namely, Self-monitoring, Self-evaluation, Self-reinforcement, Planning, Decision-making, Goal-attainment and Problem-solving skills. In addition, there is no Self-regulation Scale that is specifically for students with learning difficulties aged between 10 and 12 years old in the Arabic region, especially in Saudi. Therefore, the researcher decided that there was a need to develop a scale to measure the seven cognitive self-regulation skills) in students with learning difficulties. These skills are considered by the researcher to be important because they include skills that students, with and without learning difficulties, can benefit from learning. Such skills can then be implemented in their schoolwork and become general life skills (Schunk and

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Zimmerman, 1998). This thinking encouraged the author of the present study to develop a cognitive self-regulating scale, which will match the criteria of the sample of the current study, and the activities presented in the intervention programme. In the next section attention will be turned to describing this scale and details of its use in the subsequent intervention study.

4.4.1.2 Development of Self-regulation Scale

The researcher of this study developed the Self-regulation Scale (first version) after she had reviewed many scales and literature on the nature of self-regulation and related skills such as, the Self-efficacy Scale by Zimmerman et al. (1992); Self-efficacy Questionnaire by Muris (2001); Children's Perceived Self-efficacy by Pastorelli et al. (2001); Self-regulation Questionnaire by Carey et al. (2004); Perceived Collective Family Efficacy by Banduar (2006); Self-efficacy Scale by Webb-Wiiliams (2006) and the Self-regulation Scale by Bandy and Moore (2010). The researcher studied these scales and reviewed the literature related to self-regulation to create the Self-regulation Scale which focuses on seven self-regulation skills namely, Self-reinforcement, Self-monitoring, Self-evaluation, Problem-solving, Decision-making, Goal-attainment and Planning. The researcher used the existing scales and combined the items in the self-regulation literature to create 21 statements on self-regulation except item (13) which was taken exactly from Carey et al. (2004, 256). The researcher used these items to devise a new the Self-regulation Scale which focuses on seven self-regulation skills (For more details of the Self-regulation Scale developed by researcher see Appendix, A)

The researcher then composed items related to the seven skills that were to be developed in this study: Self-reinforcement items (1, 11, and 17), Self-evaluation items

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(10, 12, and 16), Self-monitoring items (5, 9, and 19), Planning items (3, 14, and 20), Decision-making items (2, 6, and 18) Problem-solving items (8, 13, and 21) and Goal Attainment items (4, 7 and 15). The first version of this scale, (a copy of which can be found in the Appendix, C), contains 21 positive statements measuring the seven skills of self-regulation; each skill has three statements. Students have to respond to each statement by choosing one of four options, which are always, Sometimes, Seldom and Never. In this scale, the researcher read the instructions and then directed the students to respond to the items. She then read each item for the students, explaining its meaning if necessary. The scoring of each option in this scale is as follows: Always=4, Sometimes=3, Seldom=2, Never=1 with the maximum score being 84 (selecting Always for each item) and the minimum score being 21 (selecting Never for each item). The meaning of self-regulation for each number estimated is as follows: 21-33 very low; 34-45 low; 46-58 moderate; 59-71 high; and 72-84 very high. The researcher decided to categories self-regulation of her scale in five different bands because she would like to extended the gap between self-regulation level which worth easier diagnoses for a score. Furthermore, she used these specific categories that are because she determined to make an equal gap (12 points) between each two numbers in one category.

After implementing the scales in Saudi schools for the validation study, the researcher focused on just five rather than seven skills in her intervention programme that is because there are a big difference between the lowest and high scores in it and because she decided to develop her proposed intervention programme on just five skills to increase the sessions for each skill from two as planned before to three sessions. She

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thought that will able students with learning difficulties to obtain more knowledge and practise on the five skills, which hopefully assist them to focus on these skills and improve their self-regulation. The researcher decided to focus on Self-reinforcement, Self-evaluation, Problem-solving, Planning and Decision-making, therefore dropping items related to goal attainment and self-monitoring (4, 5, 7, 9, 15 and 19). There were 15 items remaining, which were used to gather the results by using Exploratory and Confirmatory Factor Analysis (EFA) and (CFA).

4.4.2 Situation Judgment Test

4.4.2.1 Rationale of developing scale

The researcher has decided to develop Situation Judgment Test for two reasons. Firstly, following a review of the existing literature related to self-regulation, the researcher did not find any scale measures of self-regulation skills in real-life situations. Therefore, this will be the first scale developed for self-regulation in real life. Second, the researcher aimed to assess the ability of students to select the right option regarding to the target seven self-regulation skills. The next section describes the scale in greater detail.

4.4.2.2 Development of Situation Judgment Test

A further measure for self-regulation skills is a set of 14 situations; the researcher developed this scale based on Social Cognitive Theory (Pintrich, 2002 and Lamport et al., 2012). The first version of this scale comprised 14 situations with two choices, two situations for each skill of the seven skills included in this study. The items related to the seven skills that were developed by adapting the previous researcher's idea and combining it with the student's school and daily life as follows: Self-reinforcement

items (1, 8) (Wehmeyer, Agran and Hughes, 2002; Peters, 2010; Manusov and Patterson, 2006), Self-evaluation items (6, 12) (Schraw and Moshman, 1995; McMillan and Hearn, 2008), Self-monitoring items (5, 11) (Rock, 2005; Rafferty, 2010), Planning items (2, 14) (Zimmerman, 2004; Barksdale and Lund, 2002), Decision-making items (4, 10) (Greenbank, 2010; Nemeth, 2012), Problem-solving items (7, 13) (Rebori, n.d.; Pennant, 2014) and Goal-attainment items (3, 9) (Odden, 2011). The layout sheet includes three pages containing instructions for the scale and the 14 situations, and the students have to select one of two choices, A or B, for each situation.

These letters present self-regulation choices for each situation as follows: 1=B, 2=A, 4=B, 5=A, 7=B, 8=B, 10=A, 12=A, 13=B, 14=B. The opposite letter for each situation represented non-self-regulation. Letters presenting self-regulation achieve a 2 score and the letters which did not present self-regulation gather a 1 score in the SPSS. The minimum score is 14 and the maximum score is 28, and the meaning of self-regulation for each number estimated is as follows: 14-18 low, 19-23 moderate and 24-28 high self-regulations. The researcher decided to categories self-regulation of this developed scale in three different categories because there are small differences between the minimum and maximum scores and because she would like to extend the gap between self-regulation levels which allows easier diagnosis for a score. Furthermore, she used these specific bands because she determined to make an equal gap (4 points) between each two numbers in one category (a copy can be found in Appendix C).

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Following the implementation of this scale in the validation study, the researcher decided to focus on just five skills in her intervention programme for the same reasons as the Self-regulation Scale under Section 4.4.1.2, because both of these two scales were developed by the researcher to measure self-regulation skills in the intervention programme. Therefore, the researcher applied the following skills in analysing her data. These skills are namely Self-reinforcement, Self-evaluation, Problem-solving, Planning and Decision-making; hence, dropping items which were related to Goal-attainment and Self-monitoring items (3, 6, 9, and 11 from her analysis). The researcher worked with 10 items in her analysis of this scale.

4.4.3 The Academic Self-concept

4.4.3.1 Rationale of developing scale

The researcher reviewed the existing scales (see chapter 2) regarding academic self-concepts. These scales include the Burden (2008) scale, with 20 items, which either included different standardised age, or both genders in contrast to the standardised age and just females in the current study. In addition, these studies included other dimensions such as problem-solving as in Burden (1998). All that leads the researcher to develop her own scale based on just measuring the academic self-concept without any other dimensions on just female students with and without learning difficulties in Saudi.

There is no an existing academic self-concept scale that has been specifically designed for students with learning difficulties aged between 10 and 12 years old in the Arabic region, especially in Saudi. Therefore, the researcher decided that there was a

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need to develop a scale to measure five dimensions of the academic self-concept in students with learning difficulties. The researcher thought that these dimensions are important because they present internal and external academic self-concept for students with and without learning difficulties. The following section provides the development of this scale in more details.

4.4.3.2 Development of Academic Self-concept Scale

The researcher developed an Academic Self-concept Scale to address a lack of existing instruments in this area, due to there being no scale available that can measure the academic self-concept in female students with Specific Learning Difficulties in Saudi. In this scale, the academic self-concept was divided into five dimensions: academic ability; academic high performance; academic low performance, academic attitude; and academic confidence. The researcher chose these domains of the academic self-concept after reviewing the related literature as discusses in Chapter 2 of this thesis. Following a review of the existing scales concerning academic self-concept, notably the Self-description Questionnaire II (Marsh, 1992), the Academic Self-concept Questionnaire (Coetzee, 2011), and the Academic Self-concept Scale (Flowers et al., 2013), The researcher decided to choose these five domains because they present internal and external dimensions regarding the Academic Self-concept Scale (a copy can be found in Appendix, B)

The first version of the researcher's Academic Self-concept Scale included 22 positive and negative statements divided equally and all relating to academic self-concept. The items included in each dimension are as follow: Academic Confidence items (2, 5, 12, 17, and 18), academic ability for schoolwork items (6, 7, 10, 11),

academic attitude items (9, 15, 16, 21), academic high performance items (3, 4, 14, 20) and academic low performance items (1, 8, 13, 19). The layout sheet is one page which includes instructions and 22 positive and negative statements divided equally. Students completed the scale by selecting a response of 'True' or 'False' for each statement. The researcher read out the items and explained their meaning if required. For the positively-worded statements items (3, 4, 6, 7, 9, 11, 14, 16, 17, 20, 21), the scoring for each option in this scale is as follows: True=1, False=0. The negatively-worded statements items (1, 2, 5, 8, 10, 12, 13, 15, 18, 19, and 22) are scored in the opposite direction: True=0 and False=1 (a copy of the scale can be found in Appendix, C). On this scale, the highest score is 22 and the lowest score is 0. The researcher then devised bands to denote low, moderate or high academic self-concept as follows: 0- 7 low, 8-14 moderate and 15-22 high academic self-concepts. The researcher decided to categorise the academic self-concept in this way to highlight difference between the lowest and highest scores on the scale. Furthermore, she determined to make an equal gap (7 points) between each two numbers in one category.

4.5 Validation of six scales used in current study

Six scales are used in this validation study; three existing scales namely, the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), the Myself-As-A-Learner Scale (Burden, 1998) and the Locus of Control Scale (Nowicki and Strickland, 1973) (detailed of these scales can be found in Chapter 3). An additional three scales were developed by researcher, namely the Self-regulation Scale, the Situation Judgment Test and the Academic Self-concept Scale. To validate the six scales, the following four

steps were undertaken to examine the usefulness of these scales to address the first research questions and its related hypotheses in the subsequent intervention study.

4.5.1 Reliability

Reliability is considered as an important core in measuring human behaviour in Social Science and Psychology. Internal consistency focuses on measuring the consistency of how well each item in a scale will measure a target human behaviour. In this study, the researcher used coefficient alpha to measure internal consistency, which was created by Cronbach in 1951 and now as known Cronbach's Alpha (Drost, 2011). The range of internal consistency of Cronbach' alpha is between 0-1 and the closest Cronbach's alpha to 1 is the greatest the internal consistency of the items in a scale. According to Nikolov (2016) the results of Cronbach's alpha can be interpreted as follows: > .60 to .70 consider as (Accepted) value and value between > .70- 90 are (Good). In this study the internal consistency reliability by Cronbach's alpha for the six scales are presented below in Table 4.6.

Table 4.6 Internal Consistency Reliability by Cronbach's Alpha for the Six Scales

Name of the scale	Cronbach's alpha
Self-efficacy for Self regulated Learning Scale (7 items, P and I)	.76
The Academic Self-concept Scale (16 items, P and I)	.74
The Myself-As-A-Learner Scale (20 items, P and I)	.71
The Self-regulation Scale (13 items, P)	.69
The Self-regulation Scale (10 items, I)	.64
The Locus of Control Scale by (20 items, V)	.61
The Situation Judgment Test (10 items, V)	.45

P=Pilot study; I=Intervention study; V=Validation study.

The internal consistency by Cronbach alpha for, the Self-efficacy for Self regulated Learning Scale (Usher and Pajares, 2008), the Academic Self-concept Scale (developed by researcher) and the Myself-As-A-Learner Scale (Burden, 1998) are .76, .74 and .71 respectively. The Cronbach's alpha in these scales presents a good internal consistency. On the other hand, The Cronbach's alpha in the Self-regulation Scale (developed by researcher, 13 items) is .69, Self-regulation Scale (developed by researcher, 10 items) has .64 and the Locus of Control Scale (Nowicki-Strickland, 1973) is .61 that presents accepted internal consistency. Finally, Cronbach's alpha for the Situation Judgment Test (developed by researcher) is .45; thereby presenting unacceptable internal consistency and the researcher excluded this scale from further analysis and consequently did not include it in the pilot and intervention study. After that, the correlation between these scales was undertaken for all scales except the Situation Judgment Test.

4.5.2 Correlation between scales

The researcher used parametric and non-parametric correlation between the five scales due to the results of normality distribution test (see section 4.6 in this chapter). The researcher formed firstly, a parametric correlation, which is Pearson correlation for the total scores for both groups to investigate the correlation between the five scales used in this study. The researcher combined the two groups (students with and without LD) in the correlation analysis to avoid the data analysis failing on account of the correlation between the two independent groups defined by participants' characteristics (with/without LD) which can impair the accuracy of the outcomes.

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Therefore, the researcher combined the outcomes from the two independent groups so the mean or the median of the two groups represents the results adjusted appropriately regarding the sample characteristics. In addition, the researcher applied the correlation between the two independent groups to investigate the difference in the result between the two groups, which highlights the influence of the characteristics on the results (Hopkins, 2006). The correlation formed between all the five scales had been undertaken and the result indicates the following findings (Table 4.7)

Table 4.7 Pearson Correlation between the five Scales for both groups

Scale	2	3	4	5
1. The Self-regulation Scale (10 items D)	.439[**]	.208[**]	−.047	.409[**]
2.The Self-efficacy for Self-regulated Learning Scale (7 items, Usher and Pajare)	-	.396[**]	-.102[**]	.347[**]
3. The Academic Self-concept (16 items, D)	-	-	-.228[**]	.482[**]
4. The Locus of Control Scale (20 items, Nowicki-Strickland)	-	-	-	.106[*]
5. The Myself-As-A-Learner Scale (20 items, Burden)	-	-	-	-

D=developed by researcher; ** Correlation is significant at the 0.01 level (2-tailed).; *.Correlation is significant at the 0.05 level (2-tailed).

There is a significant positive medium correlation at the 0.01 levels between Self-regulation and the Self-efficacy for Self-regulated Learning Scales. This suggests that there is a positive relationship between these two scales where a participant obtains a high or low score in both scales. The positive correlation between the existing scale

and the developed by the researcher scale provides evidence of some concurrent validity.

There is also a significant positive medium correlation at the 0.01 levels between the Academic Self-concept Scale and the Myself-As-A-Learner Scale. This means there is a positive relationship between these two scales where a participant obtains a high or low score in both scales. The positive correlation between the existing scale and the developed by researcher scale provides evidence of some concurrent validity.

There are significant negative small correlations at 0.01 levels between the Locus of Control Scale (Nowicki-Strickland) with Self-efficacy for Self Regulated Learning Scale and the Academic Self-concept Scale. Furthermore, a negative small correlation between the Locus of Control Scale and the Myself-As-A-Learner Scale at 0.05 levels was found. These findings suggest that there is a negative relationship between the Locus of Control Scale and the other scales, with the exception of the Self-regulation Scale. Where a participant obtains a high score on the Locus of Control Scale and low scores on other scales, the opposite is true. The negative correlation between the Locus of Control Scale and other scales demonstrates some divergent validity.

Secondly, a non-parametric Spearman correlation was used for the total scores for both groups to investigate the correlation between the five scales implemented in this study. The correlation formed between all the five scales had been undertaken and the findings can be seen in Table 4.8 below.

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Table 4.8 Spearman Correlation between the five scales for both groups

Scale	2	3	4	5
1. The Self-regulation Scale (10 items, D)	.468**	.217**	−.038	.387**
2. Self-efficacy for self regulated Learning Scale (7 items, Usher and Pajare)	-	.376**	-.105**	.393**
3. The Academic Self-concept (16 items, D)	-	-	-.203**	.468**
4. Locus of control scale(20 items, Nowicki-Strickland)	-	-	-	.084
5. The Myself-As-A-Learner Scale (20 items, Burden)	-	-	-	-

D=developed by researcher; ** Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

There is a significant positive medium correlation at the 0.01 level between the Self-regulation Scale and the Self-efficacy for Self-regulated Learning Scales. This suggests that there is a positive relationship between these two scales where a participant obtains a high or low score in both scales. The positive correlation between the existing scale and the developed by researcher scale provides evidence of some concurrent validity. In addition, there is a significant positive medium correlation at the 0.01 level between the Academic Self-concept Scale and the Myself-As-A-Learner Scale. This finding indicates that there is a positive relationship between these two scales, where a participant obtains a high or low score on both scales. The positive correlation between the existing scale and the developed by researcher scale provides evidence of some concurrent validity.

There are significant negative small correlations at 0.01 levels between the Locus of Control Scale and the Self-efficacy for Self-regulated Learning Scale and the Academic Self-concept Scale. This means that there is a negative relationship between

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the Locus of Control Scale and the other scales, with the exception of the Self-regulation Scale. Where a participant obtains a high score in the Locus of Control Scale and low scores on other scales, the opposite is true. The negative correlation between the Locus of Control Scale and other scales demonstrates some divergent validity. However, there is no significant correlation between the Locus of Control Scale with both the Self-regulation Scale and the Myself-As-A-Learner Scale.

The researcher subsequently compared the correlation coefficient between students with and without LD, by using Pearson and Spearman correlations due to the results of test of normality. Firstly, Pearson correlation was used and the results of this analysis can be seen in Table 4.9.

Table 4.9 Pearson Correlation between the five Scales for each group

Scale	Category	SSRS	ASC	LOC	MALS
SRS	NLD	.361**	.123**	.063	.364**
	LD	.510**	.153	.159	.293*
SSRS	NLD	-	.350**	.078	.281**
	LD	-	.125	-.055	.082
ASC	NLD	-	-	-.207**	.446**
	LD	-	-	-.271*	.317*
LOC	NLD	-	-	-	-.103*
	LD	-	-	-	-.002

SRS= the Self-regulation Scale (10 items); SSRS= the Self-efficacy for Self-regulated Learning Scale; ASC= Academic self-concept; LOC= the Locus of Control Scale and finally MALS=Myself-As-A-Learner Scale; LD=Students with learning difficulties; NLD=Students without learning difficulties.

There is a significant positive medium correlation at the 0.01 level between the Self-regulation Scale and the Self-efficacy for Self-regulated Learning Scales for both groups with and without LD. This indicates that there is a positive relationship between these two scales, where a participant with and without LD obtains a high or low score on both scales. The positive correlation between the existing scale and the developed by researcher scale for both students with and without learning difficulties provides evidence of some concurrent validity. In addition, there is significant positive medium correlation at the 0.01 level between the Academic Self-concept Scale and the Myself-As-A-Learner Scale for both groups with and without LD.

This means that there is a positive relationship between these two scales where a participant with and without LD obtains a high or low score in both scales. The positive correlation between the existing scale and the developed by researcher scale for both students with and without learning difficulties provides evidence of some concurrent validity.

There are significant negative small correlations between the Locus of Control Scale and the Academic Self-concept Scale at 0.01 level (NLD) and 0.05 level (LD). Furthermore, there is a significant negative small correlation between the Locus of Control Scale and the Myself-As-A-Learner Scale at 0.05 levels for just NLD students. This means that there is a negative relationship between the Locus of Control Scale and the other scales, with the exception of the Self-regulation Scale. Where a participant with and without LD obtains a high score in the Locus of Control Scale and low scores on the other scales, the opposite is true.

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The negative correlation between the Locus of Control Scale and other scales demonstrates some divergent validity. However, there is no significant correlation between the Locus of Control Scale and the Self-regulation Scale, the Self-efficacy for Self-regulated Learning Scale for both groups and the Myself-As-A-Learner Scale for students with LD.

Secondly, Spearman correlation was used between scales for each group and the findings are shown in Table 4.10.

Table 4.10 Spearman Correlation between the five Scales for each group

Scale	Category	SSRS	ASC	LOC	MALS
SRS	NLD	.412**	-.146**	.063	.339**
	LD	.470**	.255	.113	.392**
SSRS	NLD	-	.317**	.072	.337**
	LD	-	.129	-.051	.189
ASC	NLD	-	-	-.186**	.436**
	LD	-	-	-.245	.338*
LOC	NLD	-	-	-	-.078
	LD	-	-	-	-.064

SRS= the Self-regulation Scale (10 items); SSRS= the Self-efficacy for Self-regulated Learning Scale; ASC= Academic self-concept; LOC= the Locus of Control Scale and finally MALS= the Myself-As-A-Learner Scale ; LD=Students with learning difficulties; NLD=Students without learning difficulties.

There is a significant positive medium correlation at the 0.01 level between Self-regulation and Self-efficacy for Self-regulated Learning Scales for both groups with and without LD. This finding suggests that there is a positive relationship between these two scales where a participant with and without LD obtains a high or low score in both

scales. The positive correlation between the existing scale and the developed by researcher scale for both students with and without learning difficulties provides evidence of some concurrent validity.

There is also a significant positive medium correlation at the 0.01 level between the Academic Self-concept Scale and the Myself-As-A-Learner Scale for NLD students and a small significant positive correlation at .05 level for students with LD. This suggests that there is a positive relationship exists between these two scales, where a participant with and without LD obtains a high or low score in both scales. The positive correlation between the existing scale and the developed by researcher scale for both students with and without learning difficulties provides evidence of some concurrent validity.

There appears to be a significant negative small correlation between the Locus of Control Scale and the Academic Self-concept Scale at .01 level for NLD students. This means that there is a negative relationship between the Locus of Control Scale and the other scales, with the exception of the Self-regulation Scale. Where a participant with and without LD obtains a high score in the Locus of Control Scale and low scores on the other scales, the opposite is true.

The negative correlation between the Locus of Control Scale and other scales demonstrates some divergent validity. However, there is no significant correlation between the Locus of Control Scale and the Self-regulation Scale, the Self-efficacy for Self-regulated Learning Scale and the Myself-As-A-Learner Scale for both groups and the Academic Self-concept Scale for students with LD.

After completing the correlation analyses, attention turned to Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were undertaken regarding to all scales with the exception of Situation Judgment Test. These analyses are examined in the following section.

4.5.3 Preliminary analysis

The two scales developed by the researcher, namely the Self-regulation Scale and the Academic Self-concept Scale were validated with the three published scales, namely the Self-efficacy for Self-regulated Learning Scale, the Myself-As-A-Learner Scale and the Locus of Control Scale. Factor analysis was used to analyze the data in order to address the first research question and its related hypotheses. This technique was established by Charles Spearman in early 1900. There are two popular factor analysis methods, which are Exploratory Factor Analysis (EFA) and Confirmatory Factor analysis (CFA) (Young and Pearce, 2013).

These statistical techniques are useful in analyses a scale. EFA is considered as a reduction technique for the variables, which assists the researcher to determine the factors structurally based on the participants' responses. In contrast, CFA enables the researchers to examine the hypothesis through the relationship between observed and latent variables (Little, 2013).

4.5.3.1 Exploratory Factor Analysis (EFA).

SPSS software was used to conduct an Exploratory Factor Analysis, which is a statistical method widely used in the Social Sciences. It is often used to develop scales for measurement and if the measurement has not been used with a particular

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participant. This technique begins with the correlation matrix, which demonstrates any inter-correlation between variables. It identifies the latent variables and underling factor structure (Costello and Osborne, 2005).

The researcher conducted the EFA for five scales used in this study to assess their reliability. The following sections explain the EFA for each scale.

a) *The Self-regulation Scale (developed by researcher)*

In this study, the EFA of the Self-regulation Scale (15 items) was conducted by using Principal Component Analysis with direct oblimin rotation (oblique rotation was used). The researcher chose oblique (oblimin) rotation to be used for several reasons. First, to acquire a set of factor loading from a given set. Second, the researcher attempted to relate the calculated factors to the theoretical basis. Third, in this approach factors can be rotated to obtain a simple structure. The researcher used oblique rotation methods because she assumes that the calculated factors are correlated (Brown, 2009). Fourth reason, oblique rotation (oblimin) was selected due to the factor correlation matrix being around .3 and above which means that there is 10% or more variance overlap among the emerged factors which makes oblique rotation (oblimin) the appropriate method to use during EFA with the data provided (Tabachnick and Fiddell, 2007).

The findings of the EFA for the Self-regulation Scale (developed by researcher) can be seen in Table 4.11 below.
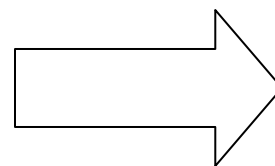
Table 4.11 Rotated factor scores from pattern Matrix (Oblimin Rotation) for Self-regulation Scale.

Item Description	F1/SE	F2/P	F3/DM	F4/PS	F5/SR
16. I check how I did on tests.	.692				
12. I check over my homework to be sure that it is right.	.605				
13. I think before I act.	.532				
20. I develop timetables for my work.		-.868			
14 I set a schedule for each day during my school holiday.		-.817			
10. I make a check list for my jobs.		-.690			
8.I change my thinking until I solve a Problem.				.750	
3. I plan for the long term.				.592	
1.After I do well on a test I entertain myself.					.746
11. After I finish my home work I congratulate myself.					.612
6. My choices match my interests.			-.727		
2. I can make decisions by myself.			-.577		
18. I care about the result of my choice.			-.547		

F=factor; SE=Self-evaluation; P= Planning; DM=Decision-making; PS= Problem-solving; SR=Self-reinforcement

Five clear factors with eigenvalues >1.0 emerged which explain 53.21% of the total variance. The screen plot confirmed the five factors that the slope dips below 1.0 eigenvalue (the y-axis) between 5 and 6 factors. The Pilot study version of this scale contains 13 items and five self-regulation skills. Three self-regulation skills are composed in three items each which are Self-evaluation items (12, 13, 16), Planning items (10, 14, 20) and Decision-making items (2, 6, 18), with the exception of Problem-solving items (3, 8) and Self-reinforcement items (1, 11) skills, which have two items for each skill (see Appendix, D).

After the pilot study, the researcher realized that the emergent factors did not correspond with the five hypothesized factors, with three items representing Self-evaluation, Planning and Decision-making and two items representing Self-

reinforcement and Problem-solving. As the results from EFA reveal, the factors in the Self-regulation Scale did not match the theoretical factors. According to Ng, Niti, Chiam and Kua (2006), in this case data should be split into two parts and then be subjected to EFA and conducted through EFA again. The EFA was conducted for the second time for the Self-regulation Scale (15 items) and the results are shown below.

Table 4.12 Rotated factor scores from pattern Matrix (Oblimin Rotation) for the Self-regulation Scale.

Item Description	F1/SE	F2/P	F3/DM	F4/PS	F5/SR
16. I check how I did on tests.	-.799				
12. I check over my homework to be s that it is right.	-.682				
20. I develop timetables for my work.		-.913			
14 I set a schedule for each day during my school holiday.		-.851			
8. I change my thinking until I solve a problem.				.731	
21. I can find many possibilities to sol a problem.				.678	
1.After I do well on a test I entertain myself.					.606
11. After I finish my home work I Congratulate myself.					.535
6. My choices match my interests.			.696		
18. I care about the result of my choice			.607		

F=factor; SE=Self-evaluation; P= Planning; DM=Decision-making; PS= Problem-solving; SR=Self-reinforcement

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The results of the EFA are presented in Table 4.12 and the Self-regulation Scale of the 15 items was conducted by using Principal Component Analysis with direct oblimin rotation (oblique rotation was used). Five clear factors with eigenvalues >1.0 emerged which explained 53.70% of the total variance. The scree plot confirmed the five factors that the slope dips below 1.0 eigenvalue (the y-axis) between factors 4 and 5. The emergent factors corresponded with the five factors namely, Self-reinforcement items (1, 11), Self-evaluation items (12, 16), Planning items (14, 20), Decision-making items (6, 18) and Problem-solving items (8, 21). This version of the scale contains 10 items and the version was adopted for the intervention study (see Appendix, E). The finding for the EFA can be seen in Table 4.12 above.

b)The self-efficacy for Self-regulated Learning Scale

The EFA presented in Table 4.13 of the 7 items of the Self-efficacy for Self-regulated Learning Scale (usher and Pajears, 2008) was conducted by using Principal Component Analysis with direct oblimin rotation (oblique rotation was used). This EFA presented one factor with eigenvalues >2.0 emerged which explained 38.64% of the total variance. The scree plot confirmed the one factor that the slope dips below 1.0 eigenvalue (the y-axis) just one factor. The emergent factors correspond with one factor which explains self-efficacy for self-regulated learning in 7 items. This scale with seven items used in both pilot and intervention study (See Appendix, D and E). The findings of the EFA can be seen in Table 4.13 below.

Table 4.13 Rotated factor scores from pattern Matrix (Oblimin Rotation) for the Self-efficacy for Self-regulated Learning Scale.

Items Description	F1/SSLS
1.How well can you finish your homework on time?	.679
2.How well can you study when there are other interesting things to do?	.424
3. How well can you concentrate on your schoowork?	.733
4. How well can you remember information presented in class and in your School Books?	.647
5. How well can you arrange a place to study at home where you won't get distracted?	.562
6. How well can you motivate yourself to do schoolwork?	.682
7. How well can you participate in class discussion?	.574

F=factor; SSLS= the Self-efficacy for Self-regulated Learning Scale

c) The Academic Self-concept Scale

Table 4.14 shows the EFA of the Academic Self-concept Scale (20 items). It was conducted using Principal Component Analysis with direct oblimin rotation (oblique rotation was used). There are five clear factors with eigenvalues >1.0 emerged which explained 43.43% of the total variance. The scree plot confirmed the five factors that the slope dips below 1.0 eigenvalue (the y-axis) showed five factors. The emergent factors corresponded with the five factors, namely Confidence About Ability items (2, 5, 12, 17), Attitude Toward Subjects and School items (9,15,16,21), Ability in School's Subjects items (6, 7, 10, 11), Low Performance items (8, 19) and High Performance items (3, 20). This scale with 16 items was used during pilot and intervention study. (For more information about this version, see appendix D and E). The findings for the EFA can be seen in Table 4.14 below

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Table 4.14 Rotated factor scores from pattern Matrix (Oblimin Rotation) for Academic
  Self-concept Scale.

Item Description	F1/CA	F2/ATSS	F3/ASS	F4/LP	F5/HP
12. Schoolwork is hard.	-.710				
5. I find coursework challenging.	-.660				
2. My courses are hard to understand.	-.577				
17. I can do math problems	.510				
21. I enjoy class subjects.		.711			
9. I like attending class.		.705			
16. I enjoy completing take-home work.		.626			
15. I hate social studies.		-.478			
11. I get good Gradeson tests.			.685		
6. I understand my reading assignments.			.636		
7. I am a fast learner.			.559		
10. My peers are more intelligent than me.			-.435		
8. I require assistance to complete Schoolwork.				.653	
19. I have trouble comprehending English class.				.634	
20. I assist my peers with their class work					-.705
3. I perform better than average in each subject.					-.645

F=factor; CA=Confidence about Ability; ATSS=Attitude Toward Subjects and School; ASS= Ability in School's Subjects; LP=low
performance; HP= High Performance.

d) The Locus of Control Scale

The EFA presented in Table 4.15 of the Locus of Control Scale (40 items, see appendix, C), was conducted by using Principal Component Analysis with direct oblimin rotation (oblique rotation was used). This scale contains eight clear factors with eigenvalues >1.0 emerged which explained 55.87% of the total variance. The scree plot confirmed the eight factors that the sloe dips below 1.0 eigenvalue (the y-axis) between seven to eight factors. The findings of the EFA can be seen in Table 4.15 below.
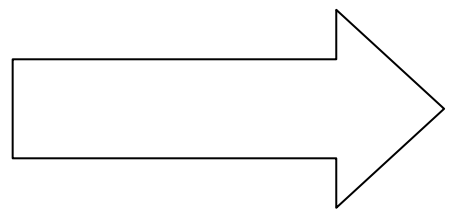
Table 4.15 Rotated factor scores from pattern Matrix (Oblimin Rotation) for the Locus of Control Scale

Item Description	F1/BL	F2/ GQ	F3/MO	F4/ BTS	F5/BKA	F6/HDP	F7/ BE	F8/ BTL
24. Have you ever had…...?	.728							
21. If you find a four leaf...?	.724							
10. Do you believe that .....?	.563							
33. Do you feel that …….?		.774						
36. Do you feel that ..…….?		.692						
39. Most of the time,….…..?		.518						
5. Are you often blamed.....?			.729					
27. Have you felt that ..….?			.582					
4. Most of the time,..…….?				.711				
7. Do you feel that most....?				-.600				
37. Do you usually feel .....?				-.514				
15. Do you believe that ….?					-.754			
17. Do you believe that..…?					-.582			
19. Do you feel that one.…?						.788		
1. Do you believe that …..?						-.626		
32. Do you feel that..…….?						-.451		
14. Do you feel that it's …?							.626	
8. Do you feel that if ..…..?							.654	
31. Most of the time, do ....?								.603
29. Do you believe that .....?								.588

F=factor; BL=Believe in Luck; GQ=Give up quickly; MO= refer mistakes to Others; BTS= Believe in Trying at School; BKA=Believe in Kids Ability; HDP= How to Deal with Problem;

BE= Believe in Effort; BTL=Believe in Trying in life.

The emergent factors corresponded with the eight factors, namely Believe in Luck items (10, 21, 24), Give up Quickly items (33, 36, 39), Refer to Mistakes to Other items (5, 27), Believe in Trying at School items (4, 7, 37) , Believe in Kids Ability items (15, 17) , How to Deal with Problem items (1, 19, 32), Believe in Effort items (8, 14) and Believe in Trying in Life items (29, 31). This scale was not applied during the pilot and the intervention study, but was used to gather more psychological details about students with and without learning difficulties.

e) The Myself-As-A-Learner Scale

Finally, the EFA presented in Table 5.16 of the 20 items the Myself-As-A-Learner Scale (Burden, 1998) was conducted by using Principal Component Analysis with direct oblimin rotation (oblique rotation was used). The EFA presented five clear factors with eigenvalues >1.0 emerged which explained 46.52% of the total variance. The scree plot confirmed the five factors that the slope dips below 1.0 eigenvalue (the y-axis) between four to five factors. The emergent factors corresponded with the five factors namely, Confidence in Learning Ability items (1,5,11,17,18,19), Confidence About Work items (6,8,12,16,20), Enjoyment in Problem-solving items (2,7,9,13,15), Careful learning Style items (4,10) and finally Confidence in Dealing with New Work items (3,14).

The Myself-As-A-Learner Scale with 20 items was used in the pilot and the intervention study as outcome measure and for further detailed about the this scale version (see Appendix, D and E).
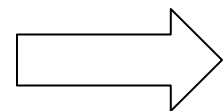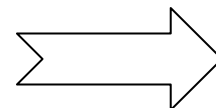
Table 4.16 Rotated factor scores from pattern Matrix (Oblimin Rotation) for the Myself-As-A-Learner Scale.

Item Description	F1/CLA	F2/CW	F3/EPS	F4/CLS	F5/CDW
17. I am clever.	.753				
1. I am good at doing tests.	.684				
18. I know how to be a good learner.	.682				
11. Learning is easy.	.664				
19. I like using my brain.	.554				
5. I am good at discussing things.	.335				
16. I find a lot of schoolwork difficult.		.732			
20. Learning is difficult.		.702			
12. I am not very good at solving problems.		.597			
6. I need lots of help with my work.		.581			
8. I get anxious when I have to do new Work.		.467			
9. I think that Problem-solving is fun.			-.779		
7. I like having difficult work to do.			-.657		
2. I like having problems to solve.			-.557		
15. I know how to solve the problem that I meet.			-.397		
13. I know the meaning of lots of words.			-.331		
10. When I get stuck with my work, I can usually work out what to do next.				.836	
4. Thinking carefully about your work helps you to do it better.				.556	
14. I usually think carefully about what I Have got to do.					-.653
3. When I am given new work to do, I usually feel confidence I can do it.					-.424

F=Factor; CLA=Confidence in Learning Ability; CW= Confidence about Work; EPS= Enjoyment in Problem –Solving; CLS= Carful Learning Style; CDW= Confidence in Dealing with New Work.

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4.5.3. 2 Confirmatory Factor Analysis (CFA).

CFA is a measurement model, which considers the relationship between observable and unobservable variables. Analysis of Moment Structures AMOS is the software package, which is used to conduct Confirmatory Factor Analysis CFA (Harrigngton, 2009).

4.5.3.2.1 Measurement model

CFA was used to confirm the hypotheses and estimate the fit of measurement model. S good model fit indicated by the following: RMSEA, which is the root mean square error of approximation, $\leq .06$ values indicate a good fit. CFI, which refer to perfect fit index, $\geq .95$ values consider as a cut-off value for good fit. Finally, $\chi^2/df < 3.0$ indicated a good fit in a model (Kenny and McCoach, 2003). According to (Dimitrov, 2013) CFI with > 0.95 indicate excellent fit and CFI with > 0.90 values present acceptable fit; RMSEA equal to 0.00 showed a perfect fit, but ≤ 0.05 is used to present an adequate model fit. The CFA measurement model was run for each scale and Table 4.17 below summarizes the results of the analyses.

Table 4.17 CFA (Measurement model) Results for the Five Scales

Scales	P	χ^2	Df	χ^2/df	CFI	RMSE
SRS (13 items)	.101	68.753	55	1.250	.969	.028
SRS (10 items)	.040	38.691	25	1.548	.977	.031
SSLS (7 items)	.343	15.525	14	1.109	.998	.012
ASC (16 items)	.006	132.429	94	1.409	.957	.025
LCS (20 items)	.010	183.839	142	1.295	.876	.029
	.47	170.335	141	1.208	.913	.024
MALS(20 items)	.000	309.913	160	1.937	.894	.042
	.000	266.824	157	1.700	.923	.036

SRS=the Self-regulation Scale; SSLS=the Self-efficacy for Self-regulated Learning Scale; ASC= the Academic Self-concept Scale; LCS=Locus of Control Scale; MALS=the Myself-As-A-Learner Scale.

a)The Self-regulation Scale (developed by researcher).

The initial measurement model for the overall sample for the Self-regulation Scale (13 items, see Appendix, D), showed good fit with χ^2 68.753, χ^2 /df =1.250, CFI = .969 and RMSEA = .028. However, the researcher realized that the structure did not match the researcher's theoretical model. Therefore, a second measurement model for the sample formed for the Self-regulation Scale based on the second EFA which presents (10 items) (for further information see 4.5.3.1, a). This measurement model showed a good fit with χ^2 38.691, χ^2 /df =1.548, CFI = .977 and RMSEA = .031.

b) The Self-efficacy for Self-regulated Learning Scale (User and Pajares, 2008).

CFA was undertaking and competed for the Self-efficacy for Self-regulated Learning Scale and the measurement model indicated good fit with χ^2 15.525, χ^2 /df =1.109, CFI = .998 and RMSEA = .012.

c) The Academic Self-concept Scale (developed by researcher)

CFA was conducted for the Academic Self-concept Scale (Development; 16 items) and it administrates good fit with χ^2 132.429, χ^2 /df =1.409, CFI = .957 and RMSEA = .025.

d) The Locus of Control Scale (Nowicki- Strickland, 1973)

The initial measurement model for the overall sample for the Locus of Control Scale indicate moderate fit with χ^2 183.839, χ^2 /df =1.295, CFI = .876 and RMSEA = .029. After adding one correlated error variances between item 5 and 27 based on modification indices, because these items measure the same factor and have similarities in wording, which made a slight difference with χ^2 170.335, χ^2 /df =1.208, CFI = .913 and RMSEA = .024.

e) The Myself-As-A-Learner Scale (Burden, 1998)

The Myself-As-A-Learner Scale indicated moderate fit with χ^2 309.913, χ^2 /df =1.937, CFI = .894 and RMSEA = .042. Adding three correlated error variances between items (1, 19); (7, 9) and (9, 2) based on modification indices, because the first two items (1, 19) are measuring the same factor, namely Confidence in Learning Ability and they have a cause and effect relationship. The last four items (7, 9) and (9, 2) are measuring Enjoyment in Problem-Solving factor and they have similarities in wording. Adding the correlated error variances made slightly difference in the fit of the model with χ^2 266.824, χ^2 /df =1.700, CFI = .923 and RMSEA = .036.

In summary, the results from the measurement model confirm that the factors correspond to the hypothesized factors for all scales except the Locus of Control Scale. The results also confirm the factor structure generated from EFA for all scales, which indicate an excellent fit for all scales except the Locus of Control Scale and the Myself-As-A-Learner Scale, which showed an acceptable model fit. The measurement model provides evidence of internal validity for all scales (Hafiz and Shaari, 2013).

4.5.3.2.2 AMOS graphic

The AMOS graphics software was used to conduct the CFA based on the results of the EFA. The first order Confirmatory Factor Analysis measurement model was conducted on all scales by using AMOS graphics. The purpose of using first order is to examine how well the measured items indicate a factor (Worthington and Whittaker, 2006). Researchers are encouraged to use CFA to obtain scales validity by obtaining construct and criterion validity. Construct validity can be divided into convergent validity and discriminant validity. Convergent validity obtained by the direct structure relationship

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between items and factor should differ from zero statistically. In contrast, discriminant validity can be obtained by estimating the correlation between factors, which may show that there are two or more factors, which are highly correlated. Criterion validity is measured through the correlation between a scale and standard measures within the same construct (Hafiz and Shaari, 2013).

In this study, the Confirmatory Factor Analysis (CFA) measurement model's first order was run using an Analysis of Moment Structure (AMOS) after the Exploratory Factor Analysis (EFA) was formed. The graphics results and its validity for each scale are described below.

a) The Self-regulation Scale (developed by researcher)

AMOS structural graphic for the Self-regulation Scale (13 items) which used during the pilot study is presented in Figure 4.1 below. The test of the first order implies that five factors were fit and these factors were namely: Self-reinforcement, Planning, Problem-solving, Self-evaluation and Decision-making. The correlation between items and factor values are provided in the model which differing from zero with loading between .78 to .25. There is a high correlation between Problem-solving and Decision-making factors (.63) and between Self-reinforcement and Planning factors (.64). No modifications were indicated from the analysis due to the excellent model fit indexes.

After the pilot study, the researcher realised that the emergent factors did not correspond with the five hypothesised factors. Therefore, the data split into two parts and EFA was run again for this scale and formed the same five factors with 10 items. The structural graphic for Self-Regulation Scale (10 items, developed by researcher) is presented in Figure 4.2 below. The test of the first order implies five factors, and these

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factors are namely: Self-reinforcement, Planning, Problem-solving, Self-evaluation and Decision-making. The correlation between items and factor values are provided in the model, which differ from zero with a loading between (.95) to (.24).   There is a high correlation between Self-evaluation and decision-making factors (.66) and between Self-reinforcement and Self-evaluation factors (.62) and between Self-reinforcement and Planning (.63). No modifications were indicated from the analysis due to the excellent model fit indexes. The following presents Figure 4.1 and Figure 4.2 respectively.
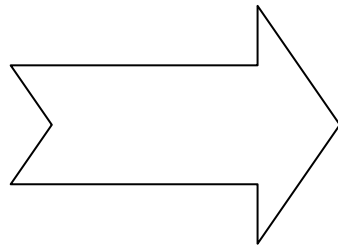
Figure 4.1 CFA the Self-regulation Scale 13 items (developed by researcher)
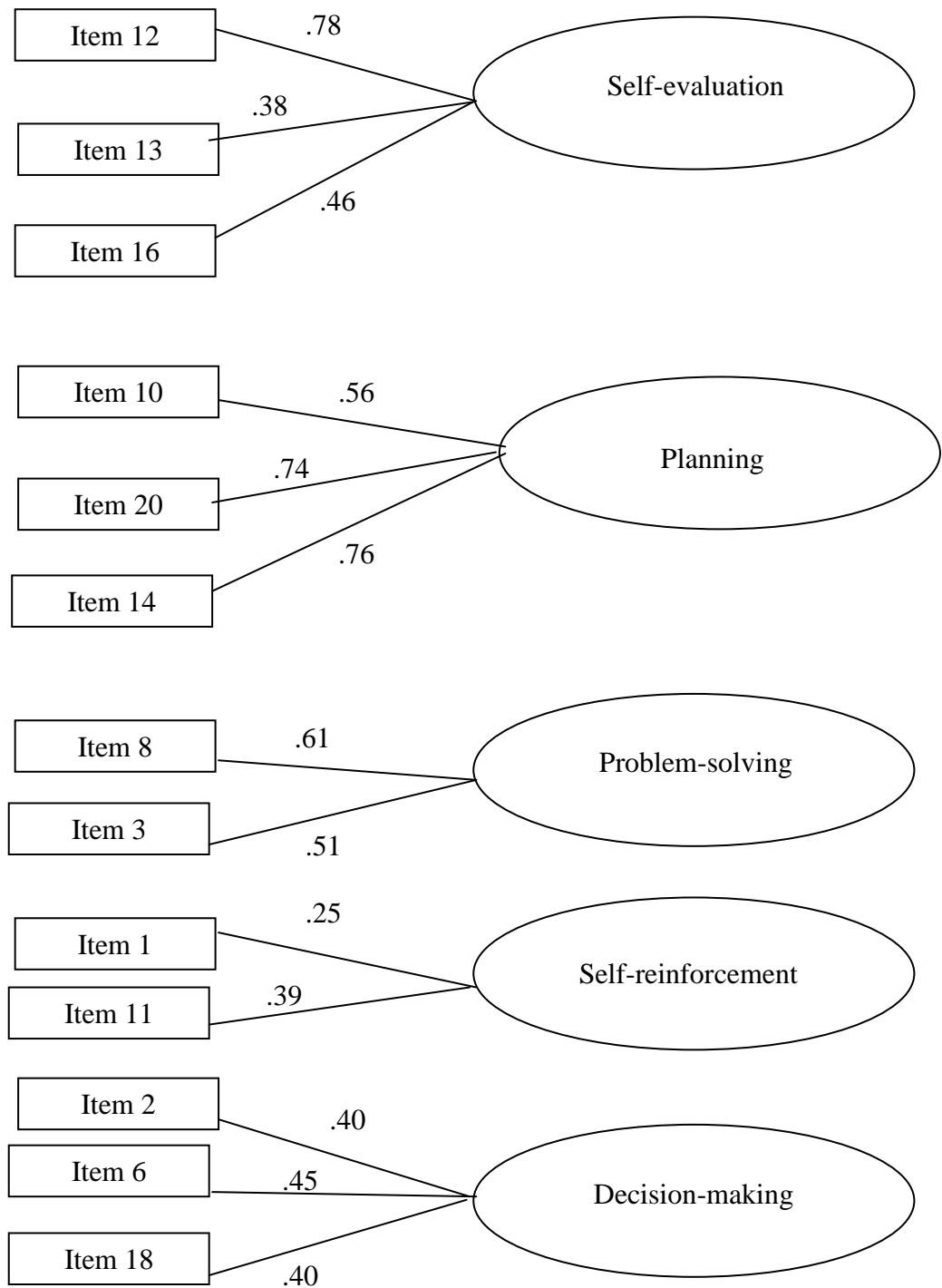
Figure 4.2 CFA the Self-regulation Scale 10 items (developed by researcher)
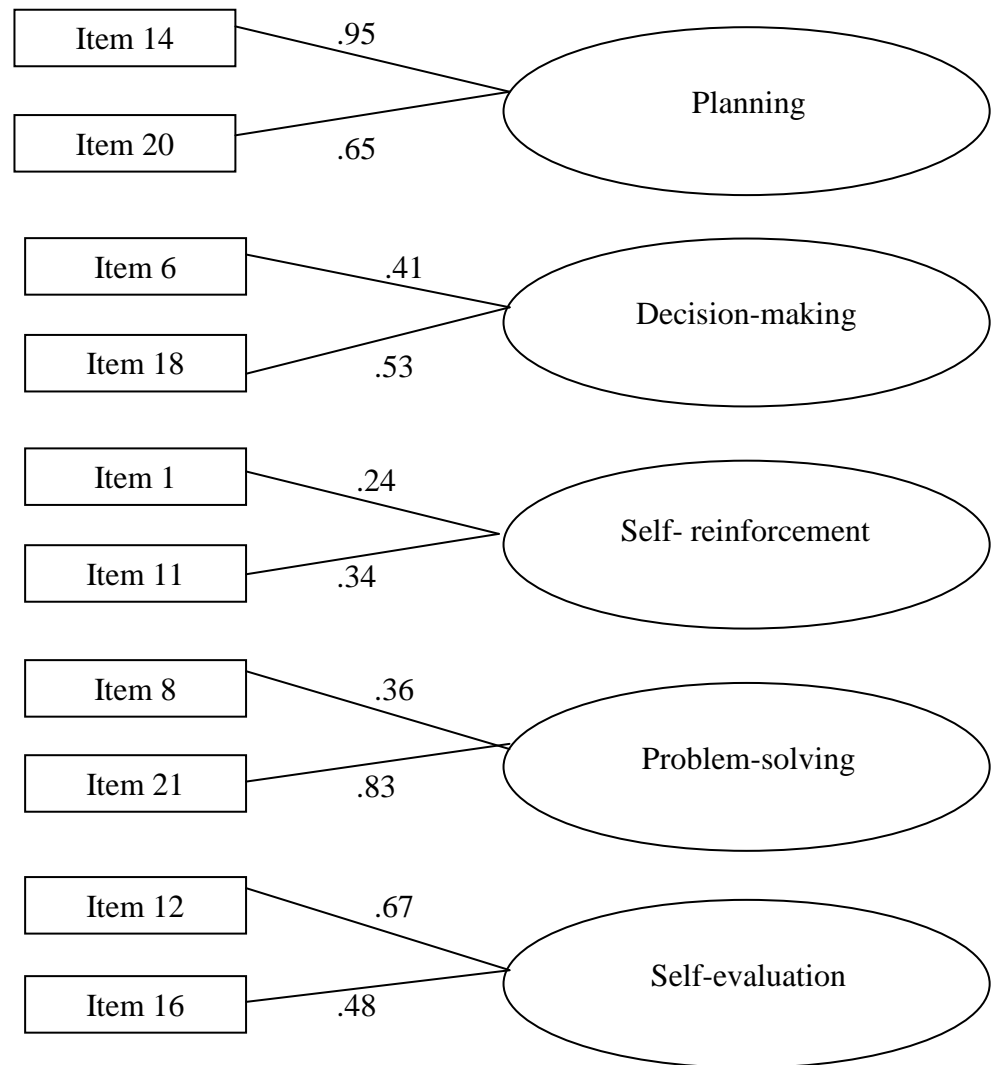
a) *The Self-efficacy for Self-regulated Learning Scale*

The Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) graphic is

displayed in Figure 4.3 below.
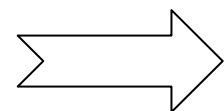
Figure 4.3 CFA the Self-efficacy for Self-regulated Learning Scale (7 items)
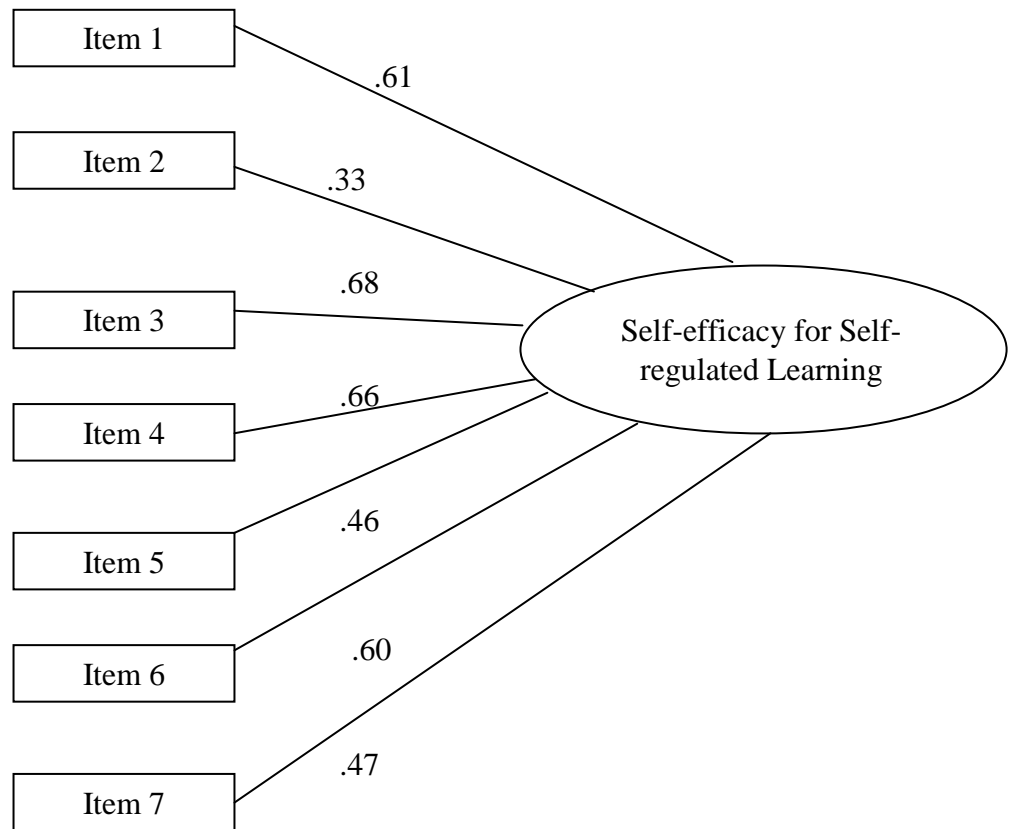
The test of the first order implies that only one factor fit, that being self-efficacy for self-regulated learning as highlighted in Usher and Pajares (2008). The correlation between item and factor values is provided in the model differing from zero with a loading between (.61) to (.33). No modifications were indicated from the analysis due to the excellent model fit indexes.

c) The Academic Self-concept Scale

The graphic obtained for the Academic Self-concept Scale are shown in Figure 4.4 below.

Figure 4.4 CFA the Academic Self-concept Scale (16 items, developed by researcher)
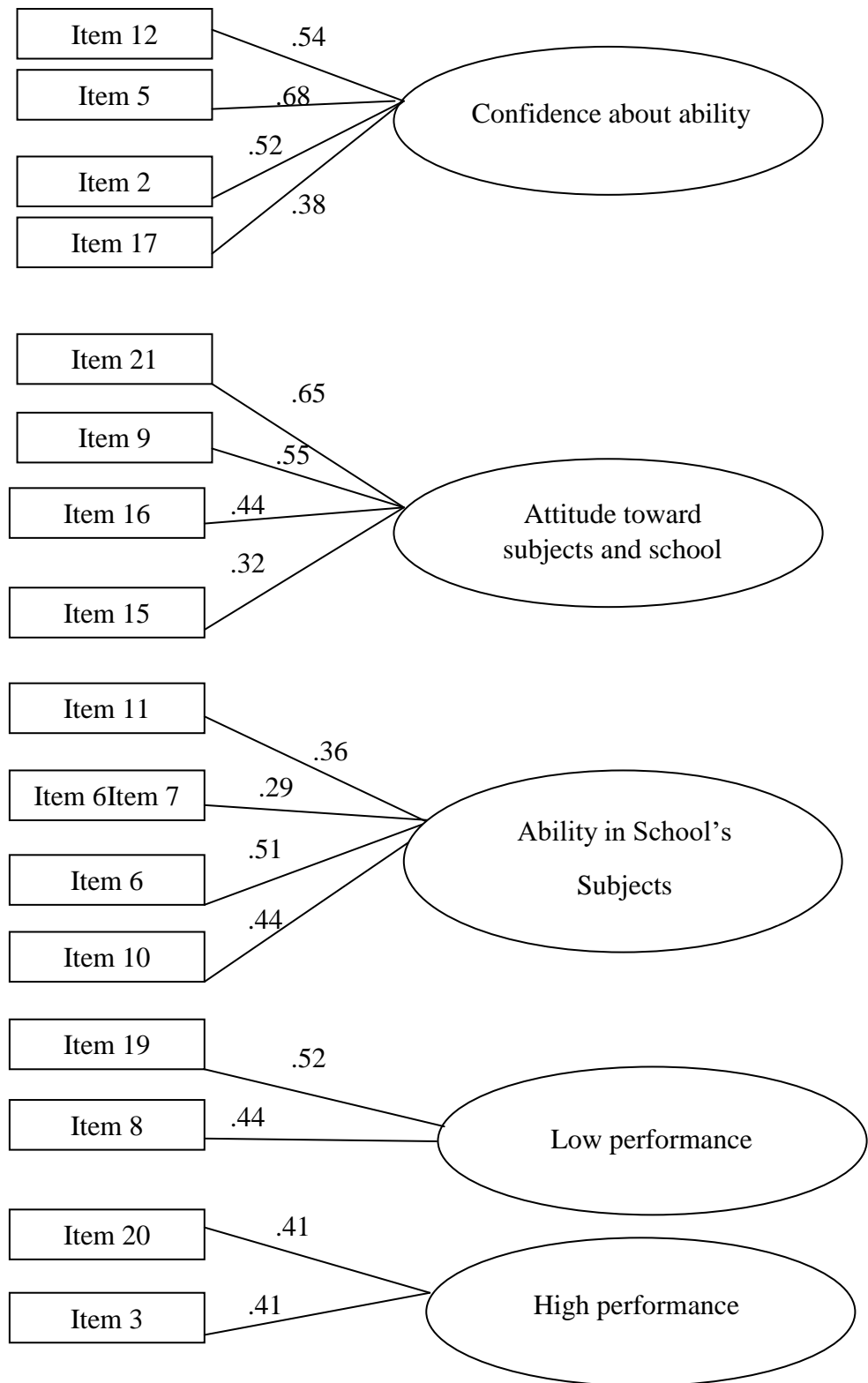
The test of the first order implies that five factors fit, and these factors were as follows: Low Performance, Attitude toward School and Subjects, Confidence in Ability, Ability in School Subject and High Performance. The correlation between items and factor values are provided in the model differing from zero with a loading between (.68) to (.29). There is a high correlation between Low Performance and Attitude toward School and Subjects (.65) and between Confidence in Ability and Ability in School Subject (.68). No modifications were indicated from the analysis due to the excellent model fit indexes.

d) The Locus of Control Scale (Nowicki- Strickland, 1973)

The test of the first order implies that eight factors were fit and these factors were namely: Belief in Luck, Giving up Quickly, Refers Mistake to Other, Belief in Trying at School, Belief in Kids' Ability, How to Deal with Problems, Belief in Effort and finally, Belief in Trying in Life. The correlation between items and a factor values are provided in the model differing from zero with loading between (2.04) to (.13). There is no high correlation between any two factors. One correlated error variance (e4, 8) was added to this scale based on the modification indices because these items have a few similarities in wording between them. Adding the correlated error variances made a significant difference in the fit of the model (further information can be seen in Table 4.17). The Locus of Control Scale graphic formed by using AMOS is displayed on Figure 4.5 below.

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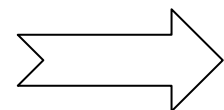
Figure 4.5 CFA the Locus of Control Scale (Nowicki- Strickland, 1973)
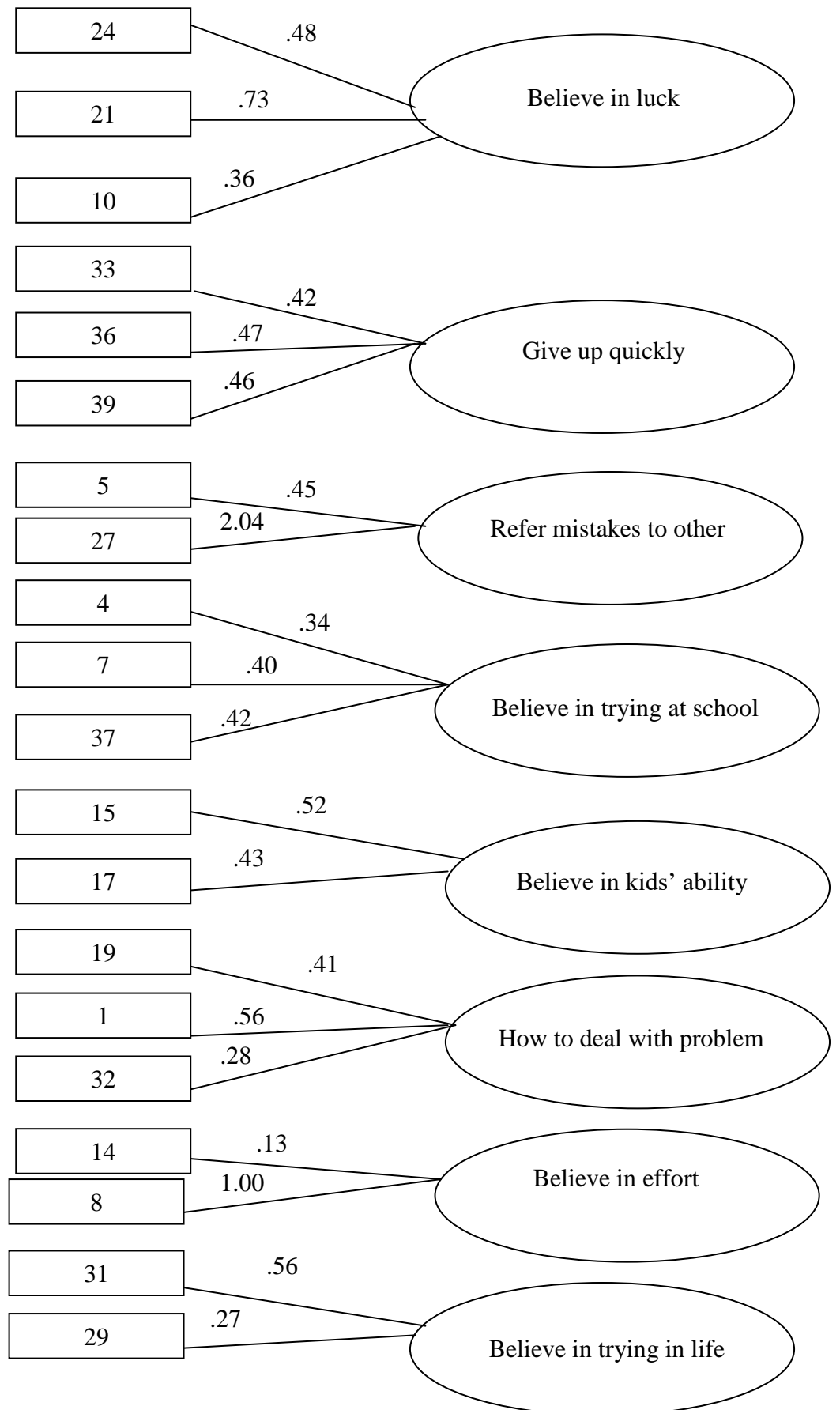
e) Myself-as-A-Learner Scale (Burden, 1998)

The test of the first order implies that five factors were fit and these factors were namely: Confidence in Learning Ability, Confidence about Work, Enjoyment in Problem-solving, Careful Learning Style, and Confidence in Dealing with New Work. The correlation between items and a factor values are provided in the model differing from zero with loading between .70 to .27. There is a high correlation between Enjoyment in Problem-solving and Confidence in Dealing with New Work (.90) and between Confidence in Learning Ability and Confidence in Dealing with New Work (.85). Furthermore, there is a correlation between Confidence about Work and Confidence in Dealing with New Work (.72).

Two correlated error variances (e14, 16 and e16, 18) were added to this scale based on the modification indices because these items measure the same factor, Enjoyment of problem-solving, and they also have a similar wording. Another correlated error variance (e2, 5) was added to this scale based on the modification indices since these items measure the same factor, namely Confidence in Learning Ability, and they have a cause and effect relationship. Adding these three correlated error variances made a significant difference in the fit of the model (further information can be seen in Table 4.17). Finally, AMOS formed the graphic for The Myself-As-A-Learner Scale (Burden, 1998), as evident in Figure 4.6 below.
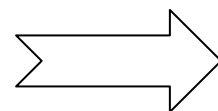
Figure 4.6 CFA Myself as A learner Scale (20 items, Burden, 1998)
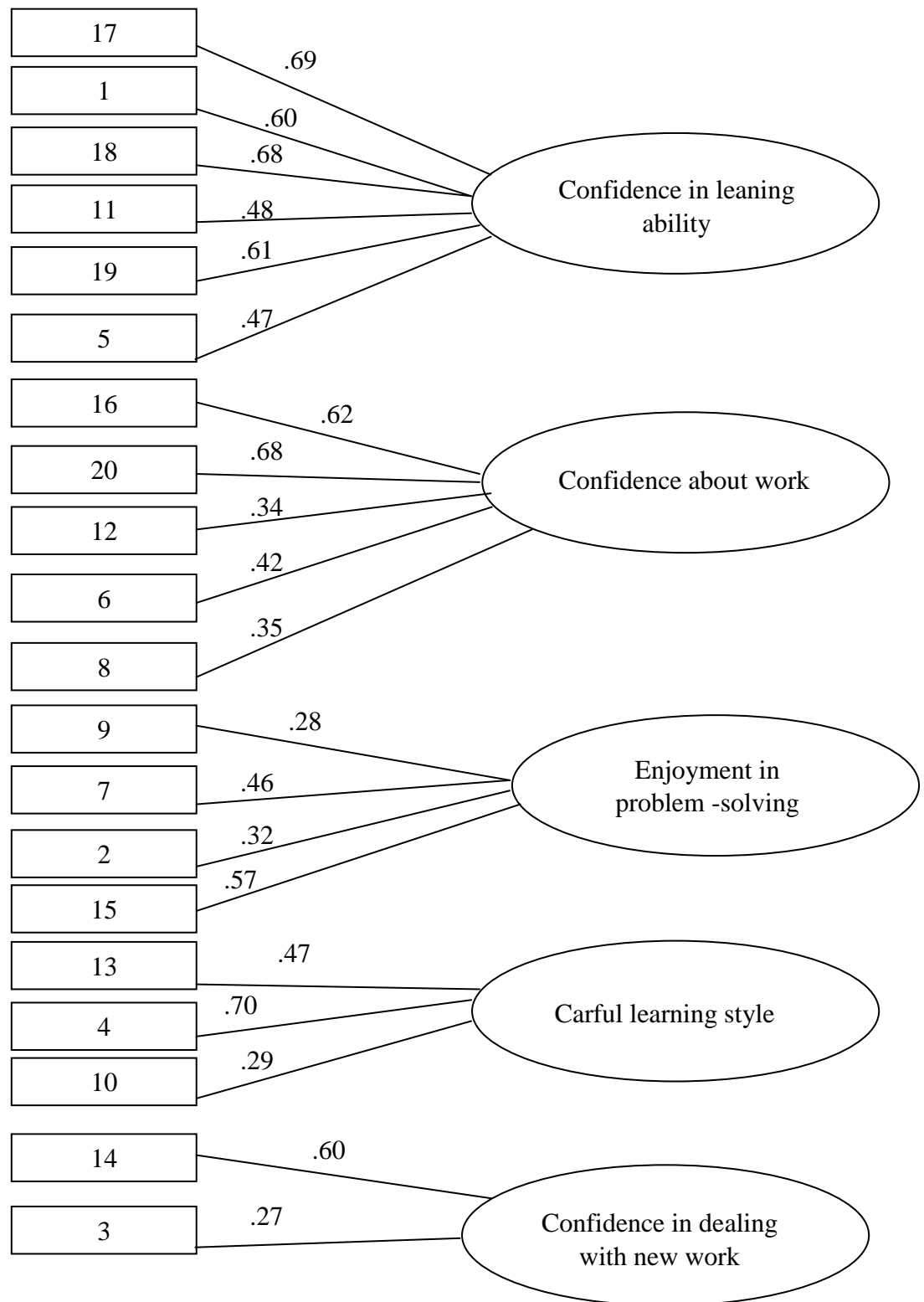
4.5.4 Validation of scales in the intervention study

The validation process adopted for the current study was as follows: the researcher first obtained Cronbach's alpha, EFA and CFA for the four scales namely; the Self-regulation Scale (10 items), the Self-efficacy for Self-regulated Learning Scale (Usher and Pajears, 2008), the Academic Self-concept Scale (16 items) and the Myself As-A Learner Scale (Burden, 1998). These scales were shown to have acceptable internal consistency reliability through cronbach's alpha. The emergent factors corresponded with the same hypothesised factors for each scale in EFA process. The results from the measurement model confirm that the factors' structure generated from CFA, which indicates an excellent fit for all three scales, excluding the Myself-As-A-Learner Scale with a moderate fit. These four scales showed construct validity through the CFA process. In addition, criterion validity was undertaken by measuring the correlations between the scales developed by researcher with other standard measures of the same construct (Goodwin, 2010) as follows: Pearson's r correlation coefficient was used to investigate the correlation between the Self-regulation Scale (Developed by researcher, 10 items) and the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008).

The output states that; there was a significant positive medium correlation (.439**) at the 0.01 level between these two scales and another significant positive medium correlation (.482**) at the 0.01 level between the Academic Self-concept Scale (Developed by researcher, 16 items) and the Myself-As-A-Learner Scale (Burden, 1998).

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The validation process applied to the four scales used in the intervention study confirms their internal consistency, reliability, construct validity, content validity and criterion validity. That indicates that the scales are suitable for use and that they demonstrate external validity (Hafiz and Shaari, 2013). On the other hand, the researcher did not include the Locus of Control Scale during the intervention study due to the fact that the purpose of the intervention programme is to focus in improving self-regulation skills and academic self-concept. The researcher added the Locus of Control Scale during the validation study to obtain further information regarding the difference between students with and without learning difficulties. The validation process applied to the Locus of Control Scales used in the validation study confirms their internal consistency, reliability, construct validity and content validity. Therefore, the study results can be generalized to other participants, by employing a representative sample of 802 female students aged 10-12 from five regions in Al-Riyadh City.

4.6 The different between students with and without learning difficulties on the five scales

In the following two sections, the objective is to address the second research question and its related five hypotheses (further details can be seen in Chapter 2 and 3)

4.6.1 Sample characteristics for sample of (802)

The researcher used test of normality to determine the appropriate statistic method to use in analyzing the data and address the second research question and its related hypothesis. The following describes the results of test of normality for each scale

namely, Self-regulation Scale, Self-efficacy for Self-regulated Scale, the Academic Self-concept Scale, the Locus of Control Scale and Myself-As-A-Lerner Scale.

In the Self-regulation Scale (developed by researcher), A Shapiro-Wilk test is for students without LD is (NLD=.000) and for students with LD is (LD=.440). These two groups have Skewness of 0.331 (SE=0.097) and a Kurtosis of 0.120 (SE=.195) for NLD students and a Skewness of 0.275 (SE=.287) and a a Kurtosis of 0.546 (SE=.566) for LD students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for just students with LD.

In the Self-efficacy for Self regulated Learning Scale (Usher and Pajares, 2008), A Shapiro-Wilk test is for students without LD is (NLD=.000) and for students with LD is (LD=.035). These two groups have Skewness of -1.345 (SE=.093) and a Kurtosis of 1.897 (SE=.186) for NLD students and a Skewness of -.559 (SE=.261) and a Kurtosis of 0.198 (SE=.517) for LD students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately not normally distributed for both groups.

In the Locus of Control Scale (Nowicki-Strickland, 1973), A Shapiro-Wilk test is for students without LD is (NLD=.000) and for students with LD is (LD=.098). These two groups have Skewness of .058 (SE=.099) and a Kurtosis of -.264 (SE=.198) for NLD students and a Skewness of -.114 (SE=.285) and a Kurtosis of -.668 (SE=.563) for LD students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for just students with LD.

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In the Academic Self-concept Scale (developed by researcher), A Shapiro-Wilk test is for students without LD is (NLD=.000) and for students with LD is (LD=.281). These two groups have Skewness of -.646 (SE=.099) and a Kurtosis of -.077 (SE=.198) for NLD students and a Skewness of -.213 (SE=.287) and a Kurtosis of -.127 (SE=.566) for LD students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for just students with LD.

In the Myself-As-A-Learner Scale (Burden), A Shapiro-Wilk test is for students without LD is (NLD=.016) and for students with LD is (LD=.912). These two groups have Skewness of -.231 (SE=.103) and a Kurtosis of -.164 (SE=.206) for NLD students and a Skewness of .137 (SE=.304) and a Kurtosis of -.204 (SE=.599) for LD students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for just students with LD. The test of normality described above showed that students without LD have non-normal distribution in all scales while students with LD have normal distribution in most of the scales used in this study. Therefore, the researcher used paramedic and non-parametric approach for the students in the validation sample data (n=802).

4.6.2 Five hypotheses address the different between students with and without learning difficulties on the five scales.

With respect to the second research questions namely, Is there a difference between students with and without learning difficulties (LD) in the self-regulation, the academic self-concept and locus of control. The researcher checked the normality for each scale for both students with and without LD as mentioned above. The researcher used the

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data set of students with and without learning difficulties (802) to investigate if there is a difference between the two independent groups in the five scales used in this study. The researcher used parametric and non-parametric statistics to determine the differences due to the results of test of normality. Firstly, a parametric method was used, namely independent-samples t-test to determine the differences between students with and without learning difficulties in the five scales and the results are shown in Table 4.18.

Table 4.18 The Differences between Students With and Without Specific Learning Difficulties on Five Scales

Scales	NLD		LD		T-test			
	N	Mean	N	Mean	Df	T	P	η2
SRS	619	30.89	70	26.52	687	7.60	.000	0.0776
SSLS	688	35.83	85	28.88	711	10.86	.000	0.1327
ASC	607	12.02	70	9.11	675	8.30	.000	.0.0926
LOC	607	8.44	71	9.36	676	-2.72	.007	-0.0108
MALS	558	77.67	62	66.09	618	8.84	.000	0.1124

SRS= the Self-regulation Scale (Development); SSLS= Self-efficacy for self regulated learning Scale (Usher and Pajares); ASC = the Academic Self-concept Scale (development); LOC= the Locus of Control Scale (Nowicki-Strickland); MALS= the Myself-As-A-Learner Scale (Burden)

An independent-samples t-test was conducted to compare the differences between scales scores for both students with and without LD for the five scales as follows,

4.6.2.1 Results related to the hypothesis 2a)

2a) Is there a significant statistical difference between students with and without

learning difficulties on the Self-regulation Scale (developed by researcher)?

In SRS, there was significant difference in the mean scores for NLD (M=30.8998, SD=4.56) and LD (M= 26.52, SD= 4.50), df (687, t= 7.603, P=.000) two

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tailed and the (eta=.0776). The significant difference between groups has moderate effect and was in favour of NLD.

4.6.2.2 Results related to the hypothesis 2b)

2b) Is there a significant statistical difference between students with and without learning difficulties on the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

In SSLS, there was significant difference in the mean scores for NLD (M=35.83, SD=5.48) and LD (M= 28.88, SD= 6.22), df (711, t= 10.860, P=.000) two tailed and the (eta=.1327). The significant difference between groups has moderate effect and was in favour of NLD.

4.6.2.3 Results related to the hypothesis 2c)

2c) Is there a significant statistical difference between students with and without learning difficulties on the Locus of Control Scale (Nowicki-Strickland, 1973)?

In LOC, there was significant difference in the mean scores for NLD (M=8.44, SD=2.68) and LD (M= 9.36, SD= 2.70), df (676, t= -2.722, P=.007) two tailed and the (eta= -0.0108). The significant difference between groups has small effect and was in favour of LD, which means that they have more external locus of control than NLD.

4.6.2.4 Results related to the hypothesis 2d)

2d) Is there a significant statistical difference between students with and without learning difficulties on the Academic Self-concept Scale (developed by researcher)?

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In ASC, there was significant difference in the mean scores for NLD (M=12.02, SD=2.73) and LD (M= 9.11, SD= 3.16), df (675, t= 8.302, P=.000) two tailed and the (eta=.0926). The significant difference between groups has moderate effect and was in favour of NLD.

4.6.2.5 Results related to hypothesis 2e)

2e) Is there a significant statistical difference between students with and without learning difficulties on the Myself-As-A-Learner Scale (Burden, 1998)?

In MALS, there was a significant difference in the mean scores for NLD (M=77.6738, SD=9.82236) and LD (M= 66.0968, SD= 9.32775), df (618, t= 8.847, P=.000) two tailed and the (eta=.1124). The significant difference between groups has moderate effect and was in favour of NLD.

In summary, there is a significant difference in the mean scores for all five Scales for each of the two groups in favour of NLD. The magnitude of the differences in the means have a moderate effect in all Scales (SRS, SSLS, ASC and MALS) except LOC which has small an effect. In addition, the researcher used the Mann-Whitney U Test as the non-parametric method to determine the differences between groups in the five scales due to the results of test of normality mentioned at the beginning of this chapter and to address the differences between students with and without LD. Table 4.19 shows the Mann-Whitney U Test results.
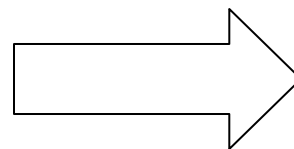
Table 4.19 The Differences between Students With and Without Specific Learning Difficulties on Five Scales

Scale	NLD		LD		Mann-Whitney			EZ
	N	MD	N	MD	U	Z	P	r
SRS	619	31.00	70	27.00	10746	-6.932	.000	0.2641
SSLS	688	37.00	85	29.00	10791.500	-9.523	.000	0.3425
ASC	607	12.00	70	9.00	10295	-7.109	.000	.0.2732
LOCUS	607	9.00	71	10.00	18304	-2.089	.037	0.0802
MALS	558	78.00	62	65.00	6797.500	-7.851	.000	0.3153

Note; MD= median and EZ= effect size

The results of the Mann-Whitney test state the same results as t-Test and the following confirms that.

4.6.2.6 Results related to the hypothesis 2a)

2a) Is there a significant statistical difference between students with and without learning difficulties on the Self-regulation Scale (developed by researcher)?

In SRS, there was significant difference in the median scores for NLD (MD=31) and LD (MD= 27), U=10746, Z= -6.932, P=.000 and the (r=.2641). The significant difference between groups has medium effect and was in favour of NLD.

4.6.2.7 Results related to the hypothesis 2b)

2b) Is there a significant statistical difference between students with and without learning difficulties on the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

In SSLS, there was a significant difference in the median scores for NLD (MD=37) and LD (MD= 29), U=10791.500, Z= -9.523, P=.000 and the (r=.3425). The significant difference between groups has a medium effect and was in favour of NLD.

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4.6.2.8 Results related to the hypothesis 2c)

2c) Is there a significant statistical difference between students with and without learning difficulties on the Locus of Control Scale (Nowicki-Strickland, 1973)?

In LOC, there was a significant difference in the median scores for NLD (MD=9) and LD (MD= 10), U=18304, Z= -2.089, P=.037 and the (r=.0802). The significant difference between groups has small effect and was in favour of LD, which means that they have a more external locus of control than NLD.

4.6.2.9 Results related to the hypothesis 2d)

2d) Is there a significant statistical difference between students with and without learning difficulties on the Academic Self-concept Scale (developed by researcher)?

In ASC, there was a significant difference in the median scores for NLD (MD=12) and LD (MD= 9), U=10295, Z= -7.109, P=.000 and the (r=.2732). The significant difference between groups has medium effect and was in favour of NLD.

4.6.2.10 Results related to the hypothesis 2e)

2e) Is there a significant statistical difference between students with and without learning difficulties on the Myself-As-A-Learner Scale (Burden, 1998)?

In MALS, there was a significant difference in the median scores for NLD (MD=78) and LD (MD= 65), U=6797.500, Z= -7.851, P=.000 and the (r=.3153). The significant difference between groups has medium effect and was in favour of NLD.

In summary, there is a significant difference in the median scores for all five scales for both of the two groups. The magnitude of the differences in the medians has a medium

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effect on all scales (SRS, SSLS, ASC and MALS) except the LOC, which has a small effect size. There are significant differences in the mean and median scores between students with and without LD in academic self-concept, self-efficacy and self-regulation with a moderate effect in favour of students without LD and between the previous groups in the locus of control with a small effect in favour of students without LD. The following will explain these four psychological aspects in turn.

Children begin to develop their academic self-concept when they enter school. At this stage of their life they face different academic requirements, which assist in building their academic self-concept. Children who can successfully overcome academic tasks tend to develop a positive academic self-concept. However, those who fail to succeed in their school and educational requirements tend to develop a negative academic self-concept (Rhonda and Marsh, 2008). Students with LD are more likely to encounter difficulty regarding academic tasks and requirements than average and high achievement students. Therefore, these students mostly achieve lower academic scores, which tend to make them have lower academic self-concept scores (Tabassam, 2011). In this study, there are differences between the students with and without LD on the mean and median scores of academic self-concept measured by the Academic Self-concept Scale (developed by the researcher) and Myself as a Learner Scale (Burden, 2008) shows a moderate effect in favour of students without learning difficulties. These results align with a number of existing studies such as Dyson (2003), Gans, Kenny and Ghany (2003), Polychroni, Koukoura and Anagnostou (2006), Zisimopoulos and Galanaki (2009) and Shany, Wiener and Assido (2013).

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Individuals who go through successful experiences tend to have positive self-efficacy in contract to individuals with negative self-efficacy due to their being unsuccessful (Bandura, 1997). Students with learning difficulties experience academic failure and difficulties, which reduce their self-esteem and tend to make them have lower and negative self-efficacy than others (Luszczynska, Gutierrez-Dona and Schwarzer, 2005). In the current study, there are differences between students with and without LD with a moderate effect on the mean and median scores of Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) in favour of students without learning difficulties. This result concurs with a number of studies including Tabassam and Grainger (2002), Baird, Scott, Dearing and Hamill, (2009), Klassen (2010), and Hojati and Abbasi (2013).

Self-regulating skills are considered an important element in enhancing students' academic performance (Mason, Harris and Graham, 2011). Students with learning difficulties often experience difficulty in applying self-regulation skills, which leads them to lower academic achievement. These students encounter lower levels of attention span, and a lack of using active methods and self-regulation skills during their cognitive learning process (Wong, 1998; Sideridis, 2006). In this study, there are differences between the mean and median scores of the target groups on Self-regulation Scale (developed by researcher), which shows a moderate effect in favour of those without learning difficulties (NLD). These results align with numerous studies including Trainin and Swanson (2005), Kirby, Silvestri, Allingham, Parrila and La Fave (2008), Bergey, Deacon and Parrila (2015), and Ashour, Veysi, Azadikhah Sheykhlar and Shayan (2015).

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Finally, individuals who believe that success is achieved through effort are more likely to obtain skills, which allow them to reach their goal easily (Bandura, 1994). Students with LD encounter academic difficulty and failure, which makes them attribute their success in school to external causes such as luck and not due to their effort and ability (Banks and Woolfson, 2008). The current study confirmed that its results indicate that there are differences between the mean and median scores of the two groups on the Locus of Control Scale. Nowicki-Strickland (1973), suggests a small effect in favour of students without learning difficulties. These conclusions correspond with numerous existing studies including Leondari (1992), Firth, Cunningham and Skues, (2007) and Shogren et al. (2010).

The following chapter explains the theoretical background of the proposed intervention programme and describes the structure and activities of the programme in detail.

Chapter five

Study 2: Development of proposed intervention programme

Chapter 5-Study 2: Development of proposed intervention programme

5.1 Chapter overview

This chapter examines the theoretical framework, development and nature of the proposed intervention programme. Each of these aspects will be discussed in turn.

5.2 Theoretical framework underpinning intervention programme

For the purpose of developing the intervention programme, the researcher reviewed a range of different theories of learning, namely, social cognitive theory (Lamport et al., 2012), social learning theory (Wiener, Niernberg and Goldstein, 2006) self-efficacy theory (Zimmerman, 2000) and self-determination theory (Deci and Ryan, 2008). For further information regarding these theories the reader is directed to Chapter 2 (Literature Review). The researcher identified social cognitive theory as the most expedient framework in view of the aims of the intervention programme. Social cognitive learning believes in the importance of a social communication relationship in the learning process (Sanders and Mazzucchelli, 2012). It focuses on how students learn by gaining information through communication and monitoring others. Students should be active participants in their learning (Pintrich, 2004). Students can learn more effectively if they observe their peers' reactions to a situation and the feedback they gain regarding their reaction (Bandura, 1997). Moreover, students become active learners when they receive information and employ skills that assist them in completing a task (Boston Public School, 2013).

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According to social cognitive theory, self-regulated learning occurs through three reciprocal aspects, namely, Individuals, their environment and their behaviour. One of these three aspects may be stronger than the others in a specific situation and self-regulation can be used more effectively if a student uses more appropriate skills to regulate his or her behaviour and environment. Students employ self-regulation skills depending on their knowledge and meta-cognitive process, such as self-evaluation and planning (Zimmerman, 1989). Self-regulation skills are an effective method for students because they enable individuals to build their skills in planning and self-evaluation during their learning.

This theory asserts that the development of self-regulation involves different skills, such as planning and decision-making, which work effectively in assisting students to reach their educational targets (Zimmerman, 1989; Bandura, 1991; Pajares, 2002). Students with learning difficulties often experience underachievement at school due to a lack of skills, which assist them to succeed academically. Meta-cognitive skills such as planning, problem-solving and decision-making have been found effective skills to improve the performance and educational outcomes of students with learning difficulties (Lienmann and Ried, 2006).

5.2.1 Rationale for focus on self-regulation skills

The proposed intervention programme in this study focuses on five different self-regulation skills. The rationale for selecting these skills and associated activities is detailed below. Firstly, self-regulation comprises many different processes and it is difficult to identify self-regulation as one specific process. That is, self-regulation

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involves information processing which affects student attention and evaluation of a task. With regard to social cognitive theory, self-regulation skills develop three important aspects in students; namely, meta-cognition, active learning and motivation during the learning process (Zimmerman and Cleary, 2004). Secondly, self-regulation skills help to improve the quality of key aspects of a person's life positively, such as educational performance and managing a budget. On the other hand, poor self-regulation can contribute to social and emotional dysfunction, such as depression and criminal behaviour (Sander and Mazzucchelli, 2012).

Thirdly, self-regulation skills can be developed through intervention which incorporates various types of activities which develop these skills (Kang, 2010). Children can learn self-regulation skills through their parents/carers and child-rearing, which increases the likelihood of these children learning and demonstrating self-regulation skills (Connell, Sander and Markie-Dadds, 1997). Parents have an important role in influencing the development of their children. Parents who can regulate their own behaviour and emotions during communication with their children and others provide a better chance for their children to be self-regulating. Children who experience harsh discipline or low parental involvement are more likely to demonstrate behavioural and emotional problems (Barros, Goes and Pereira, 2015).

In contrast, children who experience parental warmth during their childhood, have more opportunity to master self-regulation skills (Baker and Hoerger, 2012). Children can learn these self-regulation skills through a school-based intervention programme. Students in primary school can be taught self-regulation skills, to help them

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to understand that academic progress is directly related to individual effort (Clancy, 2002). Children with learning difficulties who learn self-regulation skills can benefit from improving their motivation in a school setting (Kang, 2010; Graham and Harris, 2005; Butler, 1996).

Providing an intervention programme, which focuses on self-regulation skills for parents/carers, affects pupils by promoting self-regulation skills, which positively influence the academic and social life of children (Sanders and Mazzucchelli, 2012). Developing self-regulation skills for parents increases the ability of parents to generalize regulating their behaviour and emotions in the home and community. Such development also enhances the communication between parents and their children (Sander and Woolley, 2005).

Self-regulation skills enable students to improve their behaviour (Sander and Mazzucchelli, 2012). In an education setting, students with good self-regulation skills are more likely to be active participants in school and be more motivated towards learning, which will help in enhancing their educational achievement (Boekaerts, 2005). Through the development of self-regulation skills, individuals can gain more control over their behaviour (Boumeister and Heatherton, 1996). The ability of children to regulate their behaviour and thinking increases in conjunction with their cognitive development and life experiences (Posner and Rothbart, 2000).

A further reason for choosing to focus on self-regulation is that when the researcher reviewed the literature on self-regulation skills, she did not find any research studies, which incorporated more than four skills within an intervention programme for

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both students with and without LD. Furthermore, in Saudi there is no published research on intervention programmes to enhance self-regulation skills in students with and without LD (as discussed in Chapter 2). All The reasons outlined above encouraged the researcher to develop an intervention programme focusing on self-regulation skills for students with LD. The following section describes the development and nature of the intervention programme.

5.2.2 Rationale for focus on five specific self-regulation skills

Prior to the researcher developing the intervention programme, she reviewed the literature related to the domains of self-regulation. Five self-regulation skills were selected, namely: Self-evaluation, Planning, Self-reinforcement, Problem-solving and Decision-making. The reasons for selecting these specific five skills are examined below.

Skill 1- Self-evaluation: This skill refers to the student's ability to evaluate his/her own performance in a specific task. It can help students to complete their school homework correctly after receiving feedback (Zimmerman, 1989). Students can regulate their learning if they evaluate their own work, which enables them to improve their work in future (Schraw and Moshman, 1995). Teaching students this skill allows them to feel more confident and a strong sense of self-efficacy about their achievement (Paris and Paris, 2001). For example, if a school teacher requires specific focus in a report on Indian geography (such as details of area, distance, population, terrain, agriculture, industry and capital city, with consideration of grammar and spelling). The students who use self-evaluation skills would first make a check list of all the elements

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required for the report, and after completing the report, would then evaluate their work with reference to the checklist and add any missing information or correct spelling and grammar mistakes in order to achieve a better grade in the assignment.

Skill 2-Planning: Planning helps students to regulate their learning in advance. Teaching students to plan their learning enhances their ability to learn and directs their effort to achieve good learning results (Zimmerman, 1989). Students can learn to plan their tasks by focusing on their academic goals and may divide a task based on their ability and academic achievement (Zimmerman, 2004). Corno states that students with this skill are better able to control their behaviour and avoid being distracted, and it encourages them to keep their learning goals on track (1993). For example, during the last two weeks of preparation for their final tests, students with planning skills will focus on the final test schedule provided by their school. They will subsequently draw up the study subjects that are difficult for them, or subjects with a short period of time between them. This method of forward planning when applied to studying increases the likelihood of these students achieving a better outcome in their tests.

Skill 3-Self-reinforcement: Self-reinforcement can be considered as a reward that students give themselves when they reach an academic goal such as completing their school homework. Students' self-reinforcement can be more effective in improving their academic performance than a teacher's reward. This skill has a lifelong value span because it can have a positive impact on students in the future (The IRIS Center for Training Enhancements, 2008). Self-reinforcement skills enable students to enjoy and maintain their educational achievement at school (Wehmeyer, Agran and Hughes,

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2002). This self-regulation skill mostly enables students to provide more effort, overcome difficult tasks, and complete target tasks without any external motivation (Paris and Paris, 2001). For example, students can reward themselves verbally or by tangible and intangible reinforcement after either partially completing a target or a whole school assignment.

Skill 4-Problem-solving: Problem-solving skill is a skill, which empowers students to select the best option available. Students who gain this skill will be able to cope more effectively with challenges. This skill allows individuals to solve problems and achieve the target goal (Lorain County Community College, 2015). It focuses on higher order thinking and autonomous learning (Paris and Paris, 2001). Learning problem-solving skills enable students to think creatively when solving problems. In an educational context, students can learn problem-solving steps, which allow students to obtain a new understanding of how they can solve their academic problems such as maths problems (Pennant, 2014). In addition, students can develop problem-solving skills based on their experiences during life, which enable them to learn how to solve problems guided by problem-solving steps (Woodcock, 2015); for example, what a person should do during a power cut.

Skill 5- Decision-making: Decision-making contains steps individuals have to follow then select the best decision to succeed in their goal. Individuals should consider the result of their decision. A decision-making skill provides benefits for its users because these users gain more understanding of the results of their decision (Stokman, Assen, Knoop and Oosten, 2000). Individuals can make an appropriate decision if they

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approach decision-making in a step by step manner. Students are required to make many important decisions throughout their schooling, such as which curriculum subject to study. They often make their decision based on formal information from websites, friends and other knowledgeable individuals (such as parents, teachers or siblings) (Greenbank, 2010). For example, students may follow decision-making steps to make the right choice for them regarding their choice of subject (be it art, science or something else) based on decision-making steps, and their interest not regarding their friends' choices.

5.2.3 Consider Saudi schools

In Saudi, students with LD who exhibit poor performance or reduced learning capacities are usually provided with an Individual Education Plan (IEP). This outlines their strengths and weaknesses, so that appropriate teaching methods can be used to help them perform better in future. These students usually attend mainstream classes, but also receive special teaching from teachers qualified to work with learning difficulties. These special education teachers keep records regarding test scores, medical information and parents' economic status (Ahmed, 2015).

As the Saudi education system operates a discrepancy model (students with normal or high IQ and poor academic performance), there can often be a significant difference between academic performance and intellectual ability. In other words, it is possible for students to exhibit a high level of intellectual ability, but still struggle in school, due to emotional or behavioural problems (Lerner and Johns, 2009). Resource Room staff needs to address a wide range of ability. In most cases, students with

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learning difficulties and behavioural and emotional disorders are placed in the same Resource Room (Al-Zoubi and Abdel Rhman, 2012).

Due to personal experience of Saudi primary schools, the researcher knows that there are usually around 2-3 special education teachers in a single Resource Room. These teachers are expected to support a large number of students approximately 40-50 students in each primary school, with very specific needs and they rarely have the help of assistant teaching staff. To give special education teachers a better chance of positively influencing students, the Resource Room staffs tends to focus their services on students in the early grades (that is, grades1-3, ages 6-10 years). This approach is designed to introduce basic skills in mathematics and reading, as early as possible, so that the students struggle less in later years. The problem is that students in higher grades (grades4-6, age of 10-14 years), often do not receive any special education services. Therefore, the researcher has developed a programme of self-regulation that is designed to help these students perform better at school as well as develop key life skills.

5.2.4 Implementation of intervention programme in Saudi

The researcher designed the intervention programme to be implemented in Saudi schools. The Saudi education system is structured in a formal manner. It allows students to start their education at primary school from the age of 6 years old. In 1960, a formal education system was introduced for female students in Saudi and it quickly spread throughout the country. Within this system, students have to pass routine examinations for each part of the curriculum, in order to progress on to the next academic year (Al-

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senbl et al., 1998). While Saudi Arabia has a relatively large population of students with learning difficulties (LD): around 500,000, there were only 11,618 students (female and male) with learning difficulties enrolled in LD programmes and receiving additional support (Felimban, 2013).

There are a number of reasons why the Saudi education system is challenging for LD students. For example, most of the teaching methods rely on memorization and do not address the need for a range of different skills. Furthermore, few students with LD are ever given access to specially designed teaching programmes to enhance their academic performance. From experience, the researcher understands that there are schools in Al-Riyadh city, which offer tailored teaching programmes and Resource Rooms support for students with LD. However, these are not available at all schools. In order to offer this opportunity, the schools have to focus on supporting a relatively small population of students (mostly between grades1-3 aged 6-9). This is especially true in areas where there is a higher number of students with LD and only a small number of teachers qualified to teach students with LD. If the availability of teaching support staff and classroom assistants is also low, delivering suitable teaching resources can be very difficult. There are usually two to three teachers allocated to a Resource Room in a single school. It is common for there to be no teaching assistants. Therefore, the target population of students taking part in this intervention research was not receiving additional academic support at the time of implementation. However, the students concerned had attended a Resource Room for at least a year before commencement of the study.

5.2.5 Key considerations in developing intervention programme

In developing the intervention programme, the researcher considered a number of key issues relating to the design and implementation of the programme. Each of these issues will be examined in the following section.

1.*Range of cognitive ability*

In every country, children display a broad range of intelligence levels and mental abilities. According to Gardner's Multiple Intelligences theory (1983), there are actually nine different areas of intelligence (or mental skills) that a child exhibits. There are some children who demonstrate these skills explicitly and others who perform less well. Gardner's theory states that every child acquires each one of these skills, but that their overall cognitive ability is determined by how well they demonstrate them. The majority of children function very well in some areas, moderately well in others, and poorly in those that remain. Gardner believes that teachers should not only encourage students to focus on their strongest areas of intelligence when learning, but should also try to structure their lessons and classroom activities around these different areas of intelligence. If the model is implemented correctly, students will come to understand that everybody excels in some areas and find other areas more challenging (Pritchard, 2013).

Gardner's theory was taken into account when designing the intervention programme. The researcher developed activities based on spatial/visual, Kinesthetic, interpersonal and intrapersonal learning style. The programme did not include linguistic, logic or mathematical elements, as the target population was children with

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LD. In addition, musical, naturalistic, and existential intelligence criteria were not included, because they were not relevant to the purpose of the programme or the Saudi school system. The areas of intelligence, which the researcher focused on, were related to specific styles of learning, as outlined in the subsequent section.

2. *Learning styles*

The term 'learning style' refers to the way in which a child processes and understands the information presented to him/her within an educational setting. The activities included in the programme were built around three established learning styles, namely visual, auditory, and Kinesthetic. Visual learners acquire information through 'seeing' (maps, photographs, charts). Auditory learners acquire information through storytelling, discussion and listening to the teachers. Kinesthetic learners prefer to acquire information through movement and hands-on activities (Gilakjani, 2012). The researcher developed the activities related to each skill in the intervention programme with conjunction of the different learning styles. The researcher used different teaching approaches during the intervention sessions, which are outlined below.

3. *Teaching Approaches*

The researcher (group facilitator) used a selection of different teaching approaches in developing the intervention programme, to incorporate the three distinct learning styles (visual, auditory and kinesthetic). Teachers can present the relevant information to students through direct instruction, which includes observation and practise. Similarly, the collaboration technique encourages students to become actively involved in the lesson by listening and talking to one another. This is useful because it helps them to

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understand the value of teamwork and develop leadership skills (Snowman and McCown, 2014). Classroom discussion is used to encourage students to engage with and talk about a particular activity or topic. It incorporates a number of different skills; brainstorming, collective decision-making, group participation, and group discussions. This approach is designed to teach students that the classroom is a safe space for them to share their ideas. They should not fear the consequences of an incorrect answer and gradually become confident in reviewing their personal experiences to enhance classroom discussions (Hollander, 2002).

One of the most effective teaching methods is modelling, because it supports the development of self-regulation skills and self-efficacy, amongst underperforming students (Zimmerman, 1989). Once students understand the purpose of a learning task, they need to be given the opportunity to practise their new skills, without fear of ridicule or the consequences of making a mistake. Also, students require feedback on their performance if they are to correct mistakes and improve their future work (Bandura, 1988). Crucially, the practise of self-regulation, through various different teaching exercises, has been shown significantly enhance self-regulation skills among students (Muraven, Baimeister and Tice, 1999).

4. Target students

This programme is designed for students attending school in Saudi. Therefore, it takes into account a clearly defined cultural context. The differences between the UK education system and the Saudi education system have already been explained in detail. As aforementioned, Saudi has a formal education system. This means that the

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researcher needed to account for any formal requirements reflected in the language, particularly as it pertains to classroom activities and homework. For example, the researcher takes into consideration the student criteria for this study. Therefore, all the questions included in the worksheets are clearly explained in colloquial Arabic. This was done to ensure that students understood the questions. The students were not obliged to write their responses on the forms. They were invited to indicate them orally, if preferred. During the sessions and the homework activities, writing was optional. The students were given a treat (sweets or crisps) at the end of each session, as a means of encouragement.

Upon completion of the programme, the participants were awarded a certificate (copy placed in the Appendix, P) and a special gift (jewellery comprising a ring, bracelet, necklace and mirrors), if they met the strict attendance criteria (attended 14 sessions or more). There were 9 students in School A and 8 students in School B who met this attendance criterion. The remaining students from both schools received a small awards (a colouring book), in recognition of their attendance at the intervention programme sessions. According to Luiselli et al. (2005), positive reinforcement reduces the frequency of student discipline problems and increases their motivation. Within this study, positive reinforcement was used to encourage students to maintain a good attendance level regarding the intervention programme and to stay engaged with the learning activities.
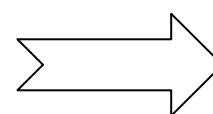
5.3 Development of intervention programme

5.3.1 Reviewing the literature

The researcher reviewed literature related to each skill in developing the intervention programme. She reviewed the following sources pertaining to the planning skill, Silburn (2013), Daum (2012), Lyons-Wagner (2010) and Goilwitzer, Gawrilow and Oettingen (2008),. For the Problem-solving skill the following articles were read Morin, (2014), Hains-Wesson (2013), Perels, Gurtler and Schmitz (2005) and Kirkley (2003). For the Self-reinforcement skill, the notable sources were Bach and Mc-Cracken (n.d), Bandura (1976), Cotton (1988) and the Institute on Community Integration (1995). The fourth skill is self-evaluation and the following articles have been useful in gaining a better understanding of this skill Gater et al. (n.d), Ontario (2007), Donnelly (2008) and Kaufmann and Malley (2008). Finally, for the Decision-making skill particular mention must be made of the following articles Ministry of Social Development (2003), Unicef (2003), Krehbiel (2012) and Commonwealth of Australia (2012).

5.3.2 Length of intervention sessions

The time allocated for each of the 17 Session was kept as close as possible to the duration of regular Saudi lessons, in mainstream classes. In Saudi primary schools, the daily schedule consists of six classes, for 45 minutes per class (Saudi Cultural Mission, 2006). For subjects like Science (which can often be a more practical subject), the focus is still very much on the teacher. Most of Saudi schools did not follow the government requirements about the classroom's size, teaching qualifications and equipments, which

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means that the lessons are not very interactive for students (Al-ghamdi and Al-salouli, 2012). Within the intervention programme, each Session lasts 50 minutes and takes a much more student-centre approach. The students are encouraged to become actively involved with learning, using different tactile activities such as (cutting, sticking, colouring, acting and modelling). Whilst there is a slight difference (5 minutes) between the length of the intervention sessions and the regular Saudi school classes, the researcher believes that this had no real impact on the study and it gave students with LD more opportunity for play and learning.

5.3.3 Facilitation of intervention programme sessions

The researcher is aware that both special and general education teachers are very busy with mainstream schooling. This means that they do not have much time or opportunity to assist with the implementation of the intervention programme, even if they prove to be beneficial to the students concerned. With respect to the intervention programme, the 50 minute sessions were scheduled to take place twice a week. However, even this schedule was thought to be too time-consuming for most teachers to implement, so the researcher decided to implement the intervention programme personally. When a researcher plays the role of both 'researcher' and 'group facilitator', their role is said to be of a 'dual implementer'. Dual roles influence the researcher to be more sensitive to different priorities, and show objectivity and focus as required by each role (Trondsen and Sandaunet, 2009).

5.3.4 Bloom's Taxonomy

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Before the sessions were started, the researcher established clear learning outcomes for each one. According to Krathwohl (2002), the most effective way to monitor the level of understanding and performance among students is to set clear learning targets. These learning targets should demonstrate understanding on the basis of six different criteria. As a whole, the criteria are known as Bloom's Taxonomy (1956). They include knowledge, comprehension, application, analysis, synthesis and evaluation. Each level of understanding contains different verbs designed to describe student comprehension and engagement namely, recognize, define, implement, give example, understand, describe and use verbs. The researcher used these verbs to create the learning outcomes and incorporated Bloom's Taxonomy when creating activities for the intervention programme.

5.3.5 Structure of intervention programme

The reader is reminded of the outline of the 17 sessions in the table below which sharing the content according to the five skills

Table 5.1 Topic of each Session in the intervention programme

Session	Self-regulation skill
1	Introduction
2- 4	Problem-solving
5-7	Self-reinforcement
8 – 10	Self-evaluation
11- 13	Planning
14 -16	Decision-making
17	Conclusion

5.3.6 Structure of the total 17 sessions

Each Session started with an introduction activity (average duration 3 minutes). The introduction activity of the first session which longer (10 minutes) due to the need for ice-breaking activities. Each session ended with a closure activity (average duration 2 minutes). The length of other activities varied across sessions from (6-30 minutes). The overall structure and duration of sessions is presented in the table below.

Table 5.2 Structure and approximate duration of activities in The 17 sessions except Session1

Activity	Duration (Minutes)
Introduction	3 minutes
Approximate duration for all activities in one session	45 minutes
Closure	2 minutes
Total	50 minutes

Details of the structure of each session can be found in Appendix, P. The intervention programme is divided into 17 sessions, and each session contains the following: The session topic, the time allocation of session activities, resources needed, learning outcomes, session plan, description of the session and reflection for group facilitator (evaluation of the session). For more details about the duration of each activity and plan for each session, see Appendix, P. Table 5.3 below presented the session plan for session 1.

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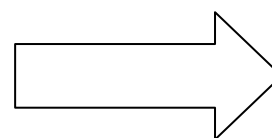
Table 5.3 Session plan for Session1

	Activity	Duration
1	Researcher welcomes students	10 minutes
2	Explain why children are selected for programme	4 minutes
3	Explain The nature of intervention programme?	6 minutes
4	Divide students into two small groups and select a leader?	6 minutes
5	Explain importance of attending all sessions. Explain procedure and awarding of prizes.	4 minutes
6	Explain what is making this group special	7 minutes
7	Explain 'golden rules' for The group	10 minutes
8	Closure	3 minutes
Total		50 minutes

The structure of the intervention programme, which consists of a session plan, a description of the session and reflection by the group facilitator, was adapted from Nash (2009). The researcher will examine the nature of activities comprised in the intervention programme in section 5.5.

5.4 Additional feature of intervention programme

5.4.1 Golden rules

 In the first session, the researcher discussed the 'group requirements' with students, by talking about what makes the group special. They were encouraged to develop an understanding of not just their own ability, but the skills of others too. This involves the

teaching of 'golden rules' and explaining the important of respecting each other which is a key component for effective group work (Lown, Dunderdale and Nash, 2010).

5.4.2 Presentation of intervention activities

According to Gathercole and Alloway (2007), some LD students need learning tasks to be delivered in a very specific manner. For example, they may need the instructions to be given in a relatively brief fashion (so as to avoid confusion) and then reinforced by written activity sheets or further guidance. These guides can then be used as a consistent reference point when needed. The student is able to repeat and review the information as necessary. The researcher of this study took this into consideration and implemented it during the programme development stages. In addition, she made sure to repeat and reinforce each learning skill, in a number of different (and new) ways, over the course of three sessions. The researcher selected three sessions for each self-regulation skill to ensure that students received more information and practise (around 135 minutes) per skill. There was a clear focus on connecting these skills with the students' school and home environments. The researcher aim to enable these students to be able to apply what learned to everyday situations so building life-skills for use beyond school. The researcher also made the learning tasks more fun and encouraged the students to apply these new skills in school and at home as well. However, there was also a focus on the relevance of skills for school works, and the importance of self-regulation skills for performance and achievement. It was essential that the students understood the purpose of the learning activities and their potential benefits for future achievement and success.

In developing the intervention programme, the researcher carefully planned page layouts, introductions, programme schedules, training sessions, learning outcomes, resources, and content before the actual sessions were started. The specific structure of each session as regards topic, time, lesson plan, lesson objectives, and self-reflection outcomes, were all designed, with reference to Lown, Dunderdale and Nash (2010). A number of the activities included in the intervention programme have been taken from online sources. Others were created by the researcher or inspired by the day to day activities in regular Saudi schools and cultural contexts. To facilitate administration of the programme, the researcher made copies of all the teaching materials needed for the sessions. The following section will describe the activities used in the intervention programme in more detail.

5.4.3 Students evaluation of intervention programme

The students were asked to complete a reflection form at the final session. The form included a selection of questions relating to lessons learned, the value of these lessons, the rate of learning and the importance of these skills in their life. Also, during the same session, the students were asked to complete a self-assessment form as a way of evaluating their own skills and understanding. According to Nicol (2010), the type of evaluative activities which most positively impact students, include the opportunity to assess and reflect upon what has been learned and the quality of performance. These activities encourage students to work together (collaborate) on classroom and homework tasks, so that they can receive more extensive feedback.

5.4.4 Group facilitator evaluation of each session

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The researcher required a reflection form, which was adapted from Nash (2009), to be completed at the end of each session. The form includes what did and did not go well in a session, and the researcher suggests how to improve the quality and implementation of the session in future and reflects ahead of the next session.

5.4.5 Nature of initial and final session of intervention programme

The nature of initial and final sessions was taken from (Lown, Dunderdale and Nash, 2010), who developed a primary school curriculum for addressing social and emotional development through circle time activities. The programme was designed to be followed by students from grade1 to 6 (age 5-11 years). In developing the curriculum, the researchers received feedback from participating schools, which led them to believe that the programme sessions were appropriate and enjoyable for the students concerned. For more details about the initial ice breaking and conclusion sessions related to the self-regulation programme, see Appendix, P.

5.4.6 Homework sheet

The researcher gave students a homework sheet after delivering each learning skill (across three sessions). This homework sheet was optional. The students were encouraged to discuss it either with their parents/carers or with their peers. They were not obliged to write down any answers in view of their literacy difficulties. During the next session, the group facilitator discussed the homework activity with the whole group. This kind of feedback is necessary for a group facilitator to know which of the students are following instructions and actually engaging with the activity. It also gives them a chance to ask the students for answers, rather than tell them. According to
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Protheroe (2009), homework activities need to reflect both the learning objectives established by a teacher and the various levels of student ability. Ultimately, homework activities need to positively influence educational performance. As Protheroe explains, homework has educational benefits (the development of study skills), non-educational benefits (self-direction and organization), and it encourages parents to be involved with their child's learning. However, for all of these advantages to be realized, homework must be followed up with meaningful feedback.

5.5 Intervention programme activities (total 17 sessions)

5.5.1 Structure of the intervention programme

Before the researcher started the sessions related to the programme, she reviewed other existing intervention programme including: introduction to the programme, aim of the programme, participants, duration of the programme, and the number of sessions (for more information see Chapter 2 under 2.7. In the current intervention programme, the intervention programme comprises 17 sessions and pre- and post-assessment sessions to measure the academic self-concept and self-regulation level of the participants before and after attending the intervention programme. Students are given a homework activity after completing three sessions related to each skill. The photocopied activities are attached at the end of the intervention programme. The following information explains these activities in detail.

5.5.2 Resources used in developing activities for intervention programme

5.5.2.1 Images used in activities: The researcher used images to present some of the activities, because they were deemed suitable for the age, learning style and LD criteria of the students. All of the images used were free copyright regulation. The researcher sourced these images from the following locations;

http://www.stockfreeimages.com/p5/.html,http://all-free-download.com/free-vector/free-smiley-face-graphics.html, http://all-free-download.com/free-photos/party-picture.html,http://www.stockfreeimages.com/p1/.htmland

https://www.youtube.com/watch?v=v8nOBlWTnEg. This last link guided the researcher to follow steps to obtain free images. The intervention sessions involved a number of different electronic and non-electronic resources as described below.

5.5.2.2 Introduction session: During the introduction session, the researcher as group facilitator and the students were given the opportunity to get acquainted. They discussed why they were participating in the intervention programme, how the sessions would benefit them, and what skills it would teach them. The students were divided into two equal groups, each with a designated student leader. The researcher wrote the students' names on a small piece of paper and picked out five names, which formed the first group, and the remaining names formed the second group. The group members were each asked to pick a leader for their separate groups. The researcher divided the participants into two groups according to the activities in the intervention programme that was designed so that students' can discuss subjects in small groups. In addition, some activities were designed to generate competition between groups. They were then introduced to the attendance system (featuring rewards and treats for good attendance).

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Thereupon, the researcher explained the golden rules of conduct for the sessions and asked: "What makes our group special?" The students were subsequently encouraged to consider these rules, and then the researcher hung the rules on the wall as a useful reminder for students (Lown, Dunderdale and Nash, 2010). The resources, materials, and structure of the initial introduction session were all determined by the researcher.

5.5.2.3 Problem-solving skill: in the first session, the definition of 'problem solving' was taken from the work of Carson (2007). The steps of problem-solving were recreated with the help of (Rebori, n.d). A number of other activities included in the same session were created by the researcher and focused on the steps needed to approach a problem in the most effective way. The final activity involved the researcher/group facilitator proposing a series of 'problems' and asking the students for suggestions on how to solve them. The first involved a non-academic problem (a power cut) in an academic setting (during a maths test). The second session, involved a non-academic problem (a broken computer) in an academic context (an imminent report deadline). The third discussed the consequences of forgotten equipment such as (ruler and pen), which is a common issue within Saudi schools.

The researcher/group facilitator and the students discussed how not having the school equipment might negatively impact upon their performance. The researcher used Greenwood (1997) as a source for developing a 'problem exercise' involving numbers and shapes. The nature of the numbers and shapes was selected to reflect the age and ability of the students (10-12 years). In the third session, the researcher/group facilitator then linked these numbers and shapes to a specific real world (but non-

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academic) problem (a flat tyre) in an academic situation (travelling to school). The problem featured on the homework sheet was an academic challenge created by the researcher (a math question). The researcher used Novelli (2000) to develop a corresponding letters exercise.

5.5.2.4 Self-reinforcement skill: for Self-reinforcement session I, the definition was taken from the referenced: Psychology Dictionary (n.d.). The explanation of Self-reinforcement as both tangible and intangible was taken form (Peters, 2010) and (Smith, n.d). The researcher combined these two articles on positive reinforcement and used them to develop a Self-reinforcement definition guide. The researcher read the work of Laplante and Ambady (2003), in order to source information on positive and negative messages within verbal and nonverbal communications. The researcher then used these resources to put together a practise sheet. Following this, the work of Manusov and Patterson (2006) was consulted to create a clear definition of verbal and non-verbal messages and their impact on emotional response and actions. The researcher then created the discussion sheet, which featured seven questions.

For Self-reinforcement Session II, the researcher read Lazar (2011) to develop an understanding of how to segment teaching skills into digestible elements and keep students engaged. Then, she combined this information with the aforementioned self-reinforcement definitions. This made it clear which methods are the most effective when it comes to incentivising learning and encouraging students to stay focused. The researcher created an information sheet for students, which outlined this information and discussed the various ways in which they could motivate themselves in both

academic (school tests) and non-academic contexts (tidying your room). The researcher asked students how they would go about motivating themselves to perform better at a certain task (for example, cleaning at home).

For Self-reinforcement Session III, the researcher created practise and homework sheet activities relating to academic situations. She asked the students to discuss when, why, and how they might try to perform better in these situations. She also created a non-academic activity, which involved arranging a set of colours into five different cans. This concept of 'arranging' is taken from Greenwood (1997), but the introduction of colours and cans was proposed by the researcher. Finally, a word game was inspired by Saudi culture and the school system. However, the researcher added some extra information to the game to ensure that it clearly related to self-reinforcement.

5.5.2.5 Self-evaluation skill: in self-evaluation session I, the researcher used a definition from McMillan and Hearn (2008, 40) to explain the concept of self-evaluation. The specific steps needed for a student to accurately evaluate their own performance were taken from Students at the Centre (2014). However, the researcher created four steps from this article and rearranged the sequence of their appearance in the article as well as the terms. Effective self-evaluation includes identifying strengths and weaknesses, comparing work to given standards and using self-generated feedback, to improve the students' work. The researcher included this information as a set of self-evaluation steps: checklist, strengths, weaknesses, and identify solutions. The researcher used 'checklist' instead of given standards and 'identify solutions' instead of using self-

generated feedback due to the participants' age and special criteria, which is having LD. The researcher rearranged the sequence of these steps to make them more meaningful and students can apply these steps for more effective self-evaluation. First, the students cannot identify their strengths and weaknesses until they know the requirement standards for the work (checklist). Furthermore, they cannot identify solutions (using self-generated feedback) to enhance their work until they know their weaknesses. The practise activity focused on the ways in which a person can evaluate their own performance. It featured a total of 15 academic situations and students were expected to arrange them into the correct columns, according to the four steps of Self-evaluation provided.

For Self-evaluation Session II, the concept of self-evaluation was linked to an everyday context by asking students to compete in a sandwich-making contest. Then, she created an activity associated with an academic setting (writing an article about India). In Self-evaluation Session III, the researcher demonstrated how students can evaluate the quality of their performance by encouraging them to prepare tea for visitors and take a 7-words spelling test. The final activity was taken from a method used in Saudi primary schools to evaluate student performance. The researcher sourced information from the Ministry of Education (2011). All of the activities and the homework sheets were created by the researcher, as were the developed of distinct evaluation steps for assessing student work.

5.5.2.6 Planning skill: in planning session I, the researcher reviewed the information from Barksdale and Lund (2002) then adapted it to develop a planning

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definition sheet. Shortly after, the researcher considered this skill in daily life and combined it with the planning definition to create a non-academic activity sheet (for the supermarket). The researcher then devised an academic example sheet (relating to spelling), with students required to follow the information sourced on the definition of planning. In planning session II, the researcher provided a daily class schedule as an example of effective planning at school. The schedule was designed around the daily class schedule (both day and time) at a regular Saudi school. Its purpose was to demonstrate the importance of planning at school. The researcher created it based on her own experiences of Saudi culture and school life. Also, an additional academic activity was included as an example sheet (relating to midterm tests) by the researcher, after reviewing information from Massachusetts Institute of Technology (n.d.). However, the researcher personally developed the example situation associated with the midterm tests and the questions are based on the aforementioned planning definition. Finally, a non-academic activity (a plan to arrange a party) was developed by the researcher to demonstrate the value of golden rules and delegation and to demonstrate the planning definition in a fun context.

In planning session III, the researcher created a non-academic activity (baking a cake) and related its questions to the planning definition. After this, the researcher explained to the students the value of attending the Resource Room and the benefits of the Individual Education Plan (IEP). The definition of IEP was taken from Ontario (2004) and clearly discussed with students. The researcher subsequently demonstrated the role of the Resource Room when it comes to teaching and excelling at tests (specifically, a math test) for all students. The researcher used the work of Emerson and

Babtie (2014) and her experience in Saudi schools to create the documents and guidance for this test. After this, she devised a questionnaire discussing the importance of Planning in daily life, with reference to the Resource Room and IEP. The students were given eight statements relating to planning in life and at school (IEP and Resource Room), both before and after attending planning sessions. This questionnaire was completed, individually, to give the researcher more insight into their understanding of planning in life and school, before and after attending the three sessions which focused on planning. Finally, the researcher created an academic situation, asking students to memorise 21 sentences about Qatar. Within Saudi schools, memorisation is considered to be an essential skill for all subjects. The researcher created the academic situations and the questions in accordance with the definition of planning outlined above.

5.5.2.7 Decision-making skill: in decision-making Session I, the researcher adapted the definition of decision-making from Nemeth (2012). The differences between choice-making and Decision-making were adapted from Jacobs and Klaczynski (2005). Using the work of Jacobs and Klaczynski, the researcher created an activity sheet (involving food) and a checklist sheet featuring academic and non-academic examples. The concept was taken from Jacobs and Klaczynski (2005), but the situations were created by the researcher. In decision-making Session II, the researcher adapted the information for the decision-making steps from the University of Massachusetts (2015) sources. The researcher created an activity sheet (art) as a way to help students apply these decision-making steps. The situation on the sheet related to a female students in a Saudi school (between grades4-12, ages 10-18 years), who were asked to make a decision to study an art class (drawing, cooking or dressmaker). The

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researcher used this situation from the students' experiences in School and asked them to implement the decision-making steps. The activity sheet created by the researcher used and involved application of the seven steps of decision-making.

In decision-making session III, the researcher used the information on the differences between choice-making and decision-making sheet and the decision-making steps sheet to create a decision-making activity (colour statements). She then used the information on the differences between choice-making and decision-making sheet to create a decision and choice-making sheet. The researcher subsequently created a situation relating to making a decision about choosing a place to visit, by applying the seven decision-making steps. Finally, the questions on the homework sheet were created by the researcher and related to decision-making.

In the final session, the researcher aimed to assess the students' understanding of the information presented in the intervention programme. Therefore, she created practise and activity sheets as a tool to assess the children. Students were permitted outlining each skill covered in the intervention programme, so they could use it in their daily life and at school to achieve better success. The researcher devised a discussion sheets as a means of evaluating student learning and benefits after attending these sessions. The discussion sheet is related to the intervention programme and it is more self-reflection from students before and after they attended the intervention programme sessions. There were gifts and a certificate allocated, as a reward, to all students with a high attendance (14 sessions or more) at the end of the programme.

The following chapter will present Study 2- results II, implementation of the intervention programme. Chapter 6 outlines the effectiveness of the proposed intervention programme for students with learning difficulties regarding to the validated scales except Locus of Control Scale. In addition, the results of the pilot study will also be discussed.

Chapter six- Study 2

Results II-Implementation of Intervention Programme

Chapter 6: Study 2-Results II, Implementation of Intervention Programme

6.1 Chapter Overview

In this chapter, the objective is to address the third and fourth research questions detailed in Chapter 2 and 3 by using different statistical methods, depending on the aim of each question. There are eight hypotheses related to the intervention programme and the results of the pilot study will be outlined here.

6.2 The results of the intervention programme study

To investigate if there are significant statistical differences between the experimental and control group in the pre- and post-tests, four concepts were used in the intervention study, namely: self-regulation, self-efficacy for self-regulated learning, academic self concept and myself-as-a-learner concept. The researcher first ran a normality test to select the appropriate statistical analysis to address the third and fourth research questions relating to the intervention programme, as detailed below.

6.2.1 Sample Characteristics for 40 students with learning difficulties

The researcher applied a normality test to determine the appropriate statistical method to use to analyse the data and address the third and fourth research questions, and their related hypotheses.

In the Self-regulation Scale (10 items), A Shapiro-Wilk test for students at pre-intervention test is Pre=.107 and for students in post- intervention test is Post=.025. These two groups have Skewness of .052 (SE=.374) and a Kurtosis of -1.053 (SE=.733)

for pre-intervention test students and a Skewness of -.534 (SE=.374) and Kurtosis of .823 (SE=.733) for post-intervention test students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for pre-and post intervention test even though Shapiro-Wilk test showed not normal distributed for post-intervention test.

In Self-efficacy for self-regulated Scale, A Shapiro-Wilk test for students at pre-intervention test is Pre=.223 and for students in post-intervention test is Post=.188. These two groups have Skewness of .265 (SE=.374) and a Kurtosis of -.450 (SE=.733) for pre-intervention test students and a Skewness of .060 (SE=.374) and Kurtosis of .848 (SE=.733) for post-intervention test students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for pre-and post intervention test.

In the Academic Self-concept Scale (16 items), A Shapiro-Wilk test for students at pre-intervention test is Pre=.209 and for students in post-intervention test is Post=.323. These two groups have Skewness of -.389 (SE=.374) and a Kurtosis of .615 (SE=.733) for pre-intervention test students and a Skewness of -.235 (SE=.374) and Kurtosis of -.486 (SE=.733) for post-intervention test students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for pre-and post intervention test.

In the Myself-As-A-Learner Scale , A Shapiro-Wilk test for students at pre-intervention test is Pre=.364 and for students in post-intervention test is (Post=.929). These two groups have Skewness of .170 (SE=.374) and a Kurtosis of -.215 (SE=.733) for pre-intervention test students and a Skewness of .045 (SE=.374) and Kurtosis of -

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.466 (SE=.733) for post-intervention test students. The visual inspection of normal Q-Q plots, histograms and box plots presented that this scale scores were approximately normally distributed for pre-and post intervention test.

From the information above, it clear that the data for pre and post intervention test are normally distributed. Therefore, the researcher used parametric methods to test the differences between experimental and control groups at pre-and post intervention test for the four scales namely, the Self-regulation Scale and the Self-efficacy for Self-regulated Learning Scale with the Academic Self-concept Scale and the Myself-As-A-Learner Scale .

6.2.2 Description of the data collected for Intervention Study

The final sample used in this study consisted of 40 students, divided equally into experimental and control groups depending on their scores in the self-regulation scale. The data collected for the pre-and post-intervention programme was from School A and B, comprising 20 students with LD in each school, with 10 students per group. Students completed pre-assessment a week before session 1 and post-assessment a week after session 17.

No data were removed from the study population of 40 students. There were no missing data as the researcher double-checked each student's hand in her scales and asked her to provide the missing data if any. Moreover, no child was absent during the post-test for both the experimental and control groups as the researcher reminded students in the final session (session 17) that she would be visiting the school and asked all students to attend to complete the four scales as they did before and to celebrate finishing the programme by attending a party.

No students' scores were found to be outliers as there were no Z scores higher than -/+ 3 in absolute value. The improvement in scores was calculated by subtracting the pre-test scores from the post-test scores on the four scales used in the intervention study.

6.2.3 Differences between pre-and post-intervention scores for experimental and control groups on scales

This section will address the third and fourth research questions and their related hypotheses regarding the intervention programme. Firstly, the researcher will address the first two hypotheses for each research questions (3 and 4). The researcher will subsequently address the last two hypotheses regarding each research questions (3 and 4) in turn, as described below.

6.2.3.1 Mean and standard deviation scores of the intervention and control groups

Table 6.1 The mean and standard deviation of Experimental and Control Groups at pre and post-tests (n=20)

Scale	Groups	Pre-test		Post-test	
		M	SD	M	SD
SRS	Experimental	27.65	4.95	29.65	4.35
	Control	28.10	3.76	24.15	5.77
SSLS	Experimental	28.10	7.77	28.95	6.65
	Control	25.90	6.37	25.75	6.65
ASC	Experimental	9.50	2.76	8.50	2.13
	Control	9.55	3.01	8.35	2.51
MALS	Experimental	67.15	12.30	70.90	9.17
	Control	63.80	10.66	60.25	7.40

SRS= The Self-regulation Scale (Development); SSLS= Self-efficacy for self regulated learning Scale (Usher and Pajares); ASC = The Academic Self-concept Scale (development); MALS= The Myself-As-A-Learner Scale (Burden).

The mean and the standard deviation scores for the two groups are provided in Table 6.1. In the pre-test, the experimental group had higher scores than the control group in SSLS and MALS, while the control group achieved higher scores than the
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experimental group in SRS and ASC. The researcher ran the independent sample t-test for all four scales for both groups in the pre-test. Levene's test of equality of variance for experimental and control groups at pre-test as follows; SRS pre-test .040, SSLS pre-test.340, ASC pre-test .737 and MALS pre-test .403. The Levene's test indicated equal variance assumed for both groups in all scales at pre-tests except SRS. The independent sample t-test result indicated SRS (t= -.323, df= 35.468, P=.748); SSLS (t= .979, df= 38, P=.334); ASC (t= -.055, df= 38, P=.957) and MALS (t= .920, df= 38, P=.363), the difference between groups on all Scales have a P value above .05. Therefore, there is no significant difference between students who attended the experimental and control groups at pre-test for all Scales. In contrast, in the post-test, the students in the experimental group showed improvement on all scales' scores with the exception of the Academic Self-concept Scale. Students in the control group had lower scores for all of the four scale scores. In summary, the improvement in scores was better in the experimental group than the control group.

6.2.3.2 Effectiveness of the self-regulation intervention programme

The purpose of this study was to determine the effectiveness of the self-regulation programme for female students in primary schools (aged 10-12 years). Analysis of the data entailed using an independent sample t-test and consisted of examining the post-test scores for the Self-regulation Scale, the Academic Self-concept Scale, which were developed by the researcher, the Self-efficacy for Self-regulated Learning Scale (usher and Pajares, 2008) and the Myself-As-A-Learner Scale (Burden, 1998). The researcher used an independent sample t-test for two reasons. Firstly, the data were approximately normally distributed depending on the test of normality mentioned above. Second, the

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participants in this study were all the same gender (females), in the same categories (students with learning difficulties), at the same level of education (upper primary School in grades4-6) and they were all aged between 10-12 years old. Therefore, the independent sample t-test was considered an appropriate statistical method to compare the post-test scores of the intervention group to the post-test scores of the control group.

Levene's test of equality of variance of the experimental and control groups at post-test shows SRS post-test .200, SSLS post-test .777, ASC post-test .405 and MALS post-test .469. The Levene's test indicated equal variance assumed for both groups in all scales in post-tests. The results extracted from the t-test. The researcher will now address the four hypotheses related to the difference between the mean scores of the experimental and control groups in the post-tests for the four scales used in the intervention study in favour of the experimental group.

6.2.3.2.1Results related to hypothesis 3.a)

3a) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in the experimental group for (The Self-regulation Scale developed by researcher)?

There was significant difference in the mean scores for experimental group (M=29.65, SD=4.35) and control group (M= 24.15, SD= 5.77), df (38, t= 3.399, P=.002) two tailed and the (eta= .233). The significant difference between groups has large effect and was in favour of students in the experimental group, which means that these students' self- regulation skills have been improved through the intervention programme.

6.2.3.2.2 Results related hypothesis 3.b)

3b) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in experimental group on the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

There was no significant difference in the mean scores for experimental group (M=28.95, SD=6.65) and control group (M= 25.75, SD= 6.65), df (38, t= 1.521, P=.137) two tailed. However, students in the experimental group showed higher scores than students in the control group, which means that students in the experimental group benefit from the intervention programme in increasing their self-efficacy for self-regulated learning.

6.2.3.2.3 Results related to hypothesis 4.a)

4a) Is there a significant statistical difference in the Academic Self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group for the Academic Self-concept Scale (developed by researcher)?

There was no significant difference in the mean scores for the experimental group (M=8.50, SD=2.13) and control group (M= 8.35, SD= 2.51), df (38, t= .203, P=.840) two tailed. However, students in the experimental group showed slightly higher score than students in the control group which means that students in the experimental group benefit from the intervention programme in increasing their the Academic Self-concept more than those in the control group.

6.2.3.2.4 Results related to the hypotheses 4.b)

4b) Is there a significant statistical difference in the Academic Self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group on the Myself-As-A-Learner Scale (Burden, 1998)?

There was a significant difference in the mean scores for the experimental group (M=70.90, SD=9.17) and control group (M= 60.25, SD= 7.40), df (38, t= 4.041, P=.000) two tailed and the (eta= .300). The significant difference between groups has large effect and was in favour of students in the experimental grouping, which means that their academic self-concept has notably improved through the intervention programme.

6.2.3.3 Difference between pre- and post-intervention scores for Experimental and Control groups

Furthermore, a t-test was run to investigate if there is a difference between pre –and post- intervention scores for each group. Levene's test of equality of variance for the experimental and control groups at pre -and post-test is as follows SRS experimental group .259, SRS control group .043, SSLS experimental group .017, SSLS control group .715, ASC experimental group .477, ASC control group .710, MALS experimental group .176 and MALS control group .258. The Levene's test indicated equal variance assumed for both groups on all scales at pre- and post-tests except SRS control group and SSLS experimental group. The researcher applied an independent sample t-test to address the difference between pre-and post-intervention scores for experimental and control groups, as shown in the table below.

Table 6.2 Independent sample t-test for each group at pre- and post-intervention assessments

Scale	Groups	t-test			
		t	df	P	η2
SRS (Exp)	Pre-test	-1.356	38	.183	-
	Post-test				
SRS (Con)	Pre-test	2.560	32.683	.015	.147
	Post-test				
SSLS (Exp)	Pre-test	-.778	29.865	.443	-
	Post-test				
SSLS (Con)	Pre-test	.910	38	.369	-
	Post-test				
ASC (Exp)	Pre-test	1.280	38	.208	-
	Post-test				
ASC (Con)	Pre-test	1.363	38	.180	
	Post-test				
MALS (Exp)	Pre-test	-1.093	38	.281	-
	Post-test				
MALS (Con)	Pre-test	1.223	38	.229	
	Post-test				

Exp= Experimental group, Con= control group, SRS= The Self-regulation Scale (Development); SSLS= Self-efficacy for self regulated learning Scale (Usher and Pajares); ASC = The Academic Self-concept Scale (development);; MALS= The Myself-As-A-Learner Scale (Burden).

6.2.3.3.1 Results related to the hypothesis 3.c)

3c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test for the Self-regulation Scale (developed by researcher)?

There was no significant difference in the mean scores for the experimental group at pre-test (M=27.65, SD=4.955) and post-test (M= 29.65, SD= 4.356), df (38, t= -1.356, P=.183) two-tailed. However, students at post-test showed slightly higher scores

than students at pre-test, which indicates that students at post-test show that they benefitted from the intervention programme in increasing their self-regulation skills.

There was significant difference in the mean scores for the control group at pre-test (M=28.100, SD=3.768) and at post-test (M= 24.15, SD= 5.779), df (32.683, t= 2.560, P=.015) two-tailed. The significant difference between pre-and post-tests has a large effect with (η2= .147) and was in favour of students at pre-test. This finding suggests that their self-regulation skills notably decreased at the post-test.

6.2.3.3.2 Result related to the hypotheses 3.d).

3d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test for the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

There was no significant difference in the mean scores for the experimental group at pre-test (M=28.100, SD=7.772) and post-test (M= 28.950, SD= 4.356), df (29.865, t=.778, P=.443) two-tailed. However, students in the post-test showed slightly higher scores than students in the pre-test, which indicates that students at post-test could have benefitted from the intervention programme in increasing their self-efficacy skills.

There was no significant difference in the mean scores for the control group at pre-test (M=25.900, SD=6.373) and post-test (M= 25.75, SD= 5.779), df (38, t=.910, P=.369) two-tailed. However, students in the pre-test showed slightly higher scores than

students in the post-test, which suggests that students' self-efficacy have been decreased slightly at post-test.

6.2.3.3.3Results related to hypothesis 4.c)

4c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test on the Academic Self-concept Scale (developed by researcher)?

There was no significant difference in the mean scores for the experimental group at pre-test (M=9.50, SD=2.76) and post-test (M= 8.50, SD= 2.14), df (38, t=1.280, P=.208) two-tailed. Students in the pre-test showed slightly higher scores than students at the post-test, which indicates that students' academic self-concept have been decreased slightly at the post-test.

There was no significant difference in the mean scores for the control group at pre-test (M=9.55, SD=3.017) and post-test (M= 8.35, SD= 2.51), df (38, t=1.356, P=.180) two-tailed. Students in the pre-test showed slightly higher score than students in the post-test, which indicates that students' academic self-concept have been decreased at the post-test.

6.2.3.3.4 Result related to the 4.d) hypotheses.

4d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test on the Myself-As-A-Learner Scale (Burden, 1998)?

There was no significant difference in the mean scores for the experimental group at

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pre-test (M=67.15, SD=12.30) and post-test (M= 70.900, SD= 9.17), df (38, t= -1.093, P=.281) two-tailed. Students at the post-test showed slightly higher score than students at the pre-test, which indicates that students' academic self-concept (MALS) have been increased slightly at the post-test.

There was no significant difference in the mean scores for the control group at pre-test (M=63.80, SD=10.66) and post-test (M= 60.25, SD= 7.40), df (38, t= -1.223, P=.229) two-tailed. Students at the pre-test showed slightly higher score than students in the post-test, which indicates that students' academic self-concept (MALS) have been decreased slightly at the post-test.

6.3 Pilot study

The researcher outlined the results of the pilot study in the end of Chapter 6, implementation of the intervention programme for two reasons as below. Firstly, the researcher in this stage piloted five intervention programme sessions as a training to apply the proposed programme in the intervention study. Secondly, the selected sample was small therefore, the researcher obtained descriptive analysis without any further statistical methods.

6.3.1 General information

The pilot study took place in April 2015, at a primary school in Riyadh. The researcher implemented the first session of each of the five self-regulation skills, and these sessions included the definitions of the skills, the steps or methods to implement these skills, and activities related to these skills. There were five students from grade4 to 6 and aged between 10 and 12 years, who attended the intervention programme. Further

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details about the pilot study can be found in Chapter 3, Methodology. The researcher conducted the pilot study to validate the activities and explore if they were enjoyable and appropriate for the age of participants. After implementing the pilot study, the researcher made some amendments to the proposed intervention programme to present the activities in a more attractive, understandable and enjoyable manner (see Appendix, L for details of amendments to intervention programme following pilot study).

6.3.2 Results of the pilot study

The researcher compared the mean and standard deviation of the whole sample (28 students with LD) and the selected students who were invited to attend the intervention programme (5 students with LD). Table 6.3 shows the data for the pilot study in more detail.

Table 6.3 Descriptive analysis for pilot study

Scales	28 students			5 students		
	N	M	SD	N	M	SD
SRS	24	37.50	7.61	5	28.60	3.04
SSLS	23	26.45	7.93	5	19.20	1.78
ASC	20	7.50	2.23	5	6.40	1.81
MALS	19	65.42	6.02	5	61.00	2.34

SRS= The Self-regulation Scale (Development); SSLS= The Self-efficacy for Self-regulated Learning Scale (Usher and Pajares); ASC = The Academic Self-concept Scale (development); MALS= The Myself-As-A-Learner Scale (Burden); N=number of students; M=mean; SD=Standard deviation.

The table above clearly shows that the mean score for the selected 5 students is lower than the mean for the whole sample of 28 students on all four scales. For example, 28.6 compared with 37.5 on the SRS and 19.2 compared with 26.5 on the SSLS. This shows that the selected 5 students had notably lower scores on SRS and

SSLS than students' scores in the whole sample. These five students recorded the lowest scores on these two scales, which lends support to the researcher's proposal to select the students with the lowest scores for participation in the intervention programme. The five students' scores on the ASC were 6.4 compared with 7.5 and 61 compared with 65.4 on MALS. The selected 5 students recorded slightly lower scores on ASC and MALS than the students' scores in the whole sample (28 students). This highlights that the selected five students have lower scores on all four scales. In addition, the standard deviation for the selected 5 students showed the data are spread across a much smaller range than the data for the 28 students. This shows that the scores of the five selected students are tightly grouped, with a narrow range between the lowest and highest scores. However, the scores of the 28 students were spread widely on SRS, SSLS and MALS but not on ASC. The large standard deviation on SRS, SSLS and MALS indicated a wide range between the lowest and highest scores on these scales.

6.4 Summary of the results of study 2, the intervention programme

To summarise, the results of study 2, which the intervention programme obtained for the current study, were used to address the difference between the mean scores of the experimental and control groups in four scales, namely: the Self-regulation Scale; the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares); the Academic Self-concept Scale and the Myself-As-A-Learner Scale (Burden). In addition, this chapter addresses the difference between the mean scores of the pre and post-tests

for the experimental group and the control group. The results showed that there was a significant difference in the mean scores with large effect between the experimental and control groups in favour of the experimental group in the Self-regulation Scale and Myself-As-A-Lerner Scale. There was no significant difference in the mean scores between the experimental and control group in the Self-efficacy for Self-regulated Learning Scale and the Academic Self-concept Scale. However, students in the experimental group showed higher scores than those in the control group in both scales. There was no significant difference in the mean scores between pre and post-tests for the experimental group in all four scales. Students' post-intervention tests resulted in higher scores than students' pre-intervention tests in all scales except on the Academic Self-concept Scale. There was significant difference in the mean scores between pre and post-tests, with large effects for the control group in the Self-regulation Scale in favour of the pre-intervention tests. There was no significant difference in the mean scores between pre and post-tests for the control group in the other three scales. Students' pre-intervention tests resulted in higher scores than their pre-intervention tests in all three scales.

The next chapter, Chapter seven, will discuss all of the findings from the quantitative study and outline the limitations and implications of the current study.

Chapter 7

Discussion

Chapter 7: Discussion

7.1 Chapter overview

This chapter provides detailed discussion of the findings directly related to the research questions and hypotheses, and examines the data obtained through the research process. In addition, the limitations of the study, recommendations for implementing the intervention programme in the future and the dissemination of results will also be presented.

7.2 Discussion of research questions and related hypotheses

The structure of this section is as follows: there are four research questions and their related hypotheses. The first two research questions are related to the validation study and the last two research questions are related to the intervention programme study. Each of the research questions will be now examined in turn, with reference to the relevant hypotheses.

7.2.1 Research Question 1: Is the reliability and validity of the three existing scales and three developed by researcher scales acceptable for use in Saudi?

In any psychological measurement, reliability and validity are important elements. These factors determine whether a measurement is eligible and appropriate to be administered to the research participants. The aim of ascertaining the reliability and validity of a measurement is to ensure that it is accurate and reaches a certain level of statistical acceptability (Hersen and Rosqvist, 2008). For the current study, Cronbach

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alpha was used to test the reliability of six scales; namely, the Self-regulation Scale, the Self-efficacy for Self-regulated Learning Scale, Situation Judgment Test, Locus of Control Scale, the Academic Self-concept Scale and the Myself-As-A-Learner Scale. It can be confirmed that, with the exception of the Situation Judgment Test, which was eliminated from the study, all the scales have acceptable reliability over .60. The factor analysis structure for the five acceptable scales were confirmed by the results of the measurement model, which indicated that three of the five scales have an excellent fit, whilst the Locus of Control Scale and the Myself-As-A-Learner Scale were found to have an acceptable fit. Each of the hypotheses related to Research question 1 will now be discussed in turn in relation to the findings.

Hypothesis 1a) Does the Self-regulation Scale (developed by researcher) have acceptable reliability and validity in Saudi?

This study found that the internal consistency measured by Cronbach alpha for the Self-regulation Scale (13 items) has an acceptable value of .69. The Exploratory Factor Analysis (EFA) method showed that the emergent factors corresponded with the five hypothesised factors. The Confirmatory Factor Analysis (CFA) for this scale (13 items) found that this scale has a good fit with χ^2 68.753, χ^2/df =1.250, CFI = .969 and RMSEA = .028. However, the researcher discovered that the structural composition did not match the researcher's theoretical model. As a result, a second measurement model was formed for the Self-regulation Scale (10 items), which showed an acceptable internal consistency of (.64). The second Exploratory Factor Analysis (EFA) method found that the emergent factors corresponded with the five hypothesised factors. The

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Confirmatory Factor Analysis (CFA) for this scale (10 items) evidenced a good fit with χ^2 38.691, χ^2 /df =1.548, CFI = .977 and RMSEA = .031. This means that the scale has construct validity and content validity. Moreover, the significant positive medium correlation at the 0.01 level between the Self-regulation and the Self-efficacy for the Self-regulated Learning Scales provides evidence of some concurrent validity. This indicates that the scale is suitable for use in the current study and demonstrates its external validity.

Hypothesis 1b) Does the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008) have acceptable reliability and validity in Saudi?

The results of this study confirm that the Self-efficacy for Self-regulated Learning Scale has acceptable reliability (.76). This finding aligns with other, similar studies, including Zimmerman, Bandura and Martinez-Pons (1992) and Webb-Williams (2006), which looked at the reliability of the Self-efficacy for Self-regulated Learning Scale. The Exploratory Factor Analysis (EFA) method found that the emergent factors corresponded with the hypothesised factors. The Confirmatory Factor Analysis (CFA) for this scale (7 items) indicated that the measurement model had a good fit with χ^2 15.525, χ^2 /df =1.109, CFI = .998, TLI = .997 and RMSEA = .012, which corresponds with research undertaken by Usher and Pajares (2008). This means that the scale possesses construct validity, content validity and criterion validity, which indicates that it is suitable for use in the current study and demonstrates external validity.

Hypothesis 1c) Does the Situation Judgment Test (developed by researcher) Scale have acceptable reliability and validity in Saudi?

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The Situation Judgment Test has an unacceptable internal consistency of (.45), which excludes it from further analysis.

Hypothesis 1d) Does the Locus of Control Scale (Nowicki and Strickland, 1973) have acceptable reliability and validity in Saudi?

The Locus of Control Scale has acceptable internal consistency when measured by Cronbach alpha .61. This reliability level corresponds with reliability findings obtained by Nowicki and Strickland (1973), Rohrbeck, Azar and Wanger (1991) and Li and Lopez (2004). The Exploratory Factor Analysis (EFA) method found that the emergent factors corresponded with the eight hypothesised factors. The Confirmatory Factor Analysis (CFA) for this scale (20 items) indicated that the measurement model had an acceptable fit with χ^2 170.335, χ^2/df =1.208, CFI = .913 and RMSEA = .024. This means that the scale possesses construct validity and content validity. In addition, the negative correlation between the Locus of Control Scale and other scales demonstrates some divergent validity. The findings prove that this scale is suitable for use in the current study and that it demonstrates external validity.

Hypothesis 1e) Does the Academic Self-concept Scale (developed by researcher) have acceptable reliability and validity in Saudi?

The Academic Self-concept Scale has an acceptable internal consistency reliability of .74. The Exploratory Factor Analysis (EFA) method showed that the emergent factors corresponded with the five hypothesised factors. The Confirmatory Factor Analysis (CFA) for this scale (16 items) suggests a good fit with χ^2 =132.429, χ^2/df =1.409, CFI = .957 and RMSEA = .025. This indicates that the scale has construct validity and

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content validity. In addition, the significant positive medium correlation at the 0.01 level between the Academic Self-concept Scale and the Myself-As-A-Learner Scale provides evidence of some concurrent validity. This validity indicates that the scale is suitable for use in the current study and demonstrates external validity.

Hypothesis 1f) Does the Myself-As-A-Learner Scale (Burden, 2008) have acceptable reliability and validity in Saudi?

This study indicates that the internal consistency of the Myself-As-A-Learner Scale has an acceptable value of .71, as measured by alpha Cronbach. This level of reliability is nearly closer to that found in other studies by Bayraktar and Hakki (2014) and Trickey and Topping (2006), which studied the reliability of the Myself-As-A-Learner Scale. The Exploratory Factor Analysis (EFA) method showed that the emergent factor corresponded with the five hypothesised factors. The Confirmatory Factor Analysis (CFA) for this scale (20 items) found that the measurement model had an acceptable fit with χ^2 266.824, χ^2/df =1.700, CFI = .923 and RMSEA = .036. , which supports with research conducted by Burden (1988). This indicates that the scale has construct validity, content validity and criterion validity, which confirms that it is suitable for use in the current study and demonstrates external validity.

7.2.2 Research Question 2: Is there a difference between students with and without learning difficulties (LD) in self-regulation, the Academic Self-concept and locus of control?

This quantitative study indicated a significant difference in the moderate effects of students with and without learning difficulties. The results were in favour of students
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without learning difficulties, when using the parametric method (independent sample t-test) and non-parametric method (Mann-Whitney). The difference was identified in four scales, the Self-regulation Scale; the Self-efficacy for Self-regulated Learning Scale; the Academic Self-concept Scale and the Myself-As-A-Learner Scale . However, there was also a significant difference with the small effect between students with and without learning difficulties, in favour of students with learning difficulties when using the parametric method (independent sample t-test) and non-parametric method (Mann-Whitney). This difference, which identified in the Locus of Control Scale, meaning that students with learning difficulties have a greater external locus of control than those without learning difficulties. The following section will discuss this research question under five separate hypotheses.

Hypothesis 2a) Is there a significant statistical difference between students with and without learning difficulties on Self-regulation Scale (developed by)?

The most academically successful students use self-regulation skills in their learning process, which enables them to learn in a more effective way (Pintrich, 2004). However, students with learning difficulties (LD) often lack the use of self-regulation skills in their learning, which can often lead them to experience disappointment and underachievement at school (Lienmann and Ried, 2006). The current study results confirm this, and suggest that there is a significant difference between students with and without LD in self-regulation skills (NLD and LD respectively). This difference was shown by using the t-test to compare the mean scores between groups and the analysis shows the follows; students without learning difficulties (NLD; M=30.8998,

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SD=4.56591) and students with learning difficulties (LD; M= 26.5286, SD= 4.50031), df (687, t= 7.603, P=.000) two-tailed and the (eta=.0776). In addition, Mann-Whitney was used to compare the median scores between groups and the analysis shows: (NLD; MD=31) and (LD; MD= 27), U=10746, Z= -6.932, P=.000 and the (r=.2641). The difference between these groups is shows a moderate effect in favour of those without learning difficulties (NLD). These results correspond with numerous studies including Slife, Weiss and Bell (1985), Grolnick and Richard (1990), Ruban, McCoach and McGuire (2003), Trainin and Swanson (2005), Kirby, Silvestri, Allingham, Parrila and La Fave (2008), Bergey, Deacon and Parrila (2015), and Ashour, Veysi, Azadikhah Sheykhlar and Shayan (2015).

Hypothesis 2b) Is there a significant statistical difference between students with and without learning difficulties on Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

Academically successful students are more likely to utilise self-efficacy skills to regulate their learning, which encourages them to be more motivated to learn and focus on their performance, improvement and goals, resulting in improved attainment at school (Zimmerman, 1998). In contrast, students with learning difficulties need to develop their self-efficacy, and should be encouraged to use self-efficacy skills more than their peers without learning difficulties, in order to experience success at school (Margolis and McCabe, 2006). Klassen and Lynch (2007) state that students with learning difficulties perceive themselves as having low self-efficacy and attribute this to their academic failure and underachievement. The results of the current study confirm

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this, and suggest that there is a significant difference between students with and without LD in self-efficacy for self-regulated learning. The difference occurred by using the t-test to compare the mean scores between groups and the analysis showed the follows: students without learning difficulties (NLD; M=35.8387, SD=5.48666) and students with learning difficulties (LD; M= 28.8824, SD= 6.22095), df (711, t= 10.860, P=.000) two-tailed and the (eta=.1327). In addition, Mann-Whitney was used to compare the median scores between groups and the analysis demonstrates: (NLD; MD=37) and (LD; MD= 29), U=10791.500, Z= -9.523, P=.000 and the (r=.3425). The difference between the two groups is with a moderate effect in favour of students without learning difficulties. These research results concur with a number of studies including Pintrich, Anderman and Klobucar (1994), Tabassam and Grainger (2002), Baird, Scott, Dearing and Hamill, (2009), Klassen (2010), and Hojati and Abbasi (2013).

The researcher considers the following two hypotheses together because they both focus on the same psychological aspect, which is academic self-concept.

Hypothesis 2d) Is there a significant statistical difference between students with and without learning difficulties on Academic Self-concept Scale (developed by researcher by researcher)?

Hypothesis 2e) Is there a significant statistical difference between students with and without learning difficulties on Myself-As-A-Learner Scale (Burden, 1998)?

Students' academic achievements may influence their academic self-concept. Wilson (2009) reviewed twelve articles from the U.S.A between 1996 and 2004, and five further articles between 1996 and 2004 from Canada, Australia, Finland, Africa and
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Germany. Each of these articles indicated a positive relationship between a student's ability and their academic self-concept. The results of these studies concluded that students with above average ability have a higher self-concept than those with average ability. Furthermore, those with an average ability have a higher academic self-concept than those with learning difficulties. The results of the current study also confirm this finding and determine a significant difference between students with and without LD in the academic self-concept on both scales. The difference between these two groups for the Academic Self-concept Scale was demonstrated by using the t-test to compare the mean scores between groups and the results showed: (NLD; M=12.0246, SD=2.73215) and (LD; M= 9.1143, SD= 3.16018), df (675, t= 8.302, P=.000) two-tailed and The (eta=..0926).

Once again, Mann-Whitney was used to compare the median scores between groups and its analysis showed: (NLD; MD=12) and LD (MD= 9), U=10295, Z= -7.109, P=.000 and the (r=.2732). The difference between the mean of these groups in the Myself-As-A-Learner Scale were demonstrated by using the t-test, which showed: (NLD; M=77.6738, SD=9.82236) and (LD; M= 66.0968, SD= 9.32775), df (618, t= 8.847, P=.000) two tailed and the (eta=.1124). In addition, Mann-Whitney was used to compare the median scores between groups and its results showed: (NLD; MD=78) and LD (MD= 65), U=6797.500, Z= -7.851, P=.000 and the (r=.3153). The difference between the two groups on the two scales shows a moderate effect in favour of students without learning difficulties. These results align with a number of other studies such as Chapman and Frederic (1979), Boersma and Chapman (1981), Ayres, Cooley and Dunn (1990), Leondari (1992), Leondari (1993), Cosden and Mcnamara (1997),
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Tabassam and Grainger (2002), Dyson (2003), Gans, Kenny and Ghany (2003) Polychroni, Koukoura and Anagnostou (2006), Zisimopoulos and Galanaki (2009) and Shany, Wiener and Assido (2012).

Hypothesis 2c) Is there a significant statistical difference between students with and without learning difficulties on Locus of Control Scale (Nowicki-Strickland, 1973)?

Students with an internal locus of control generally have lower levels of anxiety, more confidence in their abilities, and experience success regarding their learning activities (Hunt, Wiseman and Bowden, 2003). However, students with learning difficulties are more inclined to have an external locus of control, meaning they tend to attribute their success to luck and the difficulty of school tasks (Gorman, 2001). The current study results confirm this, and suggest that there is a significant difference between students with and without LD in locus of control. The difference in the mean scores between the two groups using the t-test showed: (NL; DM=8.4498, SD=2.68236) and (LD; M= 9.3662, SD= 2.70047), df (676, t= -2.722, P=.007) two-tailed and the (eta= -0.0108).

Mann-Whitney was also used to demonstrate the differences between the median scores of the groups, which showed: (NLD; MD=9) and LD (MD= 10), U=18304, Z= -2.089, P=.037 and the (r=.0802). The difference between the two groups on this scale suggests a small effect in favour of students without learning difficulties. These conclusions correspond with numerous studies including Boersma and Chapman (1981), Coggins, (1984), Rogers and Saklofske (1985), Leondari (1992), Firth,

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Cunningham and Skues, (2007) and Shogren et al. (2010). Attention is now turned to the results of the implementation of the intervention study.

7.2.3 Research Question 3. Is the proposed intervention programme effective in developing self-regulation skills for students with learning difficulties?

In addressing Research Question 3 reference is made to the findings relating to the pre- and post-intervention assessment of the participants (pre-test and post-test respectively). With respect to the intervention study, a significant large difference (eta below.3) was found in the mean scores of the experimental group and control group in the post-test, in favour of the experimental group. This significant difference was established for the Self-regulation Scale (developed by researcher). In contrast, there was no significant difference in the mean scores of the experimental group and control group in the post-test for the Self-efficacy for Self-regulated Learning Scale (SSLS). However, students in the experimental group achieved higher scores than those in the control group on this scale in the post-test than those in the pre-test on the SSLS. The quantitative study therefore provides some insight on the effectiveness of the intervention programme. The following section will discuss these findings in relation to the research hypotheses in more detail.

Hypothesis 3a) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test assessment, in favour of students in the experimental group for (Self-regulation Scale developed by researcher)?

Dignath, Buettner and Langfeld (2008) maintain that students in primary school have difficulty in practising self-regulation skills. The majority of students with learning difficulties lack the implementation of self-regulation skills during their studies, which results in them experiencing underachievement (Lienmann and Ried, 2006). However, these students have the opportunity to increase their self-regulation skills through intervention (Monyalvo and Torres, 2004). The results of the current study presents that students with learning difficulties can improve their self-regulation skills through intervention support. The following post-intervention assessments of the participants' data analysis indicates a significant difference in the mean scores between the experimental and control group by using the t-test and the analysis showed: the experimental group (M=29.65, SD=4.35) and the control group (M= 24.15, SD= 5.77), df (38, t= 3.399, P=.002) two-tailed and the (eta= .233).

The significant difference is in favour of the experimental group and shows a a large effect. These results agree with those of other studies including Barkley, Copeland and Sivage (1980), Ronen (1994), Turki (2004) Al-Qemish, Al-Adaelah and Al-Turki (2008), Zydan (2009), Zydan and AbdualRaseg, (2009), Kang (2010), and Ali (2012). Regarding this hypothesis, the researcher can confirm that students with learning difficulties can improve their self-regulation through her intervention programme. Therefore, the proposed intervention programme appears to be effective in developing self-regulation skills for students with learning difficulties.

Hypothesis 3b) Is there a significant statistical difference in self-regulation skills between the mean scores of the experimental and control groups on post-test

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assessment, in favour of students in experimental group on Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

Students with learning difficulties tend to have a lower mean of reading self-efficacy, and lower self-efficacy for self-regulated learning compared to students without learning difficulties (Klassen, 2010). However, these students are able to learn such skills with the support of their parents, teachers, peers and through personal experiences (Bandura, 1997; Schunk and Pajares, 2001; Kirk, 2013). Increasing the self-efficacy of students with learning difficulties is necessary, as this enables them to develop greater intrinsic motivation for their school work, meaning they are less likely to feel frustrated when experiencing failure (Prat-Sala and Redford, 2010). The results of the current study confirm that students with learning difficulties can improve their self-efficacy through an intervention programme.

Data analysis following completion of the post-intervention assessments indicates a difference in the mean scores between the experimental and the control group by using the t-test. The analysis shows that the experimental group (M=28.95, SD=6.65) and the control group (M= 25.75, SD= 6.65), df (38, t= 1.521, P=.137) two-tailed. The difference between the two groups is in favour of the experimental group in regard to self-efficacy. Students in the experimental group achieved higher self-efficacy scores at the post-test compared to the control group. These research results supports these reported in a number of other studies, including Margolis (2005); Margolis and McCabe (2006) and Siegle and McCoach (2007).

With respect to the hypothesis, the researcher confirms that students with learning difficulties can improve their self-efficacy by engaging with an intervention programme. The proposed intervention programme is an effective way of improving the self-efficacy scores of students with learning difficulties for the experimental group. However, the researcher also identified a lack of significant difference between the two groups of the intervention programme; this was due to the proposed intervention programme having been developed with a focus on self-regulation skills, and not on self-efficacy.

The following two hypotheses (3c and 3d) present the complex figures in statistical measures. These hypotheses were investigated concerning the discrepancy between the mean pre- and post-test scores, for both students in the experimental group and in the control group. Tzuriel (2001) indicated that with regard to the complex figures obtained by statistical measures, both the experimental and control groups indicated similar mean scores in the pre-intervention assessment. However, while following the implemented intervention programme, the experimental group participants' mean scores showed an increase, whereas the control group participants' means scores decreased on the post-intervention assessments. The following will present the two hypotheses as detailed below.

Hypothesis 3c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test

assessment of students in the control group in favour of post-test for the Self-regulation

Scale (developed by researcher)?

The current study found no significant difference in the mean scores for the experimental group at pre-test (M=27.65, SD=4.955) and post-test (M= 29.65, SD= 4.356), df (38, t= -1.356, P=.183) two-tailed. However, students at the post-test showed slightly higher scores than students at pre-test, which means that the intervention programme was effective in increasing students' mean scores for self-regulation skills at post-test, to a greater extent than the mean scores at pre-test for the experimental group. In contrast, there was a significant difference in the mean scores for the control group at pre-test (M=28.100, SD=3.768) and post-test (M= 24.15, SD= 5.779), df (32.683, t= 2.560, P=.015) two-tailed. The significant difference between pre- and post-tests has a large effect with (η2= .147) and was in favour of students at the pre-test stage. Therefore, the absence of an intervention programme for students in the control group decreased their mean scores at post-test, compared to their mean scores at pre-test relating to self-regulation skills.

Hypothesis 3d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test for the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008)?

The current study found that there was no significant difference in the mean scores for the experimental group at pre-test (M=28.100, SD=7.772) and post-test (M=

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28.950, SD= 4.356), df (29.865, t=.778, P=.443) two-tailed. However, students at post-test showed slightly higher score than students at pre-test. The improvement in students' mean scores in the post-test was greater than the mean scores at pre-test, which suggests that the intervention programme was effective in developing the participants' self-efficacy for self-regulated learning. In contract, there was no significant difference in the mean scores for control group at pre-test (M=25.900, SD=6.373) and post-test (M= 25.75, SD= 5.779), df (38, t=.910, P=.369) two-tailed. However, students at pre-test showed slightly higher score than students at post-test. Consequently, the absence of implementation of an intervention programme for the control group, may account for the decrease of those students' mean scores at post-test to a level below their mean score at pre-test, in terms of self-efficacy relating to self-regulated learning.

Subsequently, the researcher investigated whether the proposed intervention programme for self-regulation had an impact on improving academic self-concept of students with learning difficulties. Students with learning difficulties tend to have a lower academic self-concept than those without learning difficulties, due to their academic performance, underachievement and labelling as having learning difficulties (Banks and Woolfson, 2008). Moreover, they may also possess a more negative academic self-concept compared to students with a Special Educational Need (SEN) (Moller et al., 2009). Zeleke (2004) determined that the majority of studies (approximately 89% of them), suggest that students with learning difficulties tend to have a lower and more negative academic self-concept than other students with low, average and high educational achievements. The researcher used two different scales to

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measure academic self-concept. The following section discusses two hypotheses in relation to these scales.

7.2.4 Research Question 4. Does the intervention programme have a positive impact on the academic self-concept of students with learning difficulties?

With respect to the intervention study, a significant large difference was found in

the mean scores of the experimental group and control group at post-test, in favour of the experimental group. This significant difference was established for the Myself-as-A-Learner Scale. In contrast, there was no significant difference in the mean scores of the experimental group and control group at post-test for the Academic Self-concept Scale (ASC). However, students in the experimental group achieved higher scores than those on the control group of this scale at post-test compared with those at pre-tests on the ASC. The quantitative study provides some evidence and a clear perspective on the effectiveness of the intervention programme. The following section will discuss these findings with regard to the research hypotheses in more detail.

Hypothesis 4a) Is there a significant statistical difference in academic self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group for Academic Self-concept Scale (developed by researcher)?

Once the intervention programme had been implemented, the results indicated that there was no significant difference in the mean scores of Academic Self-concept Scale for the experimental group (M=8.50, SD=2.13) and the control group (M= 8.35,

SD= 2.51), df (38, t= .203, P=.840) two-tailed. However, there is a difference between the mean scores of the experimental and control groups, in favour of the experimental group in regard to the Academic Self-concept Scale. Students in the experimental group achieved slightly higher academic self-concept scores at post-test, compared to those in the control group. The researcher attributed the lack of significant difference between the two groups in the scale to the fact that students were completing the post-test during their final examination period. Therefore, these students may well have been facing difficulties and failed to answer certain questions which led to them feeling disappointed in their performance. In addition, the researcher attributes the "no significant difference" between the two groups due to there being only two options: 'True or False', which do not allow students to accurately indicate their academic self-concept.

Thus, these results match a number of studies that focus on the effectiveness of the implementation of the intervention programme on enhancing self-regulation skills and its impact on different psychological aspects, educational achievement and changing students' behaviour. These supporting studies are Montague (1992), Ronen (1994), Johnson, Graham and Harris (1997), Turki (2004), Zydan and AbdulRaseg (2009), Kang (2010) and Ali (2012). With respect to hypothesis 4a), the researcher confirms that students with learning difficulties who attended the intervention programme show improved scores in their academic self-concept, compared to those in the control group. The proposed intervention programme may therefore be effective in producing higher academic self-concept scores among students with learning

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difficulties in the experimental group, rather than the control group. The second scales used to measure academic self-concept are presented in the following hypothesis

Hypothesis 4b) Is there a significant statistical difference in academic self-concept between the mean scores of the experimental and control groups on post-test assessment in favour of students in the experimental group on the Myself-as-A-Learner Scale (Burden, 1998)?

The current study results show that students with learning difficulties can improve their academic self-concept through attending an intervention programme for increasing self-regulation skills. Once post-intervention assessment had been completed, the results indicated a significant difference in the mean scores of the experimental and control group with mean scores for the experimental group (M=70.90, SD=9.17) and the control group (M= 60.25, SD= 7.40), df (38, t= 4.041, P=.000) two-tailed, in favour of the experimental group with a large effect (eta= .300). The significant difference between groups shows a large effect and was in favour of students in the experimental grouping. This result matches a number of studies completed on the effectiveness of an intervention programme in improving self-regulation skills and its impacts on different psychological aspects, educational achievement and positively changing students' behaviour. These studies include Montague (1992), Ronen (1994), Johnson, Graham and Harris (1997), Turki (2004), Zydan and AbdulRaseg (2009), Kang (2010), and Ali (2012).

In regard to the hypothesis, the researcher can confirm that students with learning difficulties who attended the intervention programme improved their academic
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self-concept more than those in the control group. The proposed intervention programme may therefore be effective in improving academic self-concept scores of students with learning difficulties for the experimental group. The researcher assigns the significant difference between the two groups to the scales containing five choices, which allow these students to indicate their academic self-concept after attending the intervention programme more accurately.

Hypothesis 4c) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test of students in the experimental group and then between the mean scores of the pre-and post-test assessment of students in the control group in favour of post-test on the Academic Self-concept Scale (developed by researcher)?

The results of the current study found that there was no significant difference in the mean scores for experimental group at pre-test (M=9.50, SD=2.76) and post-test (M= 8.50, SD= 2.14), df (38, t=1.280, P=.208) two-tailed. Students at pre-test showed slightly higher score than students at post-test regarding to the Academic Self-concept Scale. The decreased score apparent at post-test indicates that the intervention programme failed to improve the scores of experimental group participants at post-test. The researcher attributes the decreased scores for the experimental group at post-test to the fact that the scale was devised to measure students' academic self-concept in relation to specific subjects and academic abilities, which students have difficulty of in school. Students were administered the pre-test for this scale at the beginning of the school year, thus they had not experienced any academic difficulty. However, these

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students completed the post-test for this scale during their final examination period at school.

Consequently, the students were under considerable pressure and feeling anxious in relation to the difficulties they faced, as well as potential failure to comprehend their subjects and respond to the examination questions. Moreover, during the post-test the students asked the researcher whether there were other options to respond with rather than the true or false statements that appeared on the scale layout, however there were no alternatives at this occasion. Instead, the researcher proposed that these students select the response closest to their situation. This scenario may have influenced their lower scores at post-test compared to their pre-test scores.

In contrast, there was no significant difference in the mean scores for the control group at pre-test (M=9.55, SD=3.017) and post-test (M= 8.35, SD= 2.51), df (38, t=1.356, P=.180) two- tailed. Students at the pre-test stage showed slightly higher score than students in the post-test regarding to the Academic Self-concept Scale. The researcher suggests that the decrease in the post-test score compared to the pre-test score was a result of the absence of the intervention programme. Furthermore, due to the post-test taking place during the final examination, by that time students may have faced difficulties in achieving success in their academic tests, resulting in lower scores in their post-test compared to their scores for the pre-test.

Hypothesis 4d) Is there a significant statistical difference in self-regulation skills between the mean scores of the pre-and post-test assessment of students in the experimental group and then between the mean scores of the pre-and post-test

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assessment of students in the control group in favour of post-test on Myself-as-A-Learner Scale (Burden, 1998)?

The results of this study showed that, there was no significant difference in the mean scores for experimental group at pre-test (M=67.15, SD=12.30) and post-test (M= 70.900, SD= 9.17), df (38, t= -1.093, P=.281) two-tailed. Students at post-test showed slightly higher score than students at pre-test, which means that the intervention programme was effective in increasing the participants' scores on the Myself-As-A-Learner Scale . In contrast, there was no significant difference in the mean scores for the control group at pre-test (M=63.80, SD=10.66) and post-test (M= 60.25, SD= 7.40), df (38, t= -1.223, P=.229) two-tailed. Students at pre-test showed slightly higher scores than students at post-test. The researcher proposes that the decreased scores on the Myself-As-A-Learner Scale at post-test compared to the pre-test, was due to these children having completed the scale during their final examination period, which may have produced certain negative effects on the results. The results obtained in relation to this hypothesis concerning the increase of post-test scores in the experimental group, as well as the decrease in the post-test scores in the control group, are aligned with Tzuriel's (2001) findings.

7.3 The proposed intervention programme

The intervention programme in the current study was developed by researcher from an understanding of the social cognitive theory of learning. The theoretical background of this theory was used to increase a student's ability to use self-regulation skills. The intervention programme activities were created to enable students to learn these skills
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through monitoring, communication with others, modelling and being active during their learning of these skills. The intervention activities were created through the use of different sources, which were then related to schools' work on Saudi culture such as the amount of memorisation required in a test, tests schedule, assessment criteria monthly, word games, decision-making related to an art class and deciding on healthy food choices. Self-regulation skills were considered as meta-cognitive skills and to address that, the researcher employed activities that required students to apply self-regulation skills at school and in their personal lives.

The researcher supported students to acquire these skills throughout the teaching skills of the programme, and also reinforced the student's responses to these skills. The responses of the students and data results highlight a positive advantage and effectiveness of the intervention programme enabling them to acquire self-regulation skills. However, the researcher identified a concern regarding the difficulties of some students in following each of the skill steps. To address this issue, the researcher reminded students of the step numbers that the group was working in.

The researcher personally implemented the intervention programme for students. This was to ensure that the programme would be applied and to ensure facilitator integrity across groups. Also, because teachers and staff from other schools were unavailable to deliver the intervention programme themselves for 50 minutes, twice a week, for 17 sessions. However, the researcher benefitted from implementing the intervention programme through knowledge of the needs of these students; their abilities; motivation; focus levels and their preference towards learning activities. These

students preferred observing pictures and hands-on activities compared to other activities. However, students learned these skills separately, and the researcher did not examine whether they had applied these skills for their academic studies and assignments. Therefore, since these skills are effective for improving self-regulation skills, the researcher considered exploring how students use these self-regulation skills in future studies. Recommendation for further researcher suggested later in this chapter.

In the final Session (conclusion), students demonstrated their learning of self-regulation skills by answering questions related to the programme. Students could explain if they were not aware of these skills before hand or if they did know about them (particularly Self-reinforcement) but did not practise them in their everyday lives. Learning about these skills encourages students to use these skills in their everyday lives, and some confirmed that they share this knowledge with their families. The researcher also assisted the students in reflecting on their progress and knowledge of self-regulation skills, and to understand the importance of these skills within their education settings and personal lives. In addition, the homework sheet optional incorporated other aspects of self-regulation, such as the support of peers and parents in learning these skills.

Due to the Saudi education system of educating boys and girls in separate schools, the sample included only female students. The target students were in Grades four to six and aged between 10 and 12 years, as these particular students did not receive any additional academic support. The group facilitator enhanced the children's motivation for attending and participating in the intervention programme by using

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verbal reinforcement and clapping for correct answers. In addition, the researcher presenting the children with tangible rewards (such as sweets or crisps) at the end of each session and providing praise and a certificate at the end of the intervention programme to each student who met the attendance requirement of 14 sessions or more. Three students who did not meet the attendance requirements were awarded an alternative commendation to appreciate their attendance, as medical, family or examination attendance was the reason for their absence. When asked about their most enjoyable skills, the majority of students identified the self-reinforcement and decision-making activities.

One teacher from School A thanked the researcher for her effort when they met accidently on the stairs, as she saw an improvement in some of the students' scores. Therefore, this quantitative study indicates that the use of self-regulation skills in the intervention programme for Saudi students with learning difficulties (LD), has led to significant improvements in post-test scores for the experimental group compared to students in the control group in each of the Self-regulation Scale and Myself-as-A-Learner Scale (Burden, 1998). It has also shown an increase in the post-test scores for the experimental group compared to the control group in each of the Self-efficacy for Self-regulated Learning Scale and Academic Self-concept Scale.

7.4 Limitations of the current study

This section considers the limitations associated with the validation study, pilot intervention study and the intervention study.

7.4.1Limitations of validation study

7.4.1.1 Items related to the scales

All items contained in the six scales were relevant for students and required little explanation from the researcher, which enabled students to fully understand them and respond with confidence. The only items that required further explanation for students to understand were from the Locus of Control Scale. The researcher proposed that the difficulties students faced in understanding the wording of the items of this scale may have been due to the cross-cultural difference between Saudi and the U.S.A. Furthermore, the scale length of 40 items is considered to be the longest scale used in this study, as the remaining four scales contained 21 items or less. In addition, the majority of items in this scale were rather long for students to read and/or difficult to understand. However, the researcher provided help where necessary for struggling students to obtain a better understanding of the items in this scale.

7.4.1.2 Limitations of sample in validation study

The validation study included a relatively large sample of 802 students. The majority of these participants did not have learning difficulties, only 91 (11.2%) of these students did have learning difficulties. However, this large sample was selected from five different regions within the city of Al-Riyadh, to ensure a wide geographical sample. Furthermore, the relatively small sample size of 91 students with learning difficulties meant that the researcher was unable to run the CFA for the two groups separately.

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Therefore, the researcher cannot obtain and compare the fit of measurement model for both students with and without LD.

7.4.1.3 Using scales to collect data

The researcher conducted a validation study of the five scales in Saudi, namely the Self-regulation Scale; the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008); the Academic Self-concept Scale; the Myself-As-A-Learner Scale (Burden, 1998) and the Locus of Control Scale (Nowicki and Strickland, 1973). Each of these scales within the current study demonstrated both acceptable reliability and construct and concurrent validity. However, the researcher discovered that the reliability of the five scales in the current study is lower than the reliability of the previously published scales. The Self-efficacy for Self-regulated Learning Scale had a reliability of .83 (Usher and Pajares, 2008) compared to .76 in the current study. The Myself-As-A-Learner Scale previously held a reliability of .85 (Burden, 1998), but was .71 in this study. In addition, the Locus of Control Scale had a reliability of .63 (Nowicki and Strickland, 1973), compared to .61 in the current study. The scales developed by researcher also have a reliability of .64 and .74 for the Self-regulation Scale and the Academic Self-concept respectively.

The researcher applied a lower reliability in this study compared to the reliability of existing scales, due to cross-cultural differences between Western countries including the UK and U.S.A, and Middle Eastern countries such as Saudi. Also, due to there being a large battery of scales in one morning, which may the students' concentration levels, may have lost. Furthermore, students may have been

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anxious due to the scales being implemented at the end of the academic year, a time when students undergo increasing pressure through attending lessons and sitting exams. Nevertheless, each of the scales has an acceptable reliability and achieves various levels of validity through EFA and CFA. In the current study, four of the scales were used to measure students in the intervention group and control group at both pre- and post-test phases of the intervention study. The Locus of Control Scale was not closely related to the intervention programme's aims and activities, so the researcher decided to withdraw this scale from the intervention study.

7.4.2 Limitations of current study regarding pilot study (Intervention programme)

There are two scales, which were developed by researcher used in the pilot study. All the items were drawn from the EFA on the Academic Self-concept Scale and matched to the five theoretical factors relating to academic self-concept. However, the 13 items of the Self-regulation Scale, which were used in the pilot study, did not correspond with the five dimensions of self-regulation factors, especially in the case of problem-solving and planning factors. The researcher did not realize this until the scales were implemented as part of the pilot study, which subsequently led the researcher to return to the EFA again after splitting the data and to use the new 10-items version instead, which corresponded to the five hypothesized factors of the Self-regulation Scale in the intervention study.

7.4.2.1 Duration of intervention programme for pilot study

A shortened intervention programme was implemented for the pilot study during April, in the second term of the Saudi academic year. The implementation of the pilot intervention programme went well; however, with hindsight a few limitations were identified.

7.4.2.2 Limitations of sample for pilot study

The pilot study involved only a very small number of students with learning difficulties (5 students) and did not include a control group. The sample for this study was recruited from one school in the southern region of Riyadh, due to the large number of students with learning difficulties in this particular region. The researcher personally implemented the pilot intervention programme. The sample used in the pilot study was not selected at random, as students were selected to attend the experimental group based on their low scores on the Self-regulation Scale. The sample contained only female students with learning difficulties due to the Saudi education system of segregating females and males in the school environment.

7.4.2.3 Intervention programme activities for pilot study

For the purpose of piloting, the intervention programme the researcher implemented the first session of each of the five self-regulation skills because these sessions contained the definitions, steps or methods to implement the skill and some related activities. However, some activities did not use tangible resources, which encouraged the researcher to make some amendments related to some activities with tangible stimulation and resources. These practical activities enabled students with learning

difficulties to obtain a better understanding of the self-regulation skills and to enjoy learning these skills.

7.4.3 Limitations of current study regarding intervention study

7.4.3.1 Pre-intervention assessment (pre-test)

The researcher administered the pre-test scales directly after the general education teacher for mathematics and language, and teachers in the Resource Room identified these students. The researcher implemented the pre-test session as planned, but these students appeared to be very anxious. This was because all students who attended the pre-test session received academic support previously, but now experienced difficulties in their classes. Therefore, they were worried about attending the Resource Room again as they did not understand the meaning of the research, and had no previous experience with a researcher. The researcher of the current study was concerned that this may have affected their responses in the scales. However, the researcher made every effort to put students at ease regarding their participation in the research study.

7.4.3.2 Timing of intervention programme in school year

The intervention programme took place during the first-term of the Saudi academic year during September to December. The implementation of the intervention programme went well, with the exception of three sessions that were delayed due to bad weather, meaning both School A and School B were required to close. By the end of this term, students had started to sit their final examinations, which meant that students were quiet stressed when attending these sessions and sitting their examinations.

7.4.3.3 Limitation of sample for Intervention Study

The intervention study involved a relatively small sample of 40 students, all of whom had learning difficulties. This small sample was recruited from two schools within the southern region of the city of Al-Riyadh, due to the large number of students with learning difficulties in this region. The intervention programme was executed in two schools, as the researcher personally implementing the programme deemed it difficult to carry out this research in more than two schools. The sample used in this study was not selected at random, as students in School A were divided into an experimental group (students with high scores in the Self-regulation Scale) and a control group (students with low scores in the same scale). However, the opposite occurred with students in School B. The researcher employed this method to obtain the closest mean of the experimental and control groups in both schools as enhancing self-regulation skills is the main focus of the intervention programme. The closer baseline of the experimental and control groups in both schools allowed the researcher to investigate the effectiveness of the intervention programme. The sample of this study included female students with learning difficulties, due to the Saudi education system segregating females and male within the education setting, and the female researcher personally implementing the intervention programme.

7.4.3.4 Collaborating with school staff during implementation of intervention programme

The researcher observed that some of the general classroom teachers and parents were not supporting on the implementation of the intervention programme, due to their lack

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of awareness of the importance of the research. Subsequently, the researcher discussed this problem with the principal of each school and proposed providing a presentation on the research study for both teachers and parents regarding the importance of the research, as this would assist to improve the implementation of other programmes in the future.

7.4.3.5 The current study methodology in collecting data

The current study used the quantitative method for collecting data for both validation and intervention studies. This method provided a vast amount of data to analyse and address the researcher's hypotheses, but did not provide an explanation of student improvement. Furthermore, the researcher design did not combine quantitative and qualitative methods in collecting data, despite mixed methods being considered the ideal methodology for collecting data, as it helps to improve the validity of the study (Coolican, 2009). The researcher composed an interview schedule for the teachers of the students, but did not conduct any interviews. The researcher did not use the qualitative method due to the time spent developing, piloting and making amendments to the current intervention programme which delayed the implementation of the intervention study until the end of the third year of her PhD study. This required a fourth year to focus on analysing the quantitative data and writing-up results. In collecting, the quantitative data only students with learning difficulties were investigated in evaluating the effectiveness of the intervention programme

7.4.2.6 Length of intervention programme

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The proposed intervention programme for enhancing self-regulation was implemented over a period of four months with twice weekly session (total 17 sessions), thus children with learning difficulties may not have been provided with the appropriate timeframe in which to acquire self-regulation skills. In addition, it is difficult for students to develop self-regulation skills at a higher level, when they do not have the opportunity to practise these skills in their school and everyday lives. Furthermore, the short length of this intervention programme may not make a significant effect on self-efficacy for self-regulation and academic self-concept as measured by the Academic Self-concept Scale. In addition, the short period of time taken to implement the intervention programme made it difficult to undertake a further follow-up study in the time available. However, it is necessary for students to learn and maintain self-regulation skills, and then to generalise the new competencies to other areas of learning and other subject areas at school (Graham and Harris, 2005).

7.4.3.7 Self-regulation skills

The current intervention programme contained just five self-regulation skills due to the limited timeframe of the research, and also to allow children to concentrate on and develop these five skills. There are further self-regulation skills that can be executed and investigated in future studies, to determine their effectiveness for students with learning difficulties. This programme was developed based on a theoretical background that used different teaching approaches, and considered the learning styles of students when developing intervention activities. Furthermore, it included optional homework and writing requirements. It also included much tangible reinforcement to enhance the

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motivation and attendance of students. Students enjoyed pictures, hands-on activities and physical activities rather than academic activities. The researcher identified that some students found understanding the academic activities difficult and challenging.

Students did not have any previous experience of intervention research or practicing self-regulation skills. The researcher did not monitor whether students practised implementing these skills, particularly in their school tasks. Schunk and Zimmerman indicate that the majority of students may encounter difficulties in applying and using self-regulation skills across their subjects. However, students can apply self-regulation skills through practicing these skills (Schunk and Zimmerman, 1998).

7.4.3.8 Limitation of being group facilitator and researcher (dual role)

The researcher personally implemented the intervention programme, adopting a dual role as researcher and group facilitator. This allowed the two experimental groups in both schools to have the same group facilitator, which avoided any differences in implementing the intervention programme, and ensured implementation fidelity across the two schools. In addition, the researcher knows exactly how to teach and implement the intervention programme due to developing the proposed programme. In addition, the researcher holds a Bachelor's degree and two Master's degrees in working with students with learning difficulties, as well as experience in working with such students.

7.5 Recommendations on basis of research finding

On completion of the current study, the following recommendations are made regarding the validation study and the intervention study.

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7.5.1 Recommendations related to validation study

7.5.1.1 Recommendations for future research

After the researcher completed the validation study, she identified some recommends for future studies, which are, administrated the Locus of Control Scale in a separate session if there were other scales being used in that study. The researcher recommends a larger number of students with LD above 200 for future researchers to allow them to run the CFA for this particular group, and then compare the results of the CFA between students with and without learning difficulties on each scale. In addition, she recommends the same study implemented in different regions of Saudi, and to gather a larger number of students both with and without learning difficulties. This would ultimately enhance the sample, making it more representative of Saudi students aged between 10 and 12 years. Future researches could include both genders, enabling comparison of findings regarding differences between students with and without learning difficulties across both genders. The final recommendation regarding the administering of the scales in Saudi, or indeed any other country, is that researchers should attempt to raise participants' awareness regarding the importance of such research. This would assist students in following the researcher during the course of reading the scales' items aloud, while also helping with formulating questionnaire responses and completing the assessment within the estimated time period. This may enhance the reliability of the scales, particularly in comparison with the reliability of such scales in the existing academic literature.

7.5.1.2 Recommendations for future practise

7.5.1.2.1 Implications of scales used in current study

Five scales were used in the current study, three of which are existing scales, namely, the Self-efficacy for Self-regulated Learning Scale (Usher and Pajares, 2008), the Locus of Control Scale (Nowicki and Strickland, 1973) and the Myself-As-A-Learner Scale (Burden, 1998). The two scales developed by researcher by the researcher are the Self-regulation Scale and the Academic Self-concept Scale. Other researchers in Saudi primary schools can implement each of these scales for students aged between 10 and 12 years, since these scales have been validated in the current study, showing acceptable internal consistency reliability through alpha Cronbach. In addition, these scales demonstrated construct and criterion validity, which presents external and internal validity. Therefore, the five scales can be used in future research of Saudi primary schools, for female students aged between 10 and 12 years. The five validated scales will enable the researchers in Saudi to conduct research projects using one or more of these scales to measure participants' academic self-concept, self-regulation, self-efficacy for self-regulated and locus of control.

7.5.1.2.2 Differences between students with and without learning difficulties on the five scales

The results of this study demonstrate significant differences between female students with and without learning difficulties in all scales, in favour of students without learning difficulties. This result can be considered a generalisation for all female students in Saudi primary schools between the ages of 10 and 12 years old. In addition, Saudi

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primary schools should offer intervention programmes to enhance self-regulation skills for these students with LD, particularly those students who have not received academic support.

7.5.2 Recommendations related to intervention study

7.5.2.1 Recommendations for future policy

7.5.2.1.1 Training primary school teachers

During the implementation of the intervention programme, the researcher discovered from discussions with principals and teachers that they did not instruct or encourage students to apply these skills in the school curriculum to facilitate their learning. These principals and teachers could be educating pupils about the meaning of self-regulation, its skills and how to implement these skills on a daily basis to enhance the academic outcomes of students. Teachers require extensive training sessions to instruct them on activities that would increase their ability to implement different skills within their lessons, which would ultimately help students to implement these skills more effectively. Furthermore, teachers from different schools or within the same school can share their experiences of implementing self-regulation skills and their effectiveness on the academic achievements of their students.

7.5.2.1.2 Involvement of parents in intervention programme

The researcher recommends future researchers to involve parents during their implementation of any intervention programme. According to Wong (2008), parents are considered an important element in addition to teachers for supporting students to apply

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self-regulation skills, in order to acquire positive learning attitudes and outcomes. Parents can use different types of reinforcement to encourage their children motivation towards learning, and use effective self-regulation skills during their learning process. Parental involvement can increase their child's self-regulation and predict improved academic achievements (Wong, 2008). A study conducted by Mo and Singh (2008) identified a significant impact of parental involvement on their children's achievements and engagement at school. In schools, teachers can teach, train and provide some tutorial support to parents to educate them about self-regulation skills. Parents can then collaborate with teachers in encouraging students to use these skills in their learning. Parents can encourage their children to practise applying self-regulation skills, help them achieve their academic goals, and then reward them for attainment of their goals.

7.5.2.2 Recommendations for future research

7.5.2.2.1 Role of group facilitator in intervention programme

In implementing an intervention programme, the group facilitator assists participants by encouraging the development of their skills. S/he can motivate participants in completing activities. The facilitator's role is to listen, respect and encourage participants to be active and gain benefit from their attendance during this experience. Moreover, the group facilitator has to have a full understanding of the different abilities, ages and motivations of the group, and also communicates with participants in verbal and non-verbal ways (Prendiville, 2004). In the current study, the researcher adapted the role of group facilitator in implementing the intervention programme for students, with the absence of teachers and parents due to time constraints.

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When implementing the proposed intervention programme in the future, the researcher proposes that school psychologists or other members of school staff could be trained to implement this intervention programme to students with learning difficulties, due to time limitations for teachers. However, teachers could also be trained to encourage students to practise using these skills during their school work. In addition, schools should encourage students' parents to practise these skills with their children, once they have received adequate training and information regarding the intervention programme. Parents, who attend the workshop and encourage their child to apply these skills, could then be rewarded alongside their children, to encourage them to continue and motivate other parents.

The researcher recommends that in future intervention studies, the group facilitator of the participants should monitor the students, and support students who apply these self-regulation skills during their studies and homework assignments. The implementation of self-regulation skills across different curriculum subjects enables students to acquire these skills, and enhances the effectiveness of the intervention programme. The researcher recommends that students should be instructed and encouraged to use these self-regulation skills across all subjects. Zumbrunn, Tadlock and Roberts (2011) indicate that self-regulation skills are considered an effective predictor of a student's motivation, responsibility towards their learning and academic performance. Future researchers could offer one session after the introduction to the intervention programme, to provide an overview of the importance of the programme and the study skills required for the academic outcomes. This session would assist students to develop a clear idea of the benefits of attending the ensuing programme

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sessions, increase their desire to learn these skills and enhance the effectiveness of the intervention programme. In addition, the researcher recommends that in future research; the group facilitator should deliver a session before the pre-test assessment as an introduction session that includes fun and informal activities. The researcher maintains that this would allow students to be less anxious when completing the scales.

7.5.2.2.2 Overall recommendations for implementation of intervention programme

The researcher recommends future studies could implement more academic activities with repetition, to ensure that students understand how to apply these skills in academic tasks. In addition, future research could be conducted to investigate whether students can apply these skills after one academic year, and determine whether they can apply these skills to a range of school subjects and in their everyday lives. In the current study, the researcher did not make any interviews, but recommends using mixed methods to collect data in future research for both students and their teachers. The researcher suggests future studies to collect the quantitative data from children, teachers and parents as well to garner a variety of qualitative data from children and different individuals closest to them.

Qualitative data from teachers and parents would provide evaluation of teachers and parents of their children. The researcher recommends extending the length of the intervention programme to one academic year, which may involve repeating the same sessions of the programme for the same students throughout the year. Cohen and Cowen (2008) state that students of a young age, particularly those with learning difficulties

can learn through the repetition of words and information, and practising what they have learned in order to develop and attain a high level of engagement in their learning.

The researcher recommends that a replication study be carried out to include schools from different regions in the city of Al-Riyadh, and for further studies to be conducted within different regions of Saudi to include a larger number of students with learning difficulties. This would enhance the sample to make it more representative of Saudi students between the ages 10 and 12 years, meaning the results presented from this sample would be acceptable as a generalisation of Saudi. Furthermore, future researches could include participants of both genders, which would compare the results of the effectiveness of the intervention programme for students with learning difficulties across both genders.

From the researcher's experience during the intervention study, she recommends that future intervention research should commence at the beginning of the school year in Saudi, and end before the final examinations begin. Finally, the researcher recommends for future research, that a further intervention programme should focus on developing the internal locus of control for students with learning difficulties, because students with an internal locus of control are more likely to be able to manage their behaviour. Students with an internal locus of control attribute their success in school to their ability and effort; therefore, they tend to gain better marks in their school work than those with an external locus of control. Furthermore, students with an internal locus of control are more likely to implement self-regulation skills in their learning, which are considered an important element in academic success (Zimmerman, 1998)

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7.5.2.3 Recommendations for future practise

7.5.2.3.1 Implications of intervention programme for future practise

The researcher of this study recommends implementing the proposed intervention programme for female students with learning difficulties in Saudi primary schools. This is because this intervention programme showed a significant increase for students' scores in the experimental group in their self-regulation and Myself-as-A-Learner, measured by Burden (1998). In addition, students with learning difficulties in the experimental group enhanced their self-efficacy for self-regulated learning, and the academic self-concept compared to those in the control group. Each of these psychological aspects contributes to successful academic performance, which is considered a key aim of any school system. There is a strong relation between young children acquiring self-regulation skills and their academic achievement (McClelland and Cameron, 2011). The effectiveness of the proposed intervention programme can be generalised across all Saudi female students with learning difficulties, as the sample included 20 students in both experimental and control groups.

Harris (2008) indicated that researchers should include no more than 20 participants within each group of the experimental design. Researchers, who wish to recruit more than 20 participants, would have to consider the time, facilitators and resources available in each group. In this study, there were a total of 20 students in each group, as this was the number of students with learning difficulties available in each school, after parental consent had been obtained. In addition, the researcher was also a group facilitator for the intervention programme, and due to time restrictions there was

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no opportunity to implement the intervention programme in more than two primary schools. Therefore, the researcher confirms that 20 participants is an appropriate number of students in each group.

Chapter 8 is the following and final chapter of this thesis. This chapter stands as the conclusion and highlights the pivotal results of the current research study.

Chapter 8

Conclusion

Chapter 8: Conclusion

8.1 Chapter overview

The final chapter of this thesis will highlight the following aspects: why this thesis focused on self-regulation skills and the academic self-concept for students with learning difficulties. In addition, findings related to the four research questions, the importance of the findings, the implications of the findings, guidance and recommendations regarding to policy, future research and practise, overall conclusion and dissemination of the results.

8.2 Why this research focused on developing self-regulation skills and the academic Self-concept for students with learning difficulties

Academic achievement for students with learning difficulties is frequently poor on one or more curriculum areas. Therefore, it could be postulated that these students would experience low academic self-concept (Gans, Kenny and Ghany, 2003). Homewood (2013) stated in his study that students who are poor readers have lower academic self-concept, reading self-concept and self-perception as a learner, compared to other students who are fast or average readers. Self-regulation skills can assist students to develop cognitive processes which facilitate their learning, enabling them to implement these skills across different subject areas. Students with learning difficulties often have poor cognitive and meta-cognitive skills. They are poor at problem-solving, especially

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on the tasks which require high levels of information processing. These students have difficulty in using effective skills and generalising these skills to similar or different tasks or situations (Westwood, 2004). Therefore, these students need intervention programmes to allow them to select the appropriate skills into a task, and then implement these skills in the given context. Montague (2008) carried out a study to teach students cognitive and meta-cognitive skills, in order to improve academic performance in mathematical problem solving and non-academic domains in social problem-solving. Montague (2008) found that practise using cognitive and metacognitive abilities improves students' abilities to better handle mathematical difficulties in solving mathematical problems. Therefore, these students need to have more opportunities to acquire self-regulation skills, to allow them to experience better academic outcomes and enhance their motivation and academic self-concept.

Mak (2010) stated that self-regulation skills help students, with and without learning difficulties, in their learning process; increasing their academic self-concept and decreasing their anxiety. The researcher proposed that a similar study could be conducted in Saudi to compare the effectiveness of an intervention programme for self-regulation skills, with students with and without learning difficulties.

8.3 Addressing four research questions

This research applied a quantitative methodology in order to investigate the effectiveness of the proposed intervention programme. The four research questions associated with the aim of this study were:

Research Question 1: Is the reliability and validity of the three existing scales and three developed by researcher scales acceptable for use in Saudi?

The five scales adopted for this research were namely, the Self-regulation Scale, Self-efficacy for Self-regulation Learning Scale (Usher and Pajares, 2008), the Academic Self-concept Scale, the Myself-As-A-Learner Scale (Burden, 1998), as well as the Locus of Control Scale (Nowicki and Strickland, 1973). All scales obtained sufficient reliability and validity in the validation study. However, the Situation Judgment test, which was developed by researcher, did not achieve acceptable reliability, therefore it was excluded from any further analysis. The following research question is related to the differences between students with and without learning difficulties, in different psychological domains.

Research Question 2: Is there a difference between students with and without learning difficulties (LD) in self-regulation, the Academic Self-concept and locus of control?

The statistical analysis of the five Scales used in this study, showed that there are significant differences between students with and those without learning difficulties, with moderate effects for four scales. These four scales namely, the Self-regulation Scale, the Self-efficacy for Self-regulated Learning Scale, the Academic Self-concept Scale, the Myself-As-A-Learner Scale, a small effect for the Locus of Control Scale.

Research Question 3.Is the proposed intervention programme effective in developing self-regulation skills for students with learning difficulties?

As reported and discussed earlier, the intervention programme developed by researcher was effective in developing and enhancing self-regulation skills. There were
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significant differences between the scores of the intervention and the control group, in terms of self-regulation skills for students with learning difficulties. In addition, the proposed intervention programme was effective in enhancing self-efficacy of self-regulated learning, because there were variations between the scores of the intervention and control groups for students with learning difficulties. However, these variations were not statistically significant. This may be because the intervention programme directly aims to develop the self-regulation skills.

Research Question 4. Does the intervention programme have a positive impact on the Academic Self-concept of students with learning difficulties?

The proposed intervention programme has a positive impact on students with learning difficulties, with regards to academic self-concept. That is so because it was effective in developing and enhancing academic self-concept, as measured by Burden (1998) Myself-as-A-Learner Scale, demonstrating significant differences between the scores of the intervention and control groups. In addition, the proposed intervention programme was effective in enhancing Academic Self-concept Scale (developed by researcher) because there were differences between the intervention and control groups scores. However, these differences were not significant. This may because measured scale contained only two choices; True or False.

8.4 The Important of the finding

This section highlights the importance of the finding regarding the validation study and to the intervention study.

8.4.1 Generalisation of five scales used in the current study

8.4.1.1 The development of Self-regulation Scale and the Academic Self-concept Scales for students in primary schools

The development of the Self-regulation Scale and the Academic Self-concept Scale by the researcher for students in primary schools makes a notable contribution to educational psychology in Saudi. This is because these two scales were piloted and have acceptable reliability for the Saudi culture. Depending on the research perspective of previous articles and dissertations in Saudi, there are no standardized academic self-concept measures currently available, designed for primary school students in Saudi. Most researchers in Saudi depend on existing scales from other countries in the Middle East, such as Egypt and Jordan. The development and validation process of the researcher's Academic Self-concept Scale would give researchers greater confidence when working with primary school students in Saudi, because it is specifically designed for these students. It is accepted as reliable and validated. This scale can provide researchers with a better understanding of academic self-concept for students in primary schools. It can also help to identify the aspects of the school curricula what students with learning difficulties may encounter at school.

The researcher developed a second scale for current study called the Self-regulation Scale. There are no self-regulation measures available that are designed for primary school students in Saudi, with regards to self-regulation skills. All researchers in Saudi depend on existing scales from other countries in the Middle East, especially Jordan. The development and validation processes regarding this scale could provide

researchers working with primary school students in Saudi, more confidence in using it because it is designed for these students, and has acceptable reliability and validity. This scale offers researchers a better understanding of how students in primary schools implement self-regulation skills namely, Self-reinforcement, Self-evaluation, Problem-solving, Planning and Decision-making. The scale also helps to more specifically identify the difficulties faced by these students, when using these skills.

8.4.1.2 Existing scales for measuring self-regulation and academic self-concept

Three existing scales namely, the Self-efficacy for Self-regulated Learning Scale, the Myself-as a Learner Scale and the Locus of Control Scale, were used to examine the differences between students with and without learning difficulties, as well as investigating the effectiveness of the intervention programme. All these scales were designed in western culture however, currently; no researchers in Saudi use these measures. Therefore, the current study gathers reliability and validity data through the Confirmatory Factor Analysis (CFA), in order to provide opportunities for other researchers in Saudi for future research in this area. The validation process for these three scales and the two previously developed scales by the researcher could extend the range of instruments available for researchers focusing on the self-regulation and academic self-concept for children at primary school in Saudi.

8.4.2 Generalisation of difference between students with and without learning difficulties

The results of the current study showed significant differences between the mean scores of
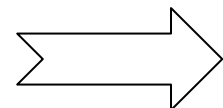
students with learning difficulties and those without learning difficulties in the Self-regulation Scale, Self-efficacy for Self-regulation Learning Scale, Myself-As-A-Learner Scale, the Academic Self-concept Scale, and the Locus of Control Scale in favour of students without learning difficulties. The findings of the current study can be generalised regarding the difference between students with and students without learning difficulties in the aforementioned five scales. These findings can be generalised with female students in Saudi, from grade4-6 between the ages of 10 and 12 years old.

8.4.3 Generalisation of effectiveness of intervention programme

The findings can be generalised regarding the effectiveness of the intervention programme in enhancing different psychological aspects (self-regulation, self-efficacy for self-regulated learning and academic self-concept) for students with learning difficulties. The proposed intervention programme was significantly effective in enhancing students with learning difficulties, for self-regulation and academic self-concept, as measured by Burden (1998). The effectiveness of the proposed intervention programme within many different psychological aspects mentioned above can be generalised for female students with learning difficulties in Saudi, who are from grade4-6 and between ages of 10-12.

8.5 Implications of findings

The section below focuses on the implications of the validation study and the intervention study.

8.5.1 Implications of differences found between students with and without learning difficulties

It is important for educators, parents and teachers to be aware that Saudi female students with learning difficulties achieve significantly lower scores than students without learning difficulties, within all the different psychological domains used in this study (self-regulation, self-efficacy for self-regulated learning, locus of control and academic self-concept). The sample tested for the validation study is 802 students aged between 10 and 12 years old, attending grades4-6 at school. Therefore, it seems clear that these students with learning difficulties need intervention programmes which may guide them to enhance these psychological domains. It also, positively impact on their learning process; especially those students with learning difficulties that have not received any academic support as mentioned in the previous chapter.

8.5.2 Implications of proposed intervention programme

This intervention programme was effective in enhancing the self-regulation and academic self-concept of students with learning difficulties within the intervention group; when compared with the control group. Consequently, this intervention programme could be implemented for female students with learning difficulties in Saudi, between the ages of 10 and 12 years old (grade4 to 6). Implementation of this intervention programme will provide support for these students, in order to enhance the psychological domains of self-regulation, self-efficacy for self-regulated learning and academic self-concept. This intervention should positively influence the study skills of these students.

8.6 Guidance and recommendations

The following section will present guidance and recommendations relating to policy, future research and practise in school.

8.6.1 Guidance and recommendation for policy in Saudi

The students' teachers will be able to implement self-regulation skills in their teaching, which would enhance these students learning. However, there are awareness and cultural issues in implementing this mixed methodology which the researchers have to address, when they work in Saudi.

8.6.1.1 Awareness issue

Any researchers who plan to conduct self-regulation intervention programmes in Saudi face some challenges in Saudi schools. For example, during the principals' reading of the contract form and after the teachers completed the recruitment of participants for the intervention programme form, Principals and the majority of teachers asked about the meaning of the term self-regulation. They also asked what the importance is of these skills for their students. This means that some educators were not aware of or familiar with the term 'self-regulation', and as a result did not actively encourage/teach self-regulation skills to their students at school. Therefore, most of these teachers are not able or sufficiently knowledgeable to embed self-regulation skills into their lessons. These teachers generally focus on teaching their curriculum and setting continuous assessments and examinations for students. They do not have time to incorporate these skills during their teaching timetable. Consequently, future researchers need to train

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teachers and parents or engage a trained specialists, to provide all the necessary information, knowledge and practise of these skills, before beginning to implement the whole intervention programme.

8.6.1.2 Cultural issues

Future researchers, who adopt the multi-method approach in implementing self-regulation intervention studies in Saudi, have to be conscious of Saudi culture. In the Saudi education system, there is segregation of genders. Therefore, in Saudi schools, all students, teachers and school staff are the same gender in primary schools, until higher education (Bank, Delamont and Marshall, 2007). Therefore, future researchers who wish to investigate the effectiveness of the intervention programme for each gender have to address this issue. During the implementation of the intervention programme, two group facilitators belonging to two different genders will need to carry out the implementation of the programme, scales, observations and the interviews.

8.6.2 Guidance and recommendation for future research

After the researcher implemented this study, certain limitations related to the methodology, scales, and other elements of the intervention programme were discovered. Therefore, the researcher has provided some recommendations for future research, as detailed below.

8.6.2.1 Future research: methodology

For future research, a multi-method approach for data collection is highly recommended in conjunction with the implementation of the proposed intervention programme, to

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gather further information and combine and compare quantitative and qualitative data. This integrated methodology will contain a questionnaire with different choices, semi-structured interviews and observations of the research participants (Thomas, 2003). Implementing this multi-method approach in future intervention research related to self-regulation skills, will allow the combination of results from these two approaches, providing a clearer picture about the effectiveness of the intervention programme. This should also provide evidence about the views of teachers and parents regarding these skills and study skills of students, as well as the perception of students about the self-regulation skills, for improving the students learning skills. Furthermore, as a result, students would better understand their particular needs, in order to learn and apply these skills.

Longitudinal studies are considered an expedient method in offering measures of monitoring change over time. This type of study allows the researcher to determine if the participant maintains the self-regulation skills or not, by comparing participant scores in post-test and follow-up assessments and evaluation of the longer-term impact of the intervention programme. This type of study aids researchers in understanding the development of self-regulation skills over time (Ostafin, Robinson and Meier, 2015). Older aged students show better meta-cognitive knowledge. Individuals develop meta-cognitive skills gradually from childhood into adulthood. Students can learn these meta-cognitive skills through experience and practise, until they can use these skills successfully (Israel, Block, Bauserman and Kinnucan-Welsch, 2006). In the current study, because of time limitations, the researcher was unable to conduct longitudinal

study. The researcher highly recommends a longitudinal study to be conducted in the future, to better understand longer term of effectiveness of the intervention programme.

Finally, in the current study, the researcher focused on investigating the differences between female students, with and without learning difficulties, with regards academic self-concept, self-regulation, locus of control and self-efficacy for self-regulated learning in Saudi. In addition, the effectiveness of the developed intervention programme in enhancing self-regulation and its benefits for the academic self-concept on female students with learning difficulties, were also analysed.

Future researches could be conducted with cross-cultural studies, to investigate the differences and similarities between different cultures, regarding the differences between students with and without learning difficulties for the same or other psychological domains such as (self-esteem, anxiety and motivation) for both genders. William, Satterwhite and Saiz (2006) stated that a cross-cultural means a study to investigate the differences and similarities for individual psychological domains, from different cultural and ethnic groups.

8.6.2.2 Recommendation related to scales

All of the scales used in the current study were appropriate for students in primary school. However, for the Academic Self-concept Scale developed by the researcher, where students are asked choose from two responses (True or False), students asked if there were other choices. Therefore, the researcher recommends administering the same scale to students, but with four or five response options, in order to obtain its reliability and validity. This will provide a better opportunity for students to indicate their strength

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and weakness concerning academic self-concept. In addition, the Locus of Control Scale includes 40 long items which require the researcher to explain the meaning of each item using simple language, especially for those with LD. Some items, considered as cultural variances between the West and the Middle East can be difficult to understand for students. Therefore, the researcher recommends that other researchers could develop another shorter locus of control scale, to take into consideration the Middle East culture, with more than two response options. Following previous recommendations regarding the two scales, the researcher assumes that these two scales will be more appropriate for students in primary schools. The researcher recommends conducting a validation study for all five scales used in this study, for both genders with and without learning difficulties

8.6.2.3 Recommendations related to intervention programme

It is hoped that the current researcher of this thesis and other future researchers will develop further intervention programmes for enhancing self-regulation skills for students with learning difficulties in Saudi. These intervention programmes could either focus on the same self-regulation skills used in this study or include others skills, with the aim of enhancing the study skills of students. Future researchers could repeat the activities designed to develop self-regulation skills, letting students practise these skills in schools and in their daily lives. Teachers could be encouraged to embed self-regulation skills in their lessons and encourage students to implement these skills in their school work. These teachers could be trained to implement self-regulation skills in their lessons, while encouraging their students to apply such skills themselves on a daily

basis, particularly at school. Parents could also be encouraged to reward their child when they practise these skills on a daily basis.

Muraven, Baumeister and Tice (1999) found that the repetition of self-regulation activities has a strong relationship with the acquiring and maintaining of self-regulation skills over time for the participants. In the current study, the implementation of self-regulation skills showed significant improvement in these skills amongst the intervention groups, compared to the control group. In the final session of the intervention programme, students reflected that they found most of the self-regulation skills useful in making their school work easier and increasing their confidence about their ability in doing their homework. However, the formal Saudi school system mostly relies on the memorisation of information. Students take an oral or written examination regarding this information. Therefore, students are under substantial pressure, encouraging difficulties in learning, attending classes and taking examinations (Bensahel and Byman, 2004). From the researcher's own experiences in Saudi schools, the implementation of intervention programmes during the first or second month of the academic year can enhance students' motivation to learn and acquire these skills, thus increasing the effectiveness of the intervention programme. Furthermore, the reward system used in the current study encouraged students to attend the intervention sessions. Therefore, future intervention researches should recommend using a reward system for participants; especially those with learning difficulties. Westwood (2004) stated that students with learning difficulties need to have a reward system, in order to increase their motivation and achieve their learning goal.

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Students with learning difficulties struggle to regulate their thinking and complete academic tasks. These students need to learn self-regulation skills because, without these skills, students cannot focus or monitor their progress, and as a result, they may underachieve at school (Nata, 2003). These skills should be taught across different subject areas and settings in school. Students need to learn how to generalise these skills across different subjects at school, as well as their daily lives (Harris, Graham and Mason, 2003). In the proposed intervention programme, activities were created to apply self-regulation skills to daily life situations as well as school work. Students gradually learn how to implement these skills in the provided intervention activities. However, the researcher did not investigate the ability of students to generalize these skills to other life situations or academic tasks. Therefore, teachers are encouraged to support these students with learning difficulties, in order to implement and generalise these skills over various subject areas. It would be very useful if the current researcher or other researchers developed an intervention programme regarding self-regulation skills with the collaboration of these students' teachers, in order to implement and practise using these skills during their learning process.

Any future studies should invite a sample of their target participant age with learning difficulties to participate in a study prior to development of an intervention programme related to the self-regulation for students with learning difficulties. This will allow the investigation of cognitive development and behavioural problems, which will allow researchers to custom design an intervention programme appropriate for the age and development of the children. Robinson, Watkins and Harmon-Jones indicate that understanding the interaction between cognitive and emotional aspects of students at

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risk in school helps in the design of intervention programmes to assist improvements in their readiness at school. Children with learning difficulties mostly suffer from cognitive delay development and behavioural problems. Therefore, a custom designed intervention programme which addresses their self-regulation difficulties and needs would be helpful in relation to their academic achievements (Robinson, Watkins and Harmon-Jones, 2013).

The current research investigated the impact of developing self-regulation on enhancing the academic self-concept and self-efficacy for self-regulation learning. Therefore, the researcher suggests future researches to be carried out in a different study, in order to investigate the impact of developing self-regulation on enhanced or decreased psychological domains, such as self-esteem, depression, anxiety, attention and motivation in Saudi. Ostroff (2012) indicated that improved students' self-regulation can produce improvements in their attention and cognitive performance. Mak (2010) stated that developing self-regulation skills decreases student's anxiety. In addition, a study conducted by Nota, Soresi and Zimmerman (2005) showed that self-regulation skills can significantly predict student gradesin mathematics and technical subjects, their average scores, ability to pass their examinations and their desire to continue their education. There are clearly challenges for students with learning difficulties in employing self-regulation skills. Future researchers could investigate the challenges that make it difficult to implement self-regulation skills.

In the current study, the researcher investigated the effectiveness of the self-regulation intervention programme through activities designed to address all learning

styles. However, the study did not address students' individual differences or grouping students according to their abilities and learning styles. Individual differences may affect the use of self-regulation skills. Therefore, the researcher suggests that future research maybe designed for more specific intervention programmes, which address the individual differences and understand the effective ways to help students acquire and apply self-regulation skills. For example, future researchers could design activities to incorporate different learning styles.

8.6.3 Guidance and recommendations for practise

In the current study, the group facilitator implemented the intervention programme for self-regulation skills for students with learning difficulties, without investigating the role of the teachers in supporting these students. Cash (2011) stated that teachers have an effective role in helping their students to develop self-regulation skills through observation, practise and feedback. Teachers can provide students with knowledge and ideas of self-regulation skills and encourage their students to apply these skills. In addition, the current study did not investigate the parents' role in supporting their children to develop self-regulation skills. Lamb and Freund (2010) indicated that parents play an effective role in developing their children's self-regulation skills, through warm and supportive parenting practises. Parents, who reward their children, are involved in their children's academic progress and who encourage children to practise self-regulation skills in daily life, assist their children in acquiring and maintaining these skills. Therefore, it is recommended that future initiatives should

encourage parents to look at how they can support their children in developing self-regulation skills at home.

In the current study, some teachers were not familiar with the term 'self-regulation', whilst others did not apply these skills in their teaching or in daily life. Teachers' lack of knowledge adversely affects their students in developing self-regulation skills in the classroom. Therefore, these teachers require training on self-regulation skills in the form of workshops, to learn how they can apply them in their teaching process. Educating these teachers would provide opportunities for them to set up workshops for parents, who could then model these skills at home and support their children. Educating teachers and parents would enhance their awareness about the importance of self-regulation skills in the learning process and its positive influence on academic outcomes.

Furthermore, in the current study, the researcher implemented the proposed intervention programme for students in the intervention group. The students in the control group did not receive any support at any time, due to the lack of another group facilitator, who could have implemented the intervention programme at a later date. In view of this, the researcher recommends that the control group receives the same intervention programme after post-intervention assessment has been completed for both groups. This would enable all participants to benefit from the intervention programme.

The researcher of the current study recommends all Saudi primary schools to employ the proposed intervention programme for students with learning difficulties. This support for students with learning difficulties should enhance their learning skills,

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specifically for those students who do not receive any academic support through the Resource Room.

8.7 Overall conclusion

The researcher conducted the current study in order to design, implement and evaluate the effectiveness of an intervention programme, with a view to improving the self-regulation skills and the academic self-concept of students with learning difficulties attending primary schools in Saudi. The proposed intervention programme was developed from a theoretical framework, based on social cognitive theory (Zimmerman, 2000; Lamport et al.., 2012). The study investigated the effectiveness of the proposed intervention programme on developing self-regulation skills and the academic self-concept by comparing scores on the outcome measures of the experimental (intervention) and control groups at pre-and post-intervention assessment (grades4 and 6 and ages of 10 -12 years old). The researcher used a quantitative method in collecting the data to validate a new Self-regulation Scale and a new Academic Self-concepts Scale. These scales are ready now to use in future researches in Saudi. In addition, three other existing scales were validated. The statistical analysis showed that the proposed intervention programme was effective in improving the self-regulation, self-efficacy and academic self-concept of students in the experimental group, when compared to students in the control group. This study contributes to the field of educational psychology, in understanding the importance of designing, implementing and evaluating intervention programmes. The proposed intervention programme can help to improve the self-regulation and academic self-concept of students with learning

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difficulties. The researcher aims to implement the proposed intervention programme in Saudi primary schools in the future, to ensure that students with learning difficulties who do not have academic support can benefit and improve their academic outcomes as a result. The researcher is now in a position to disseminate the findings regarding their implications for research policy and practise.

8.8 Dissemination of results

The researcher plans to publish the results of the current study in academic journals, with an aim to contribute and share the findings with other researchers interested in self-regulating and academic self-concept of students with learning difficulties. Furthermore, dissemination of the findings will provide researchers who work with Saudi female students aged between 10 and 12 years with five validated scales to use for collecting further data, and demonstrate the importance of enhancing self-regulation skills and academic self-concept of students with learning difficulties.