



PHD

Lengthening kindergarteners' attention span through small group individualised instruction

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Lengthening kindergarteners' attention span through small group individualised instruction.

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A THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF BATH

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF EDUCATION

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To every mother I met during my work or at a social event and asked me “Why does my child have trouble sustaining his attention to school tasks? What can I do?”

To every child who looked at me with his beautiful innocent eyes and told me through them “I can learn but in different ways since I am different and unique, and I deserve the optimal learning opportunities.”

To every teacher struggling with children learning and attention problems in the classroom.

To policy makers working hard and exerting consistent efforts to develop the teaching system, improve the learning environment and provide high quality education for everyone.

This is for you

To my father Marzouq Alharbi

To my mother Aeshah Alsurayhi

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Abstract

In Saudi Arabia, the context for this research, there is a concern about children's attention levels. For example, there is a view that technology distractions such as 24-hour children's channels and internet, and video games have an undue influence. As a result, capturing and maintaining young learners' attention within school classroom activities has become an issue that has been raised by parents and teachers whom I have met during my employment as a Lecturer in early childhood education. Whilst most early years teachers in Saudi Arabia tend to use whole group instruction, this research sets out to explore the effects of small group individualised instruction on children's attention span in a classroom in Saudi, especially those performing at the lower level of what is considered a "normal" attention span. Sociocultural theory is used as a framework for exploring kindergarteners' learning experiences, and informing potential interventions.

This action research informed by elements of ethnographic case study followed one kindergarten class of 30 children aged 5-6 and three teachers for six months. I observed the class every day. Initially, the whole class was observed, then after three weeks a sample of four participants, three boys and one girl, were identified as children who met the criteria of the research in terms of their limited attention span. As well as observing and filming the children I made assessments of their attention span, interviewed their parents and teachers, and analysed the children's portfolio of work. From here I worked with the class teachers to set individual learning plans and activities (interventions) to find out how individualised instruction might impact on children's attention and learning.

The findings showed that using small group individualised instruction lengthened kindergarten's attention span and increased the children's enjoyment when working on educational activities. Regarding academic achievements, comparison between the children's achievements using traditional instruction and small group individualised instruction found that the intervention increased children's academic achievements in the short term. The findings have implications for developing teaching instruction/pedagogies in early childhood education which are sensitive to context in Saudi Arabia.

List of abbreviations.

ZPD: Zone of Proximal Development.

SLC: Self-Learning Curriculum.

MKO: More Knowledgeable Other.

ECE: Early Childhood Education

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1.Introduction

1.1. What this study is about

This study, conducted in a kindergarten in the city of Mecca (Saudi Arabia) investigates the ways mainstream children (between the ages of five and six years) with a short attention span might benefit from receiving individualised and small group instruction. The aims and objectives of this study were to investigate the impact of individualised small group instruction on the learning and attention span of children who showed shorter attention span than other children of their own age. The study is informed by sociocultural theory, which emphasises the important influence of culture on individual learning and development. Although sociocultural theory was first developed in the 1920s and 1930s by the Russian psychologist, Lev Vygotsky, and is now a century old, it remains immensely influential and is perhaps the dominant theoretical approach to education in the West. The impact of culture on the learning process is a central tenet of sociocultural theory, and this makes it interesting to apply the tenets of sociocultural theory in a Saudi Arabian context. According to Yamani (2000) Islamic culture is fundamental to the identity of all Saudis and two key elements of that culture are collaboration and social interaction. Vygotsky (1978) stressed that essential factors in social interaction are also essential factors in children's development. The study, therefore, sets out to test the assumption that scaffolding a learning approach on this cultural framework of collaboration and social interaction, namely an individualised and small group instruction approach, can bring particular benefits to children's learning and attention span in a Saudi Arabian context.

1.2. The link between children's attention span and learning outcomes

According to Stasch (2014), attention span is one factor that influences students' learning. This is because students are expected to engage in highly cognitive activities, such as listening and reading, that require them to be attentive. Students who are not able to maintain attention may be at a significant disadvantage since they are not able to make the most of teaching and learning experiences. A study of 430 pre-schoolers conducted by McClelland et al. (2013) at Oregon State University found that social and behavioural skills such as paying attention, following directions and completing a task are equally important predictors of a student's likelihood of completing tertiary level education as their academic abilities. Young children

who are able to pay attention and stay on task are 50% more likely to complete their college education than their counterparts who do not possess these skills (ibid). The Oregon study was a longitudinal one in which parents measured children's attention span persistence over time; this was followed by interviews with those children when they reached the age of twenty-five. The study suggests, therefore, that a child's future can be predicted based on his/her kindergarten profile, and that lack of attention at kindergarten can result in long-term reductions in academic performance. This link between education outcomes and attentiveness in the early years cannot be overlooked, and it is important that schools implement strategies where necessary to effect improvements in students' attention spans during the early years. This is important because students need to be given every opportunity to succeed in a competitive educational environment.

In this context, the current study sets out to explore how a new individualised and small group approach to teaching could affect Saudi kindergarten children's attention span. It seeks to fill a gap in the literature identified by Kannass, Colombo and Wyss (2010), who note the very limited studies on how teaching instruction affects children's learning. In addition, to the best of my knowledge, lengthening kindergarteners' attention span through small group individualised instruction is an unexplored topic in the Middle East. This study aims to inform teachers in kindergarten by providing some recommendations to develop this form of teaching in order to give students the support they require to enable them to perform at their optimum.

1.3. Kindergarten provision in Saudi Arabia

In Saudi Arabia (SA), childhood refers to the period from infancy to the age of eighteen (Almogbel, 2019). The SA government makes every effort to ensure that children have a dignified life through the provision of adequate education, health care and protection. In this respect, both society and the government are following the Islamic teaching that guarantees children's rights, starting with the right of a child to be breastfed. As God says in the Quran:

Mothers may nurse their infants for two whole years, for those who desire to complete the nursing-period. It is the duty of the father to provide for them and clothe them in a proper manner. No soul shall be burdened beyond its capacity (Quran surah Al-Baqarah Chapter 1, Verse 233).

Islam also teaches that children should be treated with kindness and compassion. The prophet Mohammed said, 'Anyone who does not show mercy to our children, nor acknowledge the

rights of our old people is not one of us.’ Islam also stresses the right to education, and this is reflected in SA government policy to make children’s needs its priority. For example, every child in SA receives free education and financial support is provided for families on a low income. Currently, during the Covid-19 pandemic, this support has included the provision of computers and iPads to these families so that children are able to join online classes.

As it is currently not compulsory for children to attend kindergarten, these schools exist outside the formal education system. There are currently 3,689 kindergartens in SA, educating 294,564 children between the ages of three and five (Ministry of Education, 2020). However, the Saudi Ministry of Education considers kindergarten to be one of its development priorities and considerable effort is being devoted to developing early childhood education (ECE) across the country. Specifically, the Ministry of Education (2005) has set two general goals for kindergartens in Saudi Arabia: to integrate children into the school environment, and to help children gain mental, physical, moral, linguistic and religious skills.

The formal curriculum applied to Saudi kindergartens is a self-learning curriculum, which focuses on each individual child’s development (Bahatheg, 2011). Studies to evaluate this curriculum, however, have found that one of its weaknesses is that it is being delivered by unqualified teachers (Saber, 1996 cited in Bahatheg, 2011). Here, ‘unqualified’ refers to a lack of specific professional qualifications, since all kindergarten teachers in SA must hold a bachelor’s degree or, at least, a diploma in ECE. Older teachers may only hold a diploma since the bachelors’ programmes have not always been available in all of SA’s universities. Hence, the weakness referred to above relates to teachers’ training and hence, their subsequent practice. Aseri (2018) highlighted that research into ECE provision in Saudi Arabia has recommended that kindergarten teachers need to be offered training courses to help them become more skilled at creating effective tasks and environments that encourage children to make the most of their learning experiences.

Concerns such as those expressed above have encouraged the SA government in recent decades to focus efforts on developing the quality of ECE. This included the introduction of targeted educational projects, such as the ‘Tatweer’ project in 2007, which was devoted to improving the quality of teaching and learning in Saudi Arabia (Tayan, 2017), and by becoming a member of international organisations that aim to develop education systems, such as the United Nations Educational Scientific and Cultural Organization (UNESCO) and the United Nations

Children's Fund (UNICEF). A further strand in these efforts, however, has been supporting Saudi researchers who are interested in this field by providing scholarships; I am one of its beneficiaries.

1.4. The interactions of play and learning in Saudi Arabia

The choice of teaching approach in SA is also founded on the assumption that play is one of the basic needs of children. Childhood is play, and this is viewed as one of the basic child's needs that must be met. Vygotsky (1978) stated that, in play children behave beyond their abilities: 'In play the child is always behaving beyond his age, above his usual everyday behaviour; in play he is, as it were, a head above himself' (p.74). This is already recognised within the Saudi ECE, where play occupies a significant part of the daily schedule (see section 4.2.3). According to Alghamdi and Ernest (2019), play is valued by some of Saudi kindergarten teachers as a tool that can be used for active learning. It can also be described as a tool to promote or transmit culture and traditions, since children's home culture informs their play in the school environment and the play themes that this creates help to reinforce Saudi customs and traditions. For example, in ECE dramatic play is typically set up with themes that emerge from Saudi customs and traditions. Children play with a collection of dress-up clothes, such as an Abaya for women, which is long black maxi dress, and a Thobe for men, which is long white maxi dress (see section 5.2.4.3).

For children's play outside the kindergarten, however, there have been many changes. I grew up in Mecca, where there were few public play areas for children to play or public libraries for children to read stories; neither were there beaches to swim at or children's clubs and classes to attend. These were only available in large cities, such as Jeddah and Riyadh. There were nice children living around me, however, so my family allowed me to spend at least two hours a day playing outdoors in our neighbourhood. The games we played were physical group games, such as chasing games, hide and seek, hopscotch on sand, climbing the nearby small mountain (see figure 1) and some imaginative games, such as pretending to attend parties, singing, dancing, and acting like adults.



Figure 1: A group of girls playing traditional hide and seek and hopscotch games in Saudi Arabia (Saudi Press Agency, 2012).

Most Saudi families today, however, do not allow their children to play outside due to security fears. When I asked some of my relatives and friends who are parents to explain why, they replied that in the past the neighbours treated each other as a family, everyone know each other very well, but today they did not know their neighbours. One of my brothers also, said ‘the nature of streets has changed, we were playing on sand which was safe, but now all streets are asphalt and I believe it may be dangerous for my children to play there, they might get hurt’ (Conversation with my brother, April 2020). Since most children today do not have many areas to play and they are not allowed to play outside they spend their time using electronic devices (see Figure 2).



Figure2: The modern lifestyle of children in Saudi Arabia (Sondos, 2013).

According to the Global System for Mobile Communications Association (2014), over 84% of Saudi Arabian Parents are worried about their children's use of technology. Obviously, too much screen time may have negative effects on children, including obesity, which has been found to have greatly increased among children aged between two and seven (Alghamdi, 2017). Obesity is a result of a lack of physical activity and is associated with many health issues. Expanding physical movement is a basic issue in improving general wellbeing in early childhood (Crumbley, Ledoux and Johnston, 2020). A number of studies have also found that a harmful side-effect of children spending hours connected to electronic devices is inattentive behaviour (Barnes et al., 2007; Yoo et al., 2004). This concern was supported by parents and teachers who I met during my work as a lecturer in the ECE department in Saudi, many of whom reported that their children found it hard to concentrate on schoolwork. The current study, therefore, seeks to identify teaching methods that can integrate with play activities in school to improve children's ability to maintain attention. This assumes that playful activities are usually related to children's interest and needs.

1.5. Children's learning and development

What do we mean by learning and how children learn? As introduced in section 1.1, this study adopts the theoretical framework that children's learning is a socially mediated operation

(Vygotsky, 1978), whereby learning is shaped through interaction with others and environmental factors (Moll,1990). This framework argues that social interaction and physical tools are essential in children's learning. For example, when a child learns about different sizes, first the teacher shows the child blocks of different sizes and defines their size. While these actions on the part of the teacher serve to mediate the concept that the child needs to learn, the child still needs to touch blocks of different sizes in order to construct his/her own understanding of large and small; they can then use this understanding independently in a different situation (Bodrova and Leong, 2006).

In respect to development, on the other hand, the sociocultural framework views development as a process 'characterised by a unity of material and mental aspects, a unity of the social and the personal during the child's ascent up the stages of development' (Vygotsky, Rieber and Carton, 1987, p. 190). Vygotsky (1978) views development as a result of structured learning, a point that will be discussed in detail later.

There is some scholarly debate as to the relationship between learning and development and which one drives the other. According to Bodrova and Leong (2006), the Vygotskian view is that the relationship is complicated, and that each can affect the other as they work together as a dynamic process in a given context. Vygotsky believed that children's development is not limited to age but is also influenced by a range of other factors, for example, culture and social interactions. The current study assumes that development is influenced by high quality education that works to improve children's academic, social and behavioural skills. In this regard children's individual needs, interests, abilities, talents and social contexts are factors that affect their learning and development. Adapting teaching instruction accordingly, these factors may enhance children's learning and development. Children attend school to learn, and everyone learns something at school. That said, clearly, not all the children in the classroom achieve the learning goals set by teachers, and as educators we cannot ignore that fact that there are fast learners, who have the ability to understand how to complete the tasks assigned to them, and others who faced difficulties in learning and need support from teachers or peers to complete the same tasks. The current research is an attempt to focus on the individual child, identify his/her particular needs and offer tailored assistance to increase overall learning and development.

1.6. Teaching children

An old Arab wisdom saying is that learning in childhood is like engraving on stone. That means what we learn through our childhood will remain with us forever. Islamic and Arabic culture stresses the importance of starting to teach children at an early age since the child has an innate desire to learn and explore the world:

children's early experiences shape who they are and affect lifelong health and learning. Early childhood experiences provide the foundation for brain development and can affect the child's learning as well as his/her social and emotional abilities (Sandstrom and Huerta, 2013, p.4).

Kindergarten teachers are therefore entrusted with great responsibility since the kindergarten is the first formal learning environment for children.

Although at this point children are considered to be novices in terms of school life, they are still starting to develop their perceptions about the school environment and build relationships with teachers and peers. Together, these comprise their first impressions about school life and the learning experience outside their homes. When we speak generally about children, policy makers and teachers should always remember we are speaking about the builders of the future. I often tell my students at university this, knowing that they will become teachers, just like my colleagues in the Colleges of Human Medicine do, knowing that their students will become doctors. Kindergarten teachers, on the other hand, might be teaching future inventors, scientists, doctors, teachers, professors, or journalists. The teacher takes responsibility for providing a good start for those children and seeks to establish a healthy relationship between the child and school. This could be through preparing a rich learning environment and a friendly classroom atmosphere, as well as using effective teaching methods, as is the goal of the current study.

As a lecturer in the ECE department keen to improve the quality of ECE provision, I would like to work with kindergarten teachers to consider the opportunities afforded by the individualised instruction, which I was taught about during my master's degree programme in the United States, and apply these to a Saudi Arabian context. Clearly, teaching instruction needs to be sensitive to local culture, and there are large cultural differences between the US and SA. This presents a challenge for me to work with the teachers, children and their families

to consider how a US teaching approach might be applied to a Saudi context, with a culture that consists of Saudi language, beliefs, attitudes, values, and behaviours.

This study was set up to encourage kindergarten teachers to use new individualised, small group instruction instead of the traditional, whole group teaching that teachers employ in Saudi classrooms (Alahmari, 2019). It must be recognised that this traditional teaching style has its advantages. For example, having children at different levels engaged in one task encourages an exchange of ideas and experiences, and when this exchange occurs within a large group, a greater variety of ideas and experiences can be drawn upon, which may have positive impacts on the learning process (Tanveer, 2008). Thus, traditional teaching transfers knowledge to different types of learners, regardless of their individual needs and abilities.

Nonetheless, it is evident in a western cultural context that individualised instruction has positive effects on children's learning (Thomas, 1992; Nurmi et al., 2012; Rytivaara and Vehkakoski 2015), and, likewise, small group instruction (Brophy, 1999 cited in Rimm-Kaufman et al., 2005). As Saudi's government embarks on a huge reform under Vision 2030, a strategic framework implemented to promote economic diversification and develop public service sectors, education is one sector in focus. One way of educational development that the Ministry of Education (2019), mentioned in *Education and Vision 2030* (p.2) is: 'Developing such teaching methods, that focus on learner not on teacher, and concentrate on inculcating skills, personality development, improving confidence, and promoting spirit of creativeness'. The current study is a step toward delivering Vision 2030 in the education sector, through exploring the effectiveness of new teaching instruction. It therefore attempts to explore how a change to individualised and small group instruction, where teaching is tailored to take account of individual differences, would affect children's attention and learning in the Saudi context.

1.7. Research question

To what extent does individualised and small group instruction affect the attention span and learning of mainstream kindergarten students (5-6 years) in a Saudi Arabian context?

1.8. Research aim

The aim of this study is to investigate the impact of individualised small group instruction on the learning and attention span of children who show shorter attention span than other children of their own age.

1.9. Research objectives

- to attempt to improve the attention span of children within the inclusive classroom, including those recognised as having limited attention span.
- to understand and define individual instruction.
- to investigate the impact of individualised instruction, within small groups, on the attention span of children in the inclusive classroom.

1.10. Summary and Structure of the thesis

The research question is addressed through all six chapters of this thesis, starting with the Introduction which has outlined the key concepts used in the study, the Islamic and Arabic context of the study and issues facing early childhood education in this region.

Chapter two presents a review of the literature. It reviews the two types of teaching instruction which I consider to be the major points of focus of this study. These are: individualised instruction and small group instruction. It then examines the differences between attention, attention span and attentiveness. Finally, the review examines the current literature that has explored the relationship between teaching instruction and children's attention span. Although attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) are widely researched areas (e.g. Barkley, 2014; O'Regan, 2007), to date little research has been done with mainstream children to determine the impact of teaching instruction on children's attention span (Kannass, Colombo and Wyss, 2010; Juanga and Ressoreccion, 2015). These previous studies with mainstream children explored how different types of teaching methods impacted attention, such as Montessori in the Philippines (Juanga and Ressoreccion, 2015), and the quantity of instruction in the USA context (Kannass, Colombo and Wyss, 2010).

Whilst attempts have been made to research and improve attention span in children with ADD and ADHD, there is less research about attention span and instruction for neurotypical or mainstream children. This study has attempted to address this gap by studying mainstream

children. This is important given the differences between the attention patterns of children with ADD and ADHD compared to neurotypical children with a short attention span. The current study will explore individualised instruction and small group instruction. Moreover, the previous studies did not explore the children's perspective to understand children's attention. In contrast, this study aims to explore children's attention span from children's perspectives in order to deepen our understanding of children's attention.

As Saudi is undergoing huge educational reform, some research has been begun into developing teaching methods in early childhood education (Aseri,2018; Alahmari, 2019). The findings of this study aim to contribute to this emerging body of literature which has implications for developing teaching instruction and pedagogies in early childhood education and which are sensitive to in the Saudi Arabian context. This is ground-breaking research in a Saudi Arabian context where this is the first study investigating the impact of individualised and small group instruction on the attention span of mainstream children in the regular classroom, an area that hitherto has received insufficient attention in the literature.

Chapter three discusses the sociocultural theory which guides the study. In this theory, learning is viewed as socially constructed through the interaction between children and teachers, parents and peers. The theory also emphasises the use of psychological and technical tools as a learning mediator. In particular the socio cultural concepts of ZPD, play, more knowledgeable person's role and the tool's role are examined as holding potential for studying and explaining children's attention span and considering strategies to improve it. Whilst a 'Western' theory such as this, which originated in Russia, might seem out of place in a Middle Eastern context it is argued that the focus on universal principle of learning, such as play, and the importance of sociocultural experience in learning makes Vygotsky's 'Western' theory relevant for studying in diverse cultural contexts.

Chapter four describes the study's setting and participants: a public kindergarten in the city of Mecca, Saudi Arabia, which adheres to the official curriculum 'The self-learning curriculum'. This chapter sets out the methodology of the study, outlining the research paradigm and design. This is an action research study which is informed, in part, by an ethnographic case study approach. The combination of the methods is justified. In the first part of the empirical study, I developed a close understanding of the setting and children's attention, drawing on ethnographic tools. In the second part of the study, this understanding informed actions and

interventions, developed with the teachers, to identify the ways in which children's attention was impacted by different instructional and pedagogical approaches. All interventions took place at the current Saudi kindergarten, most were implemented during centre time where children were able to freely engage with school activities. The flexibility of the centre time activity allowed the interventions a normal fit into the daily schedule.

This chapter details the qualitative methods of data collection in the first part of the empirical study. These include observations, interviews, analysis of children's needs learning and attention; teaching methods; children's, teachers' and parents' perspectives. This is followed by the data analysis. I used both inductive and deductive approaches to analyse the data. I allowed the data generated from observations, interviews and student portfolios and coding, theory-related material, and sub questions that I developed before data collecting, to drive the themes. Finally, the ethical considerations in this research are addressed.

Chapter five includes the presentation of data from part one, that focuses on exploring the setting, then part two which includes the intervention/action of the study, from classroom and children. The chapter analyses the data to discuss each child's strengths and needs as a learner, their experience with the current teaching instruction and new methods of teaching instruction; that is, the intervention. It presents the curriculum and teacher as key components of the teaching and learning process.

The sixth chapter presents the discussion /analysis of the data, which is organised into the six themes presented in the earlier methodology chapter, as follows: 1. Current teaching instruction and its relevance to children's learning and attention span, 2. Determining children's attention span, 3. Factors affecting children's attention span and learning, 4. Elements of individualised instruction, 5. Socio-cultural learning and the small-group instruction, and, 6. How individualised and small-group instruction affected participant children's attention span and learning.

Chapter seven presents the conclusions I have reached in answer to the research question: 'To what extent does individualised and small group instruction affect the attention span and learning of mainstream kindergarten students (5-6 years) in a Saudi Arabian context?' The findings from this study indicate that using small group, individualised instruction lengthened kindergarten's attention span and increased the children's enjoyment when working on educational activities. Regarding academic achievements, comparison between the children's

achievements using traditional instruction and small group individualised instruction found that the intervention increased children's academic achievements in the short term. However, the data suggested that some challenges were encountered in implementing the individualised small group instruction due to the limitation of classroom size, time and lack of Arabic resources for implementing the new instruction.

2.Literature Review

2.1. Introduction

This chapter is in three parts. The first part will present two types of teaching instruction, since this study will integrate individualised instructional teaching with small group instruction. In addition, the chapter will provide a rationale for using and combining these two types of instruction. The literature surveyed will establish the meaning of the terms that are important to my study. The second part will discuss the literature on children's attention and attention span as basic terms in the study. The third part will review the small body of literature which has implications for, a) the improvement of attention span in children, and b) the development of teaching instruction and pedagogies in early childhood education and which are sensitive to context in Saudi Arabia. From this survey of the literature, gaps will be identified and discussed.

2.2. Teaching instruction

The verb 'teach' can be defined as the action of giving lessons to someone in order to help her/him learn something through providing information about it (Oxford Dictionary, 2020). Instruction refers to the act of giving someone purposeful steps to follow in order to learn or complete a specific goal (Huitt, 2003). In the context of the current research, teaching instruction refers to all steps that teachers take to design the educational tasks and the methods that they intend to use to provide those tasks in their classrooms.

One of a teacher's priorities should be remove any inessential factors that may cause extreme tiredness or exhaust learners, to underline that 'any mode of instruction that tired the attention was hurtful to children' (Edgeworth, 1798 cited in Sobe, 2010 p.149). In respect of this, designing suitable teaching instructions should become a priority for teachers to provide effective lessons with the development of effective teaching and learning. Gagné, Briggs and Wager (1992) report that clear teacher-organised instruction is essential in achieving particular learning objectives. Planning this instruction, based on specific needs and principles, is required to ensure its effectiveness in teaching and learning. Darling-Hammond and Baratz-Snowden (2005) identify that teachers who design the lesson's instruction in relation to a

student's previous knowledge and progress level, are effective in assisting students to exhibit a strong achievement.

Implementation of the Zone of Proximal Development ZPD (see section 3.2) into classroom practice seems very limited in Saudi's context where teachers heavily employ the whole group method (Alahmari, 2019). In the west, however, the literature shows that education is influenced by Vygotskian ideas through implementation of the differentiation methods in the classroom. Working in the child's ZPD is not common in terms of classroom practice in Saudi at the present time (Alsulami,2016), as it was uncommon in the classrooms in the West even in the 1990s. Wegerif and Scrimshaw (1997) indicate that a possible reason behind this limitation is that the practical environment drives teachers to plan lessons and activities based on the needs of students as groups, not individuals. The Vygotskian point of view in education holds the principle aim to provide 'interesting and culturally meaningful learning' to keep each child in his or her own ZPD. In the same vein, individualised instruction requires teachers to set plans that match children's interests, needs, and abilities (Roosevelt, 2008 cited in Shabani, Khatib and Ebadi, 2010).

Schools in SA usually use one teaching instruction to transfer knowledge to different types of learners, regardless of their individual needs and attitudes toward this knowledge (Alahmari, 2019). However, development of instructional system by planning and tailoring instruction and context to individual differences could lead each learner can make better use of school lessons (Public Resource Org, 2010). The source in the Public Resource Org documentary confirms that individualised instruction is promoted by Instructional Systems Development, known as the ISD process, which is based on the assumption that students learn in different ways and at different rates (ibid).

There are potential factors which affect the design of such instruction. Nurmi et al. (2013) state that there is a difference between teachers who work to adapt their instruction according to individual children's skills and those who do not. whether this is done is affected by how many years of teaching experience the teacher has as well as the number of teaching assistants and students in the classroom. For example, teachers who work with a small number of students have more time and are better able to manage resources better to adapt their instruction than those who teach larger classes. Furthermore, when a teaching assistant is on hand, students have freedom to seek clarification on or adjust instruction, while there is no assistant, teachers

tend to focus on students who need help more than others. Lastly, ‘teachers with less experience tend to show a higher emotional quality toward students than teachers with more experience tend to do’ (ibid cited NICHD, 2004, p.73), ‘such emotional quality may be important in activating attention toward a particular student who exhibits problems in his or her performance’ (ibid cited Sutton and Wheatley, 2003 p.73).

2.2.1. Individualised instruction

Individualised instruction is based on the acknowledging the differences between learners and adjusting teaching to their individual differences and needs. However, taking the differences between learners into account is embedded in other teaching instruction (e.g. differentiation), which may sometimes be confused with individualised instruction. Bray and McClaskey (2012) made an attempt to distinguish between the two, based on the definition of instruction from the U.S department of Education (Table 1). The comparison highlights a number of notable differences. Firstly, individualisation refers to working with the individual needs of each student whereas differentiation seeks to meet the needs of different groups of students. In relation to the assessment of student’s learning, individualised instruction uses summative assessment, which gauges students’ level of acquisition of knowledge in one subject in terms of the outcomes of the programme. Based on these outcomes, decision can be made about the student’s future attainment. On the other hand, formative assessment is typically used with differentiation instruction, which aims to advance the student’s learning by reporting on the student’s previous knowledge and their abilities and use these reports to design the next step for teaching and learning objectives. See Table 1 for the full comparison.

Table 1: Comparison between differentiation and Individualisation (Adapted from Bray and McClasky, 2012).

<i>Differentiation</i>	<i>Individualisation</i>
Starts with groups of learners	Starts with the needs of the individual learner
Adjusts to learning needs of groups of learners	Accommodates learning needs of the individual
Explicit instruction based upon the learning needs of groups of learners	Explicit instruction based upon the learning needs of an individual learner
Teachers create or adapt instruction and choose roles for learners based on the different needs of learners	Teachers customize lesson and task for learners based on individual needs

Same objectives for groups of learners	Same objectives for learners with specific objectives for individuals, who receive one-on-one support
Technology and resources are selected to support the learning needs of groups of learners	Technology and resources are selected to support the learning needs of individual learners
Learners are reliant on the guidance of teachers to support their learning	Learners are dependent on individual teachers or paraprofessionals to support their learning
Based on Carnegie unit (seat-time), grade level	Based on Carnegie unit (seat-time), grade level The standard Carnegie unit is defined as 120 hours of contact time with an instructor
Assessment for learning	Assessment of learning
Assessment involves time-based testing and teachers provide feedback to advance learning	Summative assessment is grade-based. It involves time-based testing which confirms what learners do and don't know

The current study supports claims that differentiation could be considered as ‘a sub-concept of individualisation’ (Landrum and McDuffie, 2010, cited in Rytivaara and Vehkakoski, 2015, p.13). Taking learner readiness into account in planning instruction is part of an individualised process. Whereas differentiated instruction recommends planning activities at varied levels of difficulty, individualisation focuses on the specific needs of the learner then adapts teaching to these specific needs, which informs the amount and types of instruction a particular learner needs.

Landrum and McDuffie (2010, p.9) highlight two essential components of individualised instruction:

- It is planned in a way that builds on what individual students currently know and can do and targets meaningful goals regarding what they need to learn.
- Accommodations and modifications to teaching and testing routines are made in order to provide students with full and meaningful access to the content they need to learn.

It is difficult to offer a clear-cut definition of individualised instruction although a number of attempts have been made to unfold it. The challenges of providing such a definition may be based on the variety of existing instructional models. However, individualised instruction can be defined as ‘highly flexible system of multiple materials and procedures’ (Baker, 1970, p. 775), and within this system the teachers need to pay extra attention to student’s performance (Molenda, 2012). Furthermore, Heathers (1977) reports that individualised teaching instruction can occur spontaneously in any steps taken in setting a lesson plan that simultaneously suits all the students and takes into account ‘individual students learning needs, learning readiness, and learner characteristics’ (p. 342). Despite efforts, further exploration is required to break down the concept for accuracy of meaning, purpose and characteristics. Regarding children’s readiness for school, age is used as a promotion criterion in most education systems. However, it is possible that children might reach the required age but have not attained the prerequisite skills to ensure that they are able to make the most of the learning experiences provided. Iannelli (2015) noted that two signs of readiness for kindergarten are that a child is able to pay attention and keep still. These two signs have been highlighted from others signs that were identified by the U.S. Department of Education's National Centre for Education Statistics to start kindergarten. Despite the differences in perspectives, further research and efforts from educators and researchers are required to define this instruction more accurately. This study will contribute to the development of a definition by providing practical examples of implementing individualised instruction in the classroom, and thus will be a step towards gaining a better understanding of the individualised instruction in theory and practice.

Individualised instruction can be found in a variety of formats. It is argued that this approach to instruction may refer to three fundamental variables: pace, method and content (State University, 2015). Pace is the rate at which instruction is offered, method refers to the way in which learning is structured and delivered, and content is what is being taught and learnt. Individualising the pace of instruction is the most commonly practiced type of individualised instruction offered.

Heathers (1977, p.343) expands on the variables outlined by State University and notes that when one observes individual instruction in action it can follow any of these formats. Different students:

- work on different learning tasks towards different goals.

- use different learning materials or equipment in working towards the same goals.
- study a given task in different types of individual or group settings.
- work on different learning tasks with the use of different methods of teaching/learning.
- are assigned to different teachers to produce effective student teacher matchups.
- are allowed different amounts of time as needed to complete a learning task.
- are assigned activities which carefully match their interests, ability and learning style (e.g. visual, auditory, kinaesthetic) from as early as the planning phase.

A step-by-step approach to individualising learning has been developed in a US school by Tracey Severns, the principal of Mount Olive Middle School's students in Budd Lake New Jersey in the United States (Adams, 2015; Crowther,2016), applied these steps:

- inform parents and students of the benefits of individualisation.
- inspire all stakeholders.
- investigate to discover students' needs.
- involve all parties.
- individualise by creating individual goals and learning plans.
- initiate by setting plans in motion.
- implement by regularly evaluating progress.
- indicate – compile data and share challenges and successes (p.4).

These steps are clear and represent a linear approach to implementing a programme for individualised instruction.

It seems there are several advantages to the use of individualised instruction. Numerous theories have underlined that effective training relies upon adjusting instructing to the requirements of the individual learner (Nurmi et al, 2012). One of the benefits of individualised instruction is that it allows each child the opportunity to achieve mastery (Heathers,1977). This is because it offers flexibility and allows the child to work at his / her own pace, thus lessening the frustrations that might lead to inattention and encouraging the child to be more focused and consistent with the learning activities. Second is that children are also given the opportunity to address areas of weakness in their individual performance, and this too could result in more attentiveness to what is being done.

Critics of individualised instruction offer the following arguments against its use. It is thought that in individualising instruction, time will be lost with the other students in the classroom (Brighter Hub Education, 2012). In addition, the student who is receiving individualised instruction may become so dependent on the teacher that he/she may be unable to perform without this kind of assistance (ibid).

The advantages of using individualised instruction might outweigh the disadvantages. The teacher will have to be knowledgeable with regards to students' needs, and there is a possible failure that can occur with the use of this method, such as identifying children's needs and abilities or finding the best way to adapt teaching to the needs of individual children. Individualised instruction requires careful planning to ensure that no child in the classroom is disadvantaged.

2.2.2. Small group instruction

Small group instruction is described as delivering instruction to small group of children in the classroom (DiCarlo, Ota and Deris, 2020). The current research is using individualised instruction in combination with small group instruction, emphasising that social interaction and cooperation is no less important than the focus on children's individual differences. Many researchers argue that small group instruction support the delivery of individualised instruction and increases opportunities for peer communications compared to whole group instruction (Jacob, Erickson, and Deris ,2020). Moreover, small group instruction allowed teacher to focus more on individual students and on adapting instruction to their abilities, interests, and needs (Wasik, 2008; National Association for the Education of Young Children and the International Reading Association, 1998 cited in DiCarlo, Ota and Deris, 2020). Increasing the teacher's ability to give the individual learner more attention leads to increased opportunities for more responsive teaching; this supports the implementatin of individualised instruction. These two types of teaching instruction appear to support each other in order to provide more a effective teaching and learning process. Some other benefits of using small group instruction highlighted in literature include a relationship that a study found between using small group instruction and learner enhanced performance which improved their learning achievement (Brophy, 1999, cited in Rimm-Kaufman et al., 2005). Another found that it encouraged positive social interaction between the child and its peers and with the child its teachers (Jacob, Erickson, and Deris ,2020). For example, children can cooperate to achieve one goal, or they may engage in

conversation to discuss the topic. Where there is time for each one in the group to express his opinion, teachers have better opportunity to observe children's performance, and they are able to provide assistance and guidance to each child as required. Moreover, social interaction and working with peers are key to behavioural and cognitive development. With regard to that, is the idea of the ZPD, which requires that skills only can be performed if the individual receives an assistance from more knowledgeable other. Consequently, small group instruction may be the best way to implement the theory since it provides opportunities for the learner to get the assistance that is needed from both peers and teachers while they work together as a group. Roosevelt (2008, cited in Shabani, Khatib and Ebadi, 2010) confirms that tasks in this theory should be harder than tasks that can be done independently; as a result, the learner will need to work collaboratively with peers to achieve such tasks.

2.3. Attention and attention span

Attention, attention span and attentiveness are closely related terms. Yet, each term has a distinct connotation that differentiates it from others. The lexical meaning of attentiveness is close attention. It can also be understood 'as retaining "power over [one's] own mind' (Sobe,2010, p.157).

The term 'attention' is defined by Revault D'allones (n.d, cited in Rieber and Robert, 2004) as 'an intellectual operation' which transfers things to mind through an intermediary or different factors. Rieber and Robert (2004, p.383) make the point that 'attention is converted into a direct instrumental or intellectual operation and it places an auxiliary device between the object of attention and the subject'. From my own perspective, attention is an initiatory mental function that occurs within the nervous system due to an upper mental process, such as understanding or critical thinking. For example, the senses send signals to the brain to receive feedback which can be the decision whether the signal is worth drawing the brain's attention to it or not.

Attention is a mental capacity that is innate in humans as well as animals. According to Vygotsky (1979), it starts with the child from birth and the record of a child's attention is the record of the stages of 'the organisation of his/her behaviour' (p.67). Measuring this function at a very early age can be possible. For instance, Enns (1990) presents a researcher experiment to gauge the attention of six-month infants. The findings provide evidence that it is possible to study the attention of newly born infants through observing their behaviour.

Attention span is a quite a novel concept and can be defined as the amount of concentrated time on a task without becoming distracted (Statistic Brain Research Institute, 2015). There are different ways to calculate the normal attention span of a child. In a study conducted by the Day2Day Parenting (2013), second-grade teachers identified the normal attention span for five-to-six-year-olds, as 10 to 15 minutes; however, a child might only be able to attentive to normal classroom activities for between 5 and 10 minutes on tasks that they find too complex or too boring. However, this judgment can be seen as subjective and can be based on many variables; hence, more empirical work needs to be done to explore this area further. Other research shows that the average attention span of most of young children is around five minutes and seldom reaches more than forty minutes, after that usually the child needs support to help sustain his/her attention and reduce attention to distractions (Cornish and Dukette, 2009). There is no environment that is devoid of distraction, but a kindergartener who functions within the normal range of attention span is able to ignore or deal with minor distractions and is primarily motivated by what he/she finds interesting (Neville, 2007). Even within the range of what is considered a normal range of attention span, it is possible for one child's to be half that of his peers. The child who is functioning at this a lower level will miss out on learning opportunities. In another words, he/she needs to be accounted for in the teaching instruction or might not be able to get maximum benefits from class time.

Distractions, interest and understanding, and learning preferences are the three components of attention span (Moyer and Gilmer,1955). Distractions include an assortment of controllable factors, such as using electronic materials in the classroom and student misbehaviour, and uncontrollable factors, such as physical health problems that affect a learner's focus. Thus, teachers can take controllable factors into account to improve student's focus and attention span, their understanding of the lesson and the level of their interest in its instructional materials; they can ensure that the lesson design is fit with student's interests and understanding. The last component is using learning preferences and styles to increase the child's attention span. Neil Fleming's model (VAK) provides a framework for relating a child's learning preferences to his or her attention span. As children learn in different ways and have different preferences (e.g. learning by listening, visualising, or doing), the teacher can include these styles in designing lesson that can maintain student's attention span (Gerschler, 2014). The model used a series of ten methods for holding student's attention based on a combination of the author's personal experience and additional information modified from publications (ibid). Fleming's model, however, have been criticised for the lack of empirical research that

supports it. The current study will explore how the child's favourite methods of learning at home, which is one of the individualised instruction intervention's elements, can affect children's learning and attention.

Being attentive may indicate a student's engagement with school. According to Moore and Lippman (2006) school engagement is divided into three types: behavioural, emotional and cognitive. To measure these types of engagement, they used the Rochester Assessment Package for School (RAPS), which includes student's attention as one of the assessment checklists for measuring behavioural engagement. Based on this, attention is a part of behavioural engagement, which is an important factor in learning (Fredricks et al., 2004; Goldberg et al., 2021). So, attempting to improve the attention span of children within the inclusive classroom should be to a potential benefit of behavioural engagement.

Attention and attention span may be related to the ZPD as follows. Vygotsky (1978) claimed that providing tasks that a child can easily achieve independently will be found 'boring' and cannot support the child's development. According to Bainbridge (2015), boring tasks can lead to decreased child's attention span. Vygotsky also claimed that in tasks that are too complex, a child cannot achieve; they find them 'frustrating', which does not support the child's development. Task difficulty is found to have an undesirable effect on students on-task behaviour, motivations and motivation and achievement (Scasserra, 2008), which are factors that could influence a child's attention span. Vygotsky claimed that when working in the child's ZPD on a task, that child can achieve only with assistance from teacher or peers, which promotes learning and development. Moreover, Vygotsky espoused that social interaction also played a major role in children's learning and development. Gaertner, Spinrad and Eisenberg (2008) conducted a longitudinal study to explore the influence of adult social interaction on young children's attention, results showed that praising and positive support from adult increased children's attention. Further factors that influence children's attention span will be discussed in the next section.

2.3.1. Factors influencing children's attention span

In theory, it is widely accepted that average attention spans are decreasing as a result of exposure to information and communication technology over time. It is argued that the implicit and explicit encouragement or permission of teachers and parents of school children to spend more time using technological devices significantly reduces the children's attention span

(Barnes et al., 2007). This reduction in attention span is believed to be largely due to the fact that students who consistently focus on electronic devices have limited human interaction which moulds brain circuitry (Goleman 2013); this can, subsequently, lead to a permanent limitedness in their attention span. A study conducted by Christakis et al. (2004) found that children's early television exposure also leads to attention problems. Their longitudinal study was conducted in the USA using the National Longitudinal Survey of Youth in which parents of 1,278 one-year-olds and 1,345 three-years-old reported the number of hours their child usually watched television. Some years later, at the age of seven, the hyperactivity subscale of the Behavioural Problems Index was used to measure children's attention. Results showed that 10% of toddlers who had spent more hours watching television had attentional problems at the age of 7. However, the study's authors warned that the results of this study should be interpreted cautiously for three reasons. One reason is that they had gathered no data regarding the kind of programmes watched. It is possible that the content might be significant since other researchers have (e.g. Christakis et al., 2004 cited in Anderson et al., 2001) suggested that children can take advantage of educational programmes, such as Sesame Street, which persuade them to read and encourage their attention. Secondly, reports on the number of hours spent watching television were estimations made by parents not professionals. Thirdly, accurate attention deficit hyperactivity disorder ADHD diagnosis criteria was not used to measure children's attentional problems.

There is a long list of possible factors that can cause inattentiveness. According to UC Davis Health System (2015), children's 'inability to pay attention when they start school has the strongest negative effect on how they performed at the end of high school — regardless of their IQ (intelligence quotient).' Factors include poor nutrition, anxiety, and lack of sleep (ibid). Another potential reason is the designed learning activities. For instance, Bainbridge (2015) notes that gifted children may begin kindergarten with the required skills and, as such, are bored with the teaching and learning activities; this can lead to them becoming inattentive. Results of a longitudinal study in Canada by Galera et al. (2011), involving over 2,000 children followed from age 17 months to 8 years, highlights factors that can result in lack of attentiveness which include, preterm birth, tobacco smoke exposure during pregnancy, low birthweight, the mother's young age when they gave birth, maternal depression, non-intact families and antisocial parents (cited in Mahone and Schneider, 2012).

2.4. Previous research on the impact of the teaching instruction on children's attention span

This section reviews research that explores the relationship between teaching instruction and children's attention as well as other factors that affect children's attention. Then, the gap in the literature will be identified and discussed.

A search of the literature unearths the limitation of research that focuses on factors affecting children's attention. First, Juanga and Ressureccion (2015) conducted a study to compare five to six-year-old children's academic achievement and attention span. They compared children who were taught via the Montessori teaching method and those who experienced the traditional method. This study was based in six preschools—three Montessori schools and three traditional private schools in Davao, the Philippines—and included 240 K-2 students. Multiple data collection tools were used by researchers (e.g. participant observation, experimentation including pre-test/post-test, and taking photographs). The purpose of the experiment was to assess children's performance levels through pre-test and post-test grades in both the experimental group (subjected to the Montessori pedagogy method) and the control group (subjected to the traditional classroom lecture method), and to measure the attention span of the participants.

The research was conducted across two subjects: mathematics and science. The participants in the experimental group received the Montessori method while those in the control group received the traditional method. The control group's pre-test and post-test results were compared to the results of students in the experimental group. The results showed that children taught via the Montessori approach had significantly higher scores than students in the control group. A second experiment conducted to find the impact of using the Montessori approach and the lecture method (in the same subjects) showed a longer attention span in the first (experimental) group than the second (control) group. That is, the average attention span of children who received the Montessori approach was 7 minutes during science class and 12 minutes during the mathematics class, compared to 5 minutes and 6 minutes respectively using the lecture method.

Reading their study raised the question: How did they measure the children's attention span? Since the answer to this question is not found in the research, an email was sent to the

researchers to ask them to explain the procedure of used for measuring the children's attention span. One of the researchers replied that:

the attention span of children was measured by particularly giving them an activity to do and once the child stopped doing that particular activity - done in groups with assigned watchers per group like for example group of 5 children with one watcher to record the minutes - that was the procedure done.

Although this clarifies the procedure used in this study, the explanation has generated more questions to be considered in the present study, such as, whether stopping doing an activity signals that the child's attention was lost or stopped? Further research and efforts from researchers and teachers is required to find an assessment tool to gauge children's attention. Moreover, this research seems to reflect author bias since no criticisms were made of the Montessori approach.

Another study was conducted by Kannass, Colombo and Wyss (2010) to examine the effects of verbal instruction on child's attention and performance during preschool (between the ages of three and four). The researchers stated that despite the fact that receiving clear instruction influences child's attention and memory, the number of studies which focus on how teaching instruction impacts children's learning are still very limited. Results of such studies confirm that children, aged three to five, who received instruction show a higher level of ability to maintain their attention to the task or remember than children in the control group who were never instructed (Kannass, Colombo and Wyss, 2010). The purpose of the study was to 'addresses the issue of when, and under what conditions, young children are capable of incorporating explicit task demands on attentional performance. Also, to study the differences between the impact of 'comprehensible' and 'incomprehensible' distractions on their attention so as well it investigates distractibility during this age' (ibid, p.512). In their study 178 English speaking children from the American cities of Chicago and Kansas City participated. Children were asked to work 'on four cognitive tasks (involving Legos, puzzles, matching, coloring), one at a time, while an incomprehensible or comprehensible distractor played continuously in the background' (ibid, p.513). They randomly received one of the three types of the following methods of instruction: no instruction, moderate instruction, frequent instruction.

In this study, the researchers use coders in order to measure child attention by recording the duration of looking at the task. Coders used a Macintosh computer to record the time when the

child looked at the task. Results of this study show that receiving frequent instruction increased the child's attention to the task effectively and receiving any types of instruction was helpful to reduce the child's interaction with distractors. Regarding children's task performance results, it was found that children's ability to direct their attention to a task strongly related to their high cognitive performance.

The studies reviewed above explored different type of teaching methods and quantity of instruction, whereas this study will explore individualised instruction and small group instruction. Moreover, the previous studies were conducted in a different geographical context (i.e. USA and the Philippines). The present study, however, will be conducted in Saudi Arabia. Also, the previous studies did not explore the children's perspective to understand children's attention unlike the current one which aims to explore children's attention span from their own perspective to not only deepen on adult understanding of children's attention.

2.5. Previous research on developing teaching methods in early childhood education in Saudi Arabia.

Saudi is undergoing huge educational reform and education practice is developing (Alghamdi and Ernest, 2019) which means that some research has been conducted to develop teaching methods in early childhood education. One recent study by Aseri (2018) used information communication technology for teaching to investigate the significance of tablets in the classroom and to find whether they can enhance the metacognitive, core and language competencies among children aged between five and six. Another study was conducted by Alahmari (2019), who used application tablets to explore the role of educational apps on tablets' potential to support science learning and engagement among children aged between six to seven. The current study aims to further attempt to improve the teaching methods in early childhood education in Saudi Arabia using individualised and small group instruction to investigate the ways children, between five and six years of age, with a short attention span might benefit from receiving the new teaching instruction.

2.6. Chapter summary

This chapter first reviewed two types of teaching instruction: individualised instructional teaching and small group instruction. It examined the meaning of these two terms that are important to my study. Then, it reviewed the relevant research on pre-schooler's attention and

highlighted the differences between attention as intellectual process, attention span as the amount of concentrated time on a task and attentiveness as close attention. Moreover, this chapter discussed the importance of lengthening a child's attention span and factors that might influence this attention span. Finally, researches that examined the impact of teaching instruction on children's attention and development of teaching methods in early childhood education in Saudi Arabia was discussed. It was evident from the literature review that the impact of teaching instruction on children's attention has rarely been studied in naturalistic settings, therefore the current study set up to explore its impact in Saudi's context.

3. Theoretical Framework

3.1. Introduction

This chapter presents the sociocultural theory which guided this research. It includes an explanation of the theory its concepts and framework and why it was chosen as the framework for this research.

3.2. Summary of the theory and its concepts

This study set out to explore the effects of small group individualised instruction as an attempt to improve the kindergarten students' attention span in a classroom. It was guided by Lev Vygotsky's sociocultural theory of learning which combines two elements, the social and the cultural (McGlenn-Nelson, 2005). Vygotsky points out that socio-cultural context influences child development; what he means by development will be discussed in detail later in this section. Furthermore, he emphasises that those two elements should be looked at as a part of mental processes. From Vygotsky's perspective, exploring mental processes is only possible through gaining a proper understanding of the concept of mediation (Vygotsky, 1962 cited in Shabani, Khatib and Ebadi, 2010, p.238). Mediation, as discussed by Vygotsky (1962), is an essential step for understanding the development of the human's mental functions (Ferryhough, 2008). The development of conscious control in higher mental processes (e.g. memory and attention) results in mediation of the action through three elements: signs, tools, and the child who uses and dominates them (Guk and Kellogg, 2007). Signs and tools are defined as symbols and language that are used to represent items or behaviour (Bodrova and Leong, 2006). In other words, Vygotsky saw development as social in origin and reliant on tools and signs for the mediation of mental processes (Smagorinsky, 1995, p.192).

In this theory he introduces his general genetic law of cultural development which describes the two stages of a child's cultural development functions. The first is a social stage when the child interacts with peers ('interpsychological'), and then moves to the internal stage ('intrapsychological'), which is the individual making sense of their experiences (Vygotsky, 1978, p. 57). The process under which the child moves from one cognitive stage to another is called 'internalization'. Social mediation plays a crucial position in its process, which is why mediation has been given special attention in explaining the sociocultural theory (Vygotsky, 1962 cited in Shabani, Khatib and Ebadi, 2010, p.238). Internalization has a major step called

‘Intersubjectivity’ which happens at the time when the person who assists the learners in the Zone of Proximal Development starts to remove his/her assistance gradually to encourage the learner to work independently. Assistance is removed continuously until it disappears (Verenikina, 2003, cited in Shabani, Khatib and Ebadi, 2010 p.238). The new teaching instruction in this study intends to apply the idea of providing such assistance and then gradually reducing it (see sections 2.2.1 and 2.2.2).

Vygotsky’s work is valuable in understanding cognitive development. His theory involves many complex concepts in relation to structuring the higher cognitive functions of a child’s mind. However, my focus is on a principal concept in Vygotsky’s theory: the zone of proximal development or ZPD. The reason for utilising this concept is that the ZPD focuses on working in the child individual’s zone which is compatible with the individualised instruction (see section 2.2.1). Moreover, the concept stresses social interaction and cooperation as essential factors in children’s learning and development, which aligns with small group instruction (see section 2.2.2). The concept of ZPD, which was first presented in 1931, is used to identify the differences between a child’s development when performing a task independently and the upper level of development that a child can only reach with the teacher’s or peer guidance or during group work with peers (Colman, 2009). Such educational tasks, aiming to develop a child’s abilities, should be challenging tasks that help the child to reach beyond what they can currently do and should not be too easy and so bore children or too difficult and frustrate them (see Figure 3). Hence, instruction plays a significant role in activating the levels of development of a child’s functions. In his theory, Vygotsky investigates the relationship between instruction and development (Kozulin et al., 2003) as it the main path mediating learning and child development (Vygotsky, 1978).

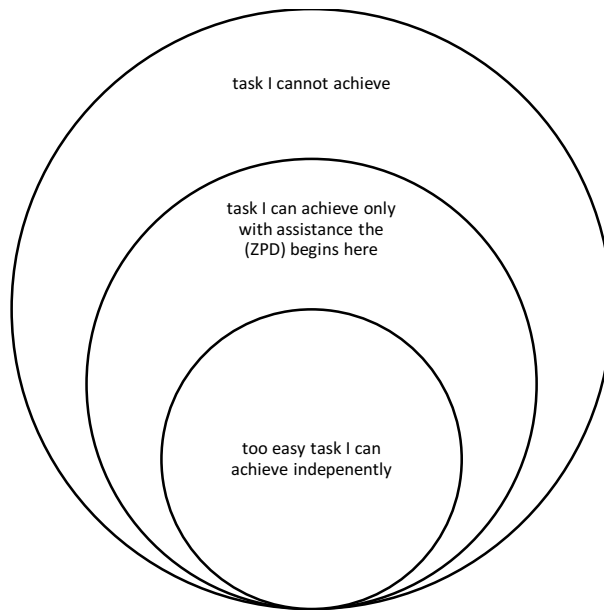


Figure 3: Visualising the Zone of Proximal Development (ZPD) task place.

Vygotsky (1962) set up four series of investigations to find the relationship between instruction and the development of higher function. The first investigation aimed to examine the level of development of cognitive functions that is required to learn the main subjects at school. The second series of investigation focused on the relationship between the equivalent development in mental function and an instruction cycle. Results of this investigation show that development mostly comes after instruction, which assists children to obtain certain skills and then use them independently. The third series of investigations was adapted from the Identical Elements Theory of the transfer of training by Edward Thorndike (Thorndike and Woodworth, 1901). The only distinction between the two theories here is that Thorndike's empirical work draws particular attention to the relation between instruction for school subjects and developing elementary the mental functions which people are born with, while Vygotsky's investigation focuses on the higher functions that are developed through interaction. In the fourth series of work, Vygotsky criticised the psychological investigations at school at that time for measuring the child's mental development level by solving problems independently (i.e. exams) as a limited way of looking at the development of mental function. Vygotsky instead measured 'the discrepancy between a child's actual mental age and the level he reaches in solving problems with assistance' (Vygotsky, 1962 p.187). In other words, Vygotsky discussed the role of traditional assessment systems, such as exams and grading system, as they only measure of mental process maturity for each child whereas, using ZPD, those mental functions can be assessed in group activities through observation. (Shabani, Khatib and Ebadi, 2010). Thus, the concept of ZPD can be purposefully used to relate the development of children's higher

functions to instruction and its importance for the child's development process (Chaiklin, 2003).

However, it is hard to further discuss ZPD unless we explicitly understand Vygotsky's understanding of development. He explains the development process as 'characterised by a unity of material and mental aspects, a unity of the social and the personal during the child's ascent up the stages of development' (Vygotsky, Rieber and Carton, 1987, p. 190). Vygotsky uses four basic themes to describe the development of children's functions between the ages of 3 and 6, which includes the same age group of this study. The first theme connects between the child's mental formation and the new higher mental functions, and he uses two types of mental functions, the 'lower' and the 'higher'. The 'lower' is natural, what the child is born with, whereas the 'higher' is that developed through interaction and has the influence to change natural functions. The formation starts at early stages when the child uses tools, like language, to transform its basic cognitive processes. The second theme looks at the child development as increasing the control over the child's behaviour. Regarding this, in childhood, children are controlled by 'environmental stimuli' to direct their behaviour, but gradually they move toward using self-regulation defined as 'the self-directive process through which learners transform their mental abilities into task related skills' (Zimmerman and Schunk, 2001, p.1). In practice, self-regulation can be imaginary play or engaging in private speech. The third theme perceives child development as a comprehensive system where emotions and cognition move together in harmony. The final theme is the principal source of development, which is 'the social situation of development' (Kozulin et al 2003, p. 157). Identifying the relationship between instruction and development and describing how instruction influences students' development may enhance both teaching and learning. Moll (1990) argue that well-organised instruction is an assistant element, can lead to positive cognitive development. Vygotsky (1986, p188) argues that 'the only good kind of instruction is that which marches ahead of development and leads it; it must be aimed not so much at the rips as at the ripening functions'.

Finding formal definition of the ZPD in Vygotsky's work can be difficult mission. Even though the ZPD is mentioned a number of times in his work, there is no accurate definition or an explanation that clarifies the exact meaning of the term (Kozulin et al., 2003). There could be a number of reasons behind the scarcity of research on the ZPD concept. One reason might be that Vygotsky used the ZPD concept in various contexts and in each context the term is used for a different purpose. Nevertheless, there have been a few attempts from proponents to clarify

its meaning. For instance, in one explanation of the ZPD, Coffey (2009) explains that Vygotsky's intention is not to measure students' mental agility by using IQ tests, he rather prefers to measure what children already know to compare between the changes that occur in their ability to solve problems with guidance and assistance and in the absence of such support. Kozulin et al., (2003, p.3) highlights three areas in which the ZPD concept is used:

- Development context: for explaining the child's 'emerging psychological functions'.
- Applied context: for explaining the difference between 'the child's individual and aided performances' (in assessment and in classroom learning contexts).
- Metaphoric 'space': for every-day concepts given by teachers/others learning mediator.

In this study, parts of each of these three areas will be covered. The purpose of using the ZPD as basis for instruction is to find out how instruction can support children's development in relation to the cognitive aspect. ZPD is a basic instrument to design teaching instruction and it is evident that Vygotsky's theory can further explore ways that make instruction highly beneficial for children and their cognitive development through using organised instruction (Vygotsky,1982 cited in Moll,1990 p.350). He explains the significant impact of collaboration and links tasks of individual capacity to children's achievements, an area which this study is primarily interested in. Thus, I believe that using Vygotsky's ZPD is important in this study in creating a link between child development, teaching instruction and collaboration. Hence, this section aims to explain ways in which Vygotsky's ZPD theory can be put into practice or can be used to illuminate how learning and development occurs. Analysing Vygotsky's ideas can highlight some points in respect of its utilisation in the classroom, for example, play as a social interaction activity that allows children to learn within their ZPD, and the active role that the teacher plays in applying the ZPD in classroom practice.

3.2.1. Learning through play

The above section mentioned the importance of instruction on children development. Another source of child's cognitive development, from Vygotsky's point of view, is play. Play enhances children's development and fulfils their needs and incentives (Vygotsky,1967). Vygotsky's play theory posits the existence of a strong relationship between play and development, especially cognitive, emotional and social development (Scharer,2017). Indeed, Vygotsky

stated that ‘play is the source of development and creates the zone of proximal development.’ He explained that, in play, a child is consistently higher than his average age and daily routine (Vygotsky, 1967, p.16). It is worthy clarifying, however, that Vygotsky’s writing was limited to one type of play, namely the sociodramatic play of preschool children (Bodrova and Leong, 2015; Scharer, 2017). In sociodramatic play, according to Vygotsky, children typically: ‘create an imaginary situation, take on and act out roles, and follow a set of rules determined by those specific roles’ (Bodrova and Leong, 2015, p.374). During play children follow roles that they made which empower them and eventually provide them with pleasure. As playing is an essential part of children’s life especially in this study’s age group, the extent of play in learning was of interest in part 1 of the study, in part 2 some interventions were play-based.

3.2.2. The teacher’s (more knowledgeable person’s) role

Reading Vygotsky’s ideas and thinking about the teacher’s role in his theory revealed that he assigned the teacher several duties which could prove to be a great challenge. The teacher’s first role is to consider the individual student’s past and experience. According to Erbil (2020), Vygotsky claimed that the child’s cultural-historical context is an essential factor in his/her development. That means teachers need to be aware of the importance of a child’s culture, context, and previous experience when they teach. Each child comes to their classroom with special knowledge and understanding about the world. One of the teachers’ responsibilities is to explore a child’s cultural history; that is one of the individualised instruction requirements as utilised in part 2 of this study. Individualised instruction urges teachers to investigate children’s communities and use information collected about the children’s experience to involve children in activities that relate to their cultural history to enhance their learning process.

The teacher’s second role is to identify a child’s zone of proximal development. According to Chaiklin (2003), Vygotsky did not provide a particular record of strategies to assess the child’s ZPD. That makes implement use of the ZPD opportunities into the classroom practice challenging for teachers, however, Vygotsky provided clear definition for the ZPD:

‘the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers’ (Vygotsky, 1978, p. 86).

He was also clear on the value of collaboration as a step towards independent learning: 'what the child is able to do in collaboration today he will be able to do independently tomorrow' (Vygotsky, 1934/1987, p. 211). Based on this definition, the teacher needs to find out what a child can do independently and what he/she can do with teacher or peer assistance. This can be determined through observing the child's performance both independently and with assistance. Moreover, identifying the child's ZPD can be achieved through direct questions, in order to measure what he/she knows and is able to do, or through group discussion, when the teachers can capture the child's ability and knowledge. So, teachers may apply different types of assessment to identify a child's ZPD.

The teacher's third function is to be a facilitator rather than a content provider. This could be achieved through providing guidance and proper assistance and by creating genuine opportunities for children to interact with their peers and participate in group work. Social interaction is an essential part of Vygotsky's theory, since he believed that learning is socially mediated (Karpov, 2005); the social interaction within the child's zone helps him or her to move to higher level in development than his actual level, that could be only through assistance from the teachers or advanced peers. Based on this is teacher responsibility to encourage group work and hover around these groups, providing assistance when needed. The teacher's fourth role is in the provision of suitable tools for learning.

3.2.3. The tool's role in learning process

According to Schunk (2014) learning is always mediated by tools; mediation tools can be language, symbols, and signs. Vygotsky (1962) accepted art and drawing as mediation tools. For example, in early childhood, when a child is not ready to express him/herself through language, drawing often provides a mediating role for social communication, understanding, and critical thinking (Brooks, 2003 cited in Brooks, 2005). Some researchers view technology devices and books as cultural tools that help children internalise the knowledge (Woolfolk, 2004). These ideas informed the current study, as teachers and a researcher in this study used tools that stimulated children's interest, such as technology devices (iPad), art and drawing, a whiteboard and marker, pictures, building blocks and lacing cards, and stories to support attention and learning.

3.3. Sociocultural theory and individualised small group instruction

As explained above the theory guiding this research is that learning is constructed with teacher or peer guidance and assistance for the child. Social interaction is an integral aspect of individualised small group instruction. According to Daniels (2005), Vygotsky identified two developmental levels in the ZPD concept: actual and potential. These levels support the teaching instruction this study explores. The actual level refers to a child's ability to display accomplishment on his/her own and the child's pre-experience on which he/she will build new knowledge related to individualised instruction that stresses the the individual's ability and pre-knowledge. The 'potential level' refers to accomplishments that children can achieve when assisted (e.g. through the collaboration and assistance provided in small group instruction). Sociocultural theory considers another important feature that new teaching instruction supports, which is active learning. Individualised small group instruction supports the idea that children should be provided with tasks that allow them to lead and running the task and to play an active role in it.

3.4. Chapter summary

In summary, Vygotsky's theory was assessed in terms of its usefulness and principles relevant to my research. Its concepts of the ZPD, mediation, tools and play offer potential. How far does existing teaching instruction accommodate learning for individual children, and encourage the adjustment of teaching instruction to accommodate the learning for individual child? Does it encourage cooperative learning in order to benefit from an exchange of experiences and knowledge? How far is play utilised as source of development that facilitates the learning process in joyful way? How are psychological and technical tools used as a learning mediator? In thinking ahead to potential action, these ideas will be used to stimulate individualised and small group instruction, including how children's interests and everyday socio-cultural experience can promote attention and learning.

4. Research Methodology

4.1. Introduction

This research focuses on the relationship between teaching instruction and children's attention span. It investigates ways kindergarteners with short attention spans might benefit from receiving individualised and small group instruction. The present study is action research partly informed by elements of ethnographic research. This chapter is divided into seven sections. In the first section, I discuss the research paradigm on which the study is based on. In the second, I describe the research design and justify the combination of three methods; this is followed by a section describing the qualitative methods of data collection used. In the fourth section I provide a description of the study setting and participants, and in the fifth, the procedures and methods for conducting the research and analysing that data are described in detail. In section six, I address the validity, reliability, and reflexivity and in the seventh and final section, I address the ethical considerations in this research.

4.2. Research Paradigm

A researcher's assumptions about the nature of reality and how it can be studied are part of the research process. Obviously, reality is vast and various and could be viewed differently based on our interpretations of its phenomena and the context in which it is researched. A paradigm according to McGregor and Murnane (2010, p.419), is 'a set of assumptions, concepts, values and practices that constitutes a way of viewing reality'. Göktürk (2005, p.2) adds to the end of that definition, '...for the community that shares them, especially in an intellectual discipline'. These definitions, short and longer, highlight how the research paradigm reflects the researcher's view of reality, being the lens that the researcher looks through in order to understand phenomena and identify ways to study them in order to reveal new knowledge.

The philosophical position which this study is based on is interpretivism. This philosophy assumes that reality could be captured through and within human knowledge. From an interpretivist perspective, human social action is naturally meaningful. Hence, to understand specific social action, such as teaching and learning, the researcher must grasp the meanings that inform that action (Denzin and Lincoln, 2000). According to Goldkul (2012), this paradigm suggests the concept of multiple realities. The reason for the view that there is no single reality is that interpretivists believe people see different things when observing the same

event due to impact of their subjective interpretations on understanding the reality. As result, in order to study a social event, the researcher should take the internal reality of the participants into account.

An interpretivist researcher constructs reality from the participant's perspective and experiences (Creswell, 2003). That allows me to capture participants' (teachers', children's, mothers') perspectives, feelings and experiences, which is a basic aspect of this research. As the objective in this study is to reveal deeper understanding of how children's attention span and learning are impacted by individualised small group instruction, interpretivism could be described as the appropriate philosophical approach to underpin its research methodology. The interpretive approach depends on naturalistic methods, which make it inseparable from qualitative research. This study thus focuses on understanding the reality of the setting, including how children, teachers and parents view it, and through this, how learning and attention could be enhanced. The first part draws on ethnographic method to explore the natural setting. The second part builds on these findings to generate interventions/actions using three qualitative methods: semi-structured interviews (to gain the participant perspectives), participant observations (to capture descriptive data of participant's behaviours, performance and attentiveness in the classroom), and analysis of children's portfolios (to gain a detailed understanding of the children and gather valuable academic information).

The aim of interpretative research is to make sense of social events. Meaning is revealed, discovered, and experienced through interpretive research (Given, 2008). The assumption of interpretivism is that the process of constructing meanings develops based on interactions between the researcher and the participants (Denzin and Lincoln, 2005). This approach is aligned with the theoretical framework, social constructivism, which views knowledge as developed through human interaction (Bryman, 2008). Thus, in part 1 of the current study, the researcher immersed herself into the educational setting to explore the practice, experiences and interactions of children, parents and teachers, in order to understand this educational setting and children's attention and learning. In part 2 of the study, the researcher then worked in partnership with teachers to develop action research style interventions, focusing on promoting children's attention and learning further, and to understand children's personal experiences with individualised small group instruction activities and how they engaged with each other in small groups. Thus, the findings may depend on participants' subjective interpretations and thick description of the events based on participants' understanding of those events.

The epistemological belief that the social event is best studied within its context allows me to conduct research in a natural setting and work with the participants to capture the complexity of the researcher's and participants' experiences so as to account more fully for participants' observable behaviours and perspectives. The ontological position of this, that reality is a human product and constructed through their experiences and social, allows me to describe and analyse participant' experiences in a detailed manner.

4.3. Research Design

The study employs a qualitative methodology to gain a comprehensive understanding of a particular case and aims to investigate whether kindergarteners' attention span can be lengthened through small group individualised instruction. Examining such a relationship requires a particularly relevant research design that works towards answering the research question efficiently. The design allows the researcher to answer the research questions and challenge the responses. The research questions are:

'the heart or the hub of the model; they connect all other components of the design' i.e. (goals, conceptual framework, methods, validity) and should be informed, and sensitive to these components a tenet of the research is that researchers should mindfully create designs that effectively answer their re- search questions' (Creswell, 2009, p.217).

This research conforms to the nine characteristics of qualitative research (See Table 2) advocated by Creswell (2009).

Table 2 conforms the characteristics of qualitative research

<i>Characteristics of qualitative research</i>	<i>How this study conforms to characteristics</i>
Natural setting	Classroom setting.
Researcher as key instrument	Researcher will gather the information and develop instrument to gauge children's attention.
Multiple sources of data	Researcher will use multiple forms of data (e.g. observation, field notes, interviews, and student portfolio analysis).
Inductive data analysis	Thematic analysis will be used to analyse the data generated from observations, interviews and student portfolios.
Participants' meaning	Study aims to explore the perspective of the children, teachers, parents in respect of children's attention and teaching instruction.
Emergent design	Some points in the researcher's plan may change after starting the data collection process.
Theoretical lens	This study will be guided by Lev Vygotsky's sociocultural theory.
Interpretive	This study will undertake a qualitative interpretive approach which depends on naturalistic methods (e.g. interviews and text analysis).
Holistic account	Researcher seeks to develop a complete picture of the phenomenon by reporting multiple perspectives.

4.3.1 Rationale of use qualitative methodology

This study seeks to explore the effects of a particular teaching instruction on one reactive aspect of kindergarten children (i.e. attention span). Such an area of study cannot be examined

statistically, since understanding the complexity of social phenomena (e.g. teaching and learning processes) requires researchers to look beyond numbers. Therefore, the exploratory nature of this study requires a comprehensive understanding of the participants' views about a particular case or phenomenon (Cohen et al., 2013; Bryman, 2015). A qualitative study is the best approach to explore this area of research and produce rich and in-depth data that can be used to interpret this phenomenon of attention in kindergarten classrooms. Moreover, using the natural setting helps observe the behaviours of the participants and their perspectives in order to build up a detailed picture of this issue. Tools will be used and the data that will be produced in order to answer the research question will be discussed in more detail later in this chapter (see section 4.4).

4.3.2. Research Methodology

The overall methodology for this study, action research, is partly informed by elements of ethnographic methods. There are two parts to the study, the first of which draws on ethnographic methods. This is because I desire to collect detailed information about the daily life of children and teachers of a particular culture and develop a detailed understanding of the current teaching instruction used in a kindergarten classroom and its relevance to the learning and attention span of the children. In the second part of the study the ethnographic data informed actions and interventions which were developed with the teachers to see how children's attention was impacted by different instructional and pedagogical approaches.

According to Given (2008), it is likely that Kurt Lewin was the first to use the term action research. Lewin defined it as 'a comparative research on the conditions and effects of various forms of social action and research leading action' (1946, p.35). Lewin's models of action research include five steps: explore the current situation, develop new practice (action) for improving the situation, observe the impact of the action and collect data, analyse and interpret data and, finally, report the process (Given, 2008). The main aim of action research is the improvement of practice (Lewin, 1946; Carr and Kemmis, 1986; Elliott, 1991). The aim of action research corresponds with the current researcher's aim for part two of the study that sought to recognise the impact of new teaching instruction, which is individualised small group instruction instead of the traditional (whole group) teaching, that teachers employ in Saudi classrooms.

In this research a particular intervention is designed and implemented in an actual classroom

setting. The dictionary of education identified intervention as ‘ a term used in action research to indicate the point at which the teacher–researcher implements a change of approach or practice in order to evaluate the subsequent effect on an identified aspect of teaching and learning’ (Wallace, 2015, p.153). The intervention is used to explore the impact of implementing individualised small group instruction on four children. The process of intervention includes a planning stage, in which the researcher and teachers discussed some of findings from Part 1 of the study. These include the case study child’s needs, interests, and abilities and the lessons or concepts to be taught, to set appropriate goals and plans for each child. Following this is the implementation stage. During this stage the teacher works with the child in a small group; sometimes the teacher includes the goal within the traditional instruction, sometimes she locates time to apply the individualised instruction to a small group of children while the researcher records the case study child’s responses and behaviour. Different methods of recording are used (e.g. field notes, video footage and iPhone voice recorder), with the method depending on the child’s focus. For example, I stop video recording if children noticed me filming them because they might not otherwise behave naturally, as I want them to, so I do my best to make participants feel comfortable; usually I sit quietly somewhere around them. The developed intervention is used and evaluated during school activities. I am interested to get the teacher and the child feedback after each intervention.

It is argued that action research is considered a small- scale intervention (Hoberg, 2001 in Chisaka et al., 2013). As a result, the action research results may not be generalised, but in education, it is useful in adding to pedagogical stock of knowledge (Elliott, 2015). This makes action research appropriate to the current study, which is a small-scale study. Moreover, collaboration, as one of action research characteristics, corresponds with the assumptions of social cultural theory, that knowledge is socially constructed. Action research allows me to work with the class teacher to develop a new individualised instruction approach, and to subsequently plan and implement the activities.

4.3.3. Rational of combining ethnography with action research and interventions

Using ethnographic data to generate or evaluate an intervention is an approach that commonly used in research (e.g. Argyris, 1985; Morgan-Trimmer and Wood 2016). Bronislaw Malinowski (1922, p.25) stated that ‘the goal of the ethnography is to grasp the native’s (sic) point of view, his relation to life, to realize his vision of his world’. As an ethnographer I

worked with participants to write a full description of the teaching technique and methods, activities, children's attention, and classroom resources and environment. I tried at every step to see what was happening through the participant's lens not mine. Ethnography enabled me to interact daily with participants to explore the child's attention, academic skills and background, and to gather information about their learning abilities and needs to set individual goals and plan with the teachers. The intervention, or action research, on the other hand was used to answer the research question by trying out new instruction methods and explaining how individualised and small group instruction benefits the learning of kindergarten students in relation to attention span. Since ethnography does not seek to examine the relationship between teaching instruction and children's attention, there was an imperative to use the action/intervention method to answer the research question.

4.4. Methods of Data Collection

This study is based on five sources for data collection: i.e. observation, field notes, interviews, children portfolio analysis, and visual ethnography. A number of methods were chosen because it is known that 'a combination of methods is often useful in research because it is difficult for any single method to capture fully the richness of human experience' (Denzin and Lincoln 1994 cited in Eder and Fingerson, 2002, p.188). These five are considered, at this point, the best data collection methods to provide in-depth information about the life of the participants. Participant observation, interviews and conversation are the principal methods of ethnography that enable the researcher to write a thick description about the teaching and learning process in the classroom environment, and conducting interviews and conversation helps collect information according to participant's worldviews.

4.4.1. Observation

The observation is the initial data collection tool in this research. Participant observation defined as 'the process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the researcher setting' (Schensul, Schensul, and LeCompte, 1999 cited in Kawulich, 2005, p.2). This process starts with gaining access to the classroom and writing field notes about the observed social life, actions, and dialogue of the participants. The field notes are used later to collect detailed information about the event(s) (Emerson et al, 2001). The qualitative data is collected over a whole school term (three months) or more through daily observations. The field notes are considered as 'records in semi-

structured way using some prior questions (see Appendix1) that the inquirer wants to know' (Creswell, 2013. p.190).

Participant observations are distinguished depending on the degree of observer involvement in the research, from full participation to no participation (Sarantakos, 2012; Bryman, 2015). In the first type, the observer joins the participants group as an active member. For instance, for conducting a study about the work conditions of farmworkers, the researcher is likely to join them as a farmer. In the first type, the observer observes the participant from outside the group, whereas in the second type, a non-participant might observe the children in the classroom through a window. In this research, I lie somewhere between these two types. I spend the whole school day in the classroom from the beginning of the data collection period to the end. I observe and talk to the children and teachers, plan lessons and resources with the teacher without teaching the lessons, observe the teaching and learning process, make conversation and interviews, so that I can consider myself to be a participant observer but not as a full member.

Participant observations consist of different stages, and each has a particular purpose. During the first stage I conduct an observation of the pupils, using an observation schedule to capture descriptive data of their behaviours, performance and attentiveness in the classroom. Besides, this, I observe the teaching instruction used in the classroom to write an overview on the teaching techniques and methods, activities, resources and classroom environment.

At the second stage, the observation is conducted to selecting a sample of students with short attention span based on the designed inclusion criteria (checklist), which offers an alternative assessment tool to gauge the attention of children. This scale is discussed with professors in the field of early childhood education. Mahone and Schneider (2012) report that 'the three primary methods of psychometric assessment that have been used to characterize attentional functioning in preschool children include performance-based test, rating scales (parent, teacher, clinician), and structured interviews' (p.367). These methods, however, are inappropriate for the present study since this is psychological educational study. Based on the field notes and observations at the end of this stage, the plan is to finalise the selected sample of child participants who will meet the criteria and serves the purpose of this research (see section 4.6.2).

During the final stage, the observation, focuses on the participants' learning behaviours while the teacher implements the individual learning plans and resources that will be developed by the researcher and teachers, on the students in the selected sample only. That is, not all the students in the class are to receive individualised instruction. However, the same resources can be used to record how individualised instructions impact the attention span of the children. The same rating scale (inclusion criteria) used in the previous stage is utilized to enable the researcher to identify different aspects of the child's learning and attention so as to compare with the same child's learning and attention during the intervention.

The above method of data collection has been criticised for being time consuming and for creating an artificial situation as a result of researcher presence (Rubin et al., 2005). Indeed, observation takes a long time compared to other methods (see Appendix 1), and some children might be not comfortable being observed by the researcher, which may influence their natural behaviour. Moreover, Eder and Fingerson (2002) state that this method is limited and needs to be used in conjunction with other methods, such as interview, for collecting information. As a response to this critique, in the current study, interviews are conducted in conjunction with the observation.

4.4.2. Interviews

The interview is one of the research tools used in this study. The rationale for using interviews is based on the significance of this method to gain the participants' perspectives. Furthermore, it is to engage in the fieldwork and be the 'first and foremost interaction, a conversation between the researcher and the interviewee' (Steinar Kvale 1996, cited in Heyl, 2001, p.373). The interaction with the participants from the three groups (i.e. teachers, children and their mothers), is a way to develop an adequate understanding of a particular situation from the perspectives of the actors. Thus, for the previously mentioned reasons, interviews are used in this study as an instrument to detach from my personal observations about the context and expand to include the views of the participants on their own world and how they see it.

One purpose for using interviews is to seek a detailed explanation of processes 'that were clearly salient based on observations but were not fully explained by them' (Eder 1995; Simon et al., 1992, cited in Eder and Fingerson, 2002, p.189). A detailed description about an event in people's daily life cannot be produced via one method of data collection, such as observation (Bryman, 2015). What the researcher can observe is only the first strata of reality. Creating a

clear picture of social event requires searching the events that are hidden and underlying that event. According to Sayer (1999), ‘while we may be able to observe things such as the structure of an organisation or a household, as well as what happens when they act, some structures may not be observable. Observability may make us more confident about what we think exists, but existence itself is not dependent on it’ (p.12). Based on this view reality is not dependent on observation but it requires the researcher to investigate things beyond observable behaviour through methods triangulation.

Bryman (2015, pp. 466-467) notes that the research interview is a commonly used method due to its flexibility. Bryman identifies a number of features to qualitative interviewing. The first is that initial research ideas are more open-ended and there is an emphasis on the interviewees’ own perspectives. Second, is the great interest in the interviewee’s point of view; interviews give an insight into what the interviewee sees as relevant and important. Third, is the opportunity of the interviewer to depart significantly from the interview guide and ask new questions that probe the replies of the interviewees; consequently, rich, detailed answers can be obtained. Finally, interviewees can be interviewed on more than one occasion.

A step-by-step approach to conducting qualitative interviews has been developed by Creswell (2013, pp.163-166) and used in this research to ensure that the interviews proceed logically and consistently. The steps are as follows:

- Identify research questions that the researcher plans to answer through the interview.
- Select a participant sample who can best answer these questions.
- Choose an appropriate type of interview to elicits adequate information that helps answer the research question.
- Use high quality audio recording equipment to record the interview.
- Plan and use an interview guide.
- Refine the interview questions and procedures further through pilot testing.
- Choose a quiet setting for conducting the interview.
- Get informed consent from the interviewee to participate in the study.
- ‘Use good interview procedures; stay on the questions, complete the interview within the time specified, be respectful and courteous’.

There are two major types of qualitative interviews: unstructured and semi-structured (Bryman, 2015). This study uses semi-structured qualitative interviewing. In this type of interview, the researcher prepares an interview guide that includes open-ended questions and topics specified in advance to be covered in order to collect information that answers the research question. However, in this type of interview, interviewers do not have to follow the exact sequence and wording as the flexibility of the interview guide allows them to use follow-up questions, probes and prompts, to obtain a deeper understanding of the view of the participants (Cohen et al., 2013).

In this study, semi-structured interviews are to be conducted with the teachers and children to view the issue from the perspective of the children involved in the research (BERA, 2011), as well as the parents of the children, over three rounds.

4.4.2.1. Semi-structured interviews (Round 1)

One of each group of participants: teacher- parent- and child- will be randomly chosen to conduct pilot interviews. This is done after the interview guide is designed in order to allow an opportunity for the participants to make comments and highlight problems with the guide. This gives the researcher the opportunity to refine the guide and examine its feasibility.

First interviews are conducted by the researcher with the parents of children who are to be nominated as participants (i.e. those with attention span issues). This individual interview, held prior to the data collection, aims to inform the interviewees of the nature of the research and the possible benefits to be accrued to their children. Upon approval, an informed consent form is signed by the parents of these students so that their children can be involved in the research. This interview consists of questions regarding children's medical history, sleep system, the types of activities that children do on a daily basis, and other unforeseen problems. This kind of information is seen to be crucial in order to gain a deeper understanding of the case of each participant.

Next, teachers are interviewed as participants. In this interview, research procedures are described in detail and questions on their perspectives on their students' performance in classrooms are asked. The interview provides an opportunity for them to discuss these details, offer suggestions and pose questions. Then, an informed consent is obtained.

Finally, I will interview the child participants to voice their views freely about their participation in the research. Eder and Fingerson (2002) illustrate that there are two reasons for interviewing children: one is to ‘allow them to give voice to their own interpretations and thoughts’ and two is ‘to study those topics that are salient in their lives but do not occur in daily conversation or interaction’ (p.33). The interviews will be age appropriate and graphics will be used to help the children identify preferences for their learning activities and tell what they are interested in. At the end, I will explain that they can withdraw from participation in the study at any time.

4.4.2.2. Semi-structured interviews (Round 2)

The second round of the interviews are conducted in the middle of the data collection process. The rationale for the second round of interviewing is to allow participants to describe their experiences with the research, their daily activities, and objects and people in their lives. Findings will be reported back to the children to record their comments on my interpretations so far. Further, the children are to be encouraged to voice their views on the individualised teaching activities, express their feelings towards it, and describe their work during the research period. The interviews with children’s parents, in this round, focus mainly on their views in relation to their children’s attention. On the other hand, interviews with teachers will mainly focus on exploring their views of my interpretations of the classroom observations and of their teaching instruction, that I will have by that time.

4.4.2.3. Semi-structured interviews (Round 3)

In this round of interviews findings of the research are discussed with each group of participants in order to review their understanding of the research process, observations and interpretations. Interpretations are discussed and confirmed with each research group, in order to enable them to express their feelings about the findings. The researcher is expected to listen to participants’ views about the research pros and cons.

In terms of the study’s possible limitations, it is important to note that during the research process, ‘important and salient topics may be inadvertently omitted’ and the interviewer’s flexibility in sequencing and wording questions can result in substantially different responses, thus reducing the comparability of responses (Cohen et al., 2013 p.413). Having a clear outline increases the comprehensiveness of the data and makes data collection somewhat systematic

for each respondent so that logical gaps in data can be anticipated and closed. It is intended that interviews remain fairly conversational and situational.

Cicourel (1964, cited in Cohen et al., 2013) lists six of the unavoidable features of the interview situation that would normally be regarded as problematic:

- There are many factors which inevitably differ from one interview.
- The respondent may well feel uneasy and adopt avoidance tactics if the questioning is too deep.
- Both interviewer and respondent are bound to hold back part of what it is in their power to state.
- Many of the meanings that are clear to one will be relatively opaque to the other, even when the intention is genuine communication.
- It is impossible, just as in everyday life, to bring every aspect of the encounter within rational control to another, such as mutual trust, social distance and the interviewer's control.
- Interviews provide more depth of data than other research methods. On the other hand, interviews import the researcher's bias and subjectivity to the research.

The researcher will respond to these features as follows:

- Rounds of interviews are conducted during different phases of data collection.
- The nature of the ethnographic method is that everyday interaction is used to help shorten the social distance and build mutual trust.
- To empower the participants, the researcher will ensure that the setting is friendly and comfortable and the participants always in control.
- Using semi-structured interview gives participants some freedom and flexibility to answer questions in depth.
- To address the researcher's bias and subjectivity the researcher will review findings with the participants and triangulate the interview data with other data sources.
- Using a play-based interview method gives children time to play with toys of the child's choice or play with the researcher while answering the researcher's questions (Koller and San Juan, 2015).

- Using informal language and acting naturally also encourages participants to be themselves and relax.
- Providing participants with opportunities to choose the interview location.
- Improving researcher listening skills to become a good listener, who is attentive, uses positive body language that looks relaxed nature and avoids passing judgement.

4.4.3. Children's portfolio analysis

The portfolio analysis is the third research tool for collecting data in this research. In this study, each child in the kindergarten has her/his own school portfolio, which includes samples of their work and a record of the child's development and previous assessment. Analysing such a document for each child participant can offer a valuable opportunity for exploring, in detail, the background of the children and gather valuable academic information about them prior to research. Analysing such documents can present me with good opportunities to gain a detailed understanding of the children and gather valuable academic information. I will encourage children to provide feedback about their own work. They will be allowed to describe it, express their feelings and give their opinion about it.

Moreover, the portfolios will be used in the intervention to set challenging achievable goals that occur in the children's zone of proximal development. It provides a brief about children's learning abilities that used in individualised instruction to guide lesson planning, assessment, and instruction. The small group instruction, on other hand, will provide children with assistance needed from teachers or peers.

4.4.4. Visual ethnography

Visual ethnography, such as taking photographs and filming the children's behaviour during the school activities and classroom interactions is one of the current research methods. The main purpose of using visual ethnography is to permit video and photo elicitation interviews (Berg, 2011) where children are asked to discuss the meaning of the behaviour captured in photographs or videos from their point of view. It may be difficult or impossible to discuss children behaviour with them at this age without visual data support, children were allowed to watch videos or look at photographs of their behaviour which help them remember what researcher is talking about. Another value of this method is that as I am aware of that my handwriting speed is slow, filming events and picture with some note is useful method that

support capture the details of any events. According to Duffield (1998), the adeptness of this method is in its ability to capture data that could not be captured using different methods, providing details of the event that researcher will not be able to collect using field note or memory.

Despite its usefulness, visual ethnography has drawn criticism from some researchers. One of criticism is that it leads to collect huge data and its time consuming. Visual ethnography, namely, filming, may collect redundant data that researcher may spent much time transcribing, however, researcher is unlikely to use all these data (Hammersley and Atkinson 1983 cited in banks 2001). I addressed this criticism through questions to myself before filming by asking if this was related to my study, so children's normal behaviour would not be added to the discussion or material outside of the study scope was not recorded. Also, I asked myself if this data could be provided information to the reader to help them gain more understanding about the event that I observed. Another criticism is that researchers centred this type of method of being the same people who creating the visual data and doing the representations as result they may misuse the visual data to prove their claim (Prosser and Loxley, 2008). In response to this critique, interview-elicitation with participants is held before making any claims and kept a reflective diary kept about the events, to compare it with participants' point of views later. Moreover, some of the visuals were shared at the Oxford Ethnography and Education Conference, where other researchers as critical friends reviewed some of the data. The teachers, children and researchers reflecting on these data usually told me things that I didn't recognise before my discussion with them. The last issue that is discussed as a sensitive point of this method is the criticism that reader could view the visual data and interpret it differently than the meaning that researcher intended by using this data (Banks, 2007; Pink,2001). Looking about this issue positively can find it a healthy dispute more than issue, since in philosophy field the ultimate fact is almost impossible thus debate between reader and writers may enriches the discussion and open new avenues of questing for knowledge that may generate more new ideas.

4.5. Setting and participants

This section provides a justification for the choice of setting and the procedures of selecting the participants. Four specific four steps were followed; deciding which kindergarten could be a case for this study, contacting diligent and creative teachers who show enthusiasm for

participate in my research, identifying children who appeared to suit the criteria of my selective sampling to have as cases, finally contacting those children's families to take part in the study. Moreover, using purposeful sampling, which is identified as a technique used for identifying and selecting participants who have a good knowledge and experience in the research area, enables the researcher to make best utilisation of limited resources (Palinkas et al., 2015).

4.5.1. Selection of setting

The setting of the research is chosen with careful attention. The study field is one of the kindergartens in the city of Mecca, Saudi Arabia. This kindergarten is chosen for three main reasons. The first reason is the familiarity of the researcher with the educational context in Saudi more than any other cultural context. Moreover, Mecca is my hometown and my family owns a house there, my social network is also stronger in Mecca than in other cities in Saudi. Thus, choosing Mecca enabled me to complete my study within an appropriate time frame at lower cost. This decision was taken after a one-day observation in two kindergarten classrooms: one in Mecca, Saudi Arabia and the other in Bath, United Kingdom. The observation provided me with a considerable insight into the differences between the classroom context and culture in both countries. Second, I established contact with the school administration and teachers who supervised my undergraduate students during my previous employment as a lecturer at Umm Al-Qura University. That allowed me access to the principal and teachers to obtain consent to do this research. The third reason is the convenience of the kindergarten to my residence in Mecca, Saudi Arabia, as I knew the study would require frequent visits and observations during my data collection stage. It was crucial to have constant contact with teachers and children in the classroom setting as well as parents for the later interviews.

4.5.2. Selection of participants

The teachers in this study were selected through using my network. First, I had some colleagues who visited the kindergartens periodically to supervise their students in their field experience period. At that time, they communicated with teachers in the classroom and they established a relationship. I asked my colleagues to nominate diligent and creative teachers who would like to participate in my research. Then, I got the teacher's contact numbers and I communicated with two of them via WhatsApp, both were interested in the research. Finally, I have arranged a meeting with them after my confirmation panel.

After my meeting with the teachers who agreed to take a part in the study. I visited their classroom in order to meet the children who are currently attending the kindergarten classroom that was chosen as the research site. In respect of identifying children with attention issues, Mahone and Schneider (2012) highlight a number of methods that are utilized to measure preschoolers' attention and conclude that 'the three primary methods of psychometric assessment that have been used to characterize attentional functioning in preschool children include performance-based tests, rating scales (parent, teacher, clinician), and structured interviews' (p.367). A search of the education literature unearths that there is lack of reliable and valid tools to measure the attention span for preschool-age children. The reason for the poor reliability of these tools might be 'the variable nature of attention at that age' (Mahone, 2005, p.216). Consequently, the children were identified from my initial period of observation, supported by the tool that had been developed by the researcher and reviewed by fourteen Saudi kindergarten teachers and five professors and lecturer in the field of early childhood education (see section 4.6.2.2). Lastly, with the teachers' assistance in contacting the parents of the selected children, the children's mothers were invited to take a part in the study.

4.6. Procedures for Collecting Data

According to Meyrick (2006, p.805), it is important to detail the steps for data collection and analysis so as to help the reader to understand the nature of the research and judge its quality: 'the reader requires sufficient detail to be able to follow the process and judge how "fair", "reasonable" or "regular" the process or steps taken were'. Similarly, a clear description is important to enable other researchers to replicate the study in different cultures or subjects. Moreover, Creswell and Miller (2000) stated that the aim of providing a vivid description is to bring the story to life which helps the reader to experience the situation as studied. Considering this, I provide here a detailed description of the data collection journey and analytical procedures. The data collection period started on the 17th December 2017, and ended on the 10th May 2018, and during this period I visited the kindergarten on every school day. The data forms and the methods of data collection are discussed in detail below.

4.6.1. pilot study

In very early stage of the data collection, I performed a pilot study to check the feasibility of each strategy. One strategy was participant observation; this strategy enabled me to acquire data on natural life setting by recording participant interactions, reactions, and actions using

many methods, such as video, photography, audio recording and field notes. I wrote vivid notes about day-to-day routines and activities. During this process I used a notebook and pen which was solely used for field notes. In the top of each page, I wrote the lesson topic next to the date of the day, then I recorded what happened. Doing the pilot study was very useful, especially with the field note technique; it allowed me to become more specific about things that I need to capture in order to answer my research question. Also, it provided answers to so many questions which were in my mind. Here are some of them: What type of children's conversation do I need to write down in my note? Do I need to write all teacher's questions? Do I need to capture all the participant's verbal and nonverbal actions? Which is better, using an app in my iPad for field notes or using a notebook and a pen (or pencil)? How to improve my handwriting speed? Writing my notes in Arabic or English? Even which calendars do I have to use to set the date of the day since in Saudi we use the lunar calendar? The ethnographic interview was another strategy that I used to address the issue from teachers' and children's point of view when I found something that needs more explanation in order to draw a clear picture in my mind and note about their actions. I conducted pilot interviews with one of each group of participants, randomly I chose one teacher, child, and mother, this step was essential to refine and revise the interview questions and to decide which was better, interviewing children using a puppet or speaking to them directly. Piloting was useful step to ensure the suitability of the methods that I planned to use.

4.6.2. Initial data collection process: Finding and identifying the cases

4.6.2.1 General observation from 17th December 2017 to 9th April 2018

In this phase, ethnographic research methods were used to gain insight into the teaching and learning process in the classroom and to develop a detailed understanding of the teaching instruction used in a kindergarten classroom, and the relevance of this to the attention span of the children and their learning. Hence, I aimed to explore the perspective of the children and interpret their reactions to the current teaching instruction using observation. To achieve this, I participated in the classroom every day which enabled informal conversation with children to explore their points of view about the kindergarten activities and their performance and attentive behaviour. Visual ethnography was also used in this stage as a form of field notes and to capture some of the children's behaviour during the school activities. The main purpose of using visual ethnography was to permit video and photo elicitation interviews (Berg, 2011) where children were asked to discuss the meaning of the behaviour captured in photographs or

videos from their point of view (see section 4.4.4.). In other words, an ethnographic method through cultural immersion (Spindler, 1982), allowed me to spend more time with children and build a friendly relationship with them, which in turn empowered them to be involved as an active component in some aspects of data collection, providing information according to their worldviews. Considering children’s interests and opinions are a significant part of the proposed individualised small group instruction, since it reinforces the idea that the plan of activities should be based on the children’s interests and needs, in contrast to the current Saudi kindergarten curriculum which, as Khoja (2013) has claimed, is created and enforced only from adult perspectives.

In this initial phase, the observation focused on recording children’s behaviour during school activities. Field notes, videos and photographs were used as a data collection tool. I wrote notes in Arabic about classroom culture, instruction, activities, the children’s interaction, with activities and with teachers. In identifying behaviours, I was informed by theory to generate behaviour codes for attentive and inattentive (see section 4.7.1, Table 6), but also generated behaviours directly from the observations. More explanation of this process is provided in the coding process section (4.7.1). Some examples of behaviours codes are provided in Table 3 below.

Table 3: Children’s behaviours reported in the first phase, extracted from field notes

<i>Behaviour coded as attentive</i>	<i>Behaviour coded as inattentive</i>
Looks at teacher or task direction	Does not look at the teacher or task direction
Answers teacher’s questions	Did not answers the teacher’s question
Asks questions about the lesson topic	Speaks about topics that are irrelevant to the task and disturbs other children or the teacher
Participates in lesson discussion	Easily distracted
Completes the tasks	Leaves task unfinished
Shows high engagement	Shows difficulty in engaging with the task

By the time three weeks had elapsed from the start of this observation I had identified five children who appeared to suit the criteria of my selective sampling. These were 5-6 years old kindergarten children who showed shorter attention span than other children of their own age (see section 4.3).

4.6.2.2. Using a tool to gauge the attention span of preschool-age children in Saudi's culture

The second step to support the selection of the cases for the study began three weeks after the beginning of the data collection. This involved applying a tool I had developed as an observation tool to gauge the attention span of preschool-age children (see Appendix 2). The tool lists school behaviours that commonly indicate inattention at school. This was inspired by Conner's Teacher Rating Scale-Revised (Gurley, 2011), and by comments from kindergarten teachers whom I had met during my employment as a lecturer in early childhood education. The tool then asks how often each problem occurs within a specific time period. Here, 'very often' means more than three times; 'often' means two or three times; 'occasionally' means in some situations it happened once; 'never' means the problem was never observed. At the end of the tool, there is space for the researcher, teachers, parents and child to make comments about the problems. This section was completed by interviewing children, their mothers and teachers to collect information about children's attention and learning from people who have observed them for period of time, while also giving children the opportunity to express their point of views about what might be labelled 'inattentive behaviour', learning, and school activities.

The tool was reviewed by fourteen Saudi kindergarten teachers and five professors and a lecturer in the field of early childhood education before use. The lecturers were emailed a copy of the tool, while in the case of teachers I visited their staffroom and circulated a hard copy of the tool, explaining its rationale. In both cases I asked these experts to check the tool's validity in terms of assessing a child's attention and to add any comments that may improve the tool. Suggestions were limited to: reducing the number of common problems listed in the tool, customising the first page to describe how to use the tool, and adding some choices under the 'occasionally' option in order to make this more restricted and associated to clear reasons (e.g. only when a child was tired or not interested in the tasks).

The results shown in the tool are the average scores over three separate applications during the period between the third and the fifth weeks of data collection period when the researcher used it to observe the children's attention during circle time and corners time. Due to time constraints, the comment space at the end of the tool was used only once.

4.6.3. Interviews with teachers about how current teaching practices affect the attention behaviour of the children, 29-30th January 2018, and 1st February 2018.

The interviews took place after five children had been preselected. The selection of child participants occurred independent on the general observation and after the first use of the tool above to identify main participants. In respect of identifying the teaching participants, (see section 4.5.2.).

I conducted semi-structured interviews with the classroom teachers (see Appendix 3), with the aim of:

1. Understanding the current teaching instruction that the teacher tended to use in the classroom, and in what ways that current teaching instruction took account of the children's individual needs.
2. Getting the teacher's perspective about children's attention problems and identification of children in their class with limited attention span.
3. Getting suggestions to develop the intervention.
4. Identifying to what extent do teacher has the freedom to change their teaching instruction.

Semi-structured interviews follow a predefined structure, enabling me to collect information focused on the research question, but also make use of open-ended questions that give participants some freedom and flexibility to answer questions in depth, this providing richness to the data (see section 4.4.2).

After this period of data collection the five children selected based on observational data, were identified as main cases for this research since the three teachers were agreed those children have shorter attention span than other children in the classroom.

4.6.3.1. Round two interview teachers about capturing teachers' perspectives of data representations 25th December 2018.

In this round, the teachers were interviewed as one group to discuss the preliminary findings that I found during analysis. As group interview can be technique that used as source which seeking validation of data from individual interview and observation (Frey and Fontana, 1991).

The aim of the interview was to gain more understanding of the interesting information that the data had revealed.

4.6.3.2. Interview the five children and their mothers

The purpose of interviewing the children was to give them the opportunity to express their feelings about the school activities, and to view their behaviour during school activities from their own perspective. Regarding interviews with the children's mothers, for cultural reasons I could not interview with the children's fathers since men are not allowed to enter the kindergarten. It would also not have been appropriate in our culture to ask them to meet outside the school; so, gender issues interfered with parent's interviews. I interviewed the five case's mothers, to find more about their family culture, interests, needs, learning, medical history, sleep system, and social interaction. The choice of these points of focus was influenced by the literature review in that I asked mothers about factors that previous research has shown may affect children's attention span (see section 6.4.). After these interviews, one case was excluded when her mother revealed that she has been diagnosed with special needs, specifically the child's medical report showed her to have a mental age one year under her chronological age. I had to exclude this case since his research will focus on children who perform at the lower level of what is considered a normal attention span. Children with cognitive learning challenges and special needs might need interventions outside of the scope of this research.

4.6.4. Assessment of cases

The first step of the individualised instruction was for the teacher to assess the children's knowledge of early numeracy and literacy skills in order for us to develop the child's individual record, that will be introduced in the next chapter. Teachers asked the children individually to identify numbers from 1 to 15, letters from previous lessons that they had already learned, and some circle time concepts. The process of assessment started by discussing with the teachers, elements of the observation data and the child's work which revealed that child's need to improve numeracy and literacy skills. Following this, the teachers decided the assessment methods that they found it suitable.

I gathered some samples of the children's worksheets and registration documents and analysed data from these documents, focusing on recording any challenges that cases faced in tasks. For example, one of the cases faced difficulties in writing the specific letter ط. The aim here was

to help the teacher point out children’s needs so that they could write the individual child’s information record with me.

4.6.5. Part two of the study the action and the intervention

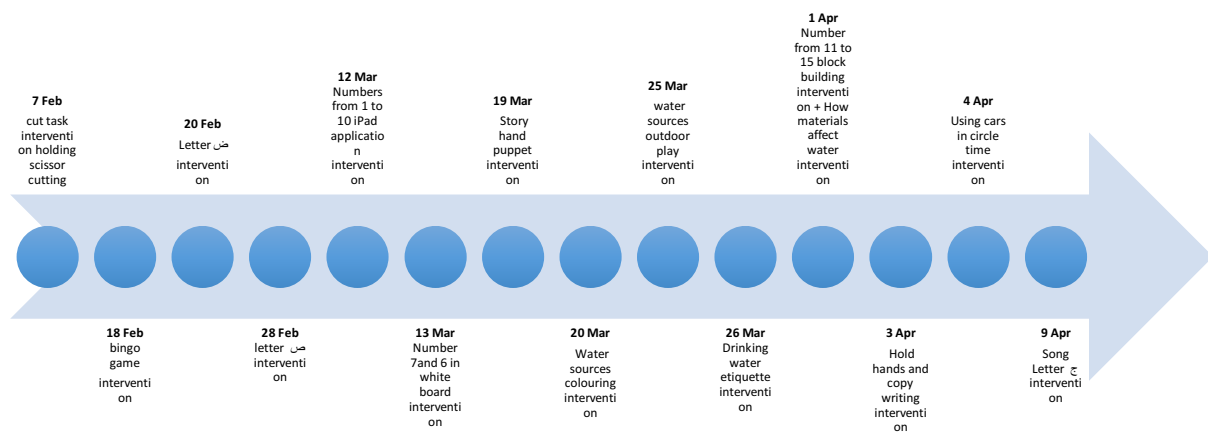


Figure 4: A summary timeline of how the intervention was implemented with children.

This phase started on 7th February 2018, as shown above in Figure 4. I worked with the teachers to plan and implement individualised small group instruction activities. The intervention was used as a method to explore the impact of implementing individualised small group instruction on children’s learning and attention span (see section 4.3.3). The teachers and I collaborated in designing the intervention. The teachers played an essential role in planning and implementing the intervention based on sources of individualised instruction that I had translated from English language sources, since there were no sources on this instruction in Arabic contexts.

This phase included four steps:

1. Write the individual child’s information record, identifying their family, interests, needs, abilities, health issues, and social interaction (Gronlund, 2016).
2. Prepare individual adjustments and plans.

3. Implement individualised and small group instruction.
4. Observe the child’s attention and learning during the intervention, recording data by means of notes and, wherever possible, by video recording.

4.7. Data analysis process.

The data collection processes described above led to large data sets for each child with different forms of data, including field notes, interviews with children, teachers and mothers, photographs of children in their classroom setting and play areas, and videos of children’s learning processes and interaction with other children. In addition, data was gathered from each child’s portfolio that was used by teachers, including their worksheets, notebooks and registration documents.

During part 1 of data collection (before the intervention), the teachers and I worked to produce the content of the individual child information records; we constructed vignettes through meshing together data from various methods of data collection as observation, interviews and children’s portfolio analysis (see section 4.4.). In this record, the child’s interests, the family culture (focusing on the child’s favourite methods to learn at home from the mother’s perspective), the child’s needs, the child’s abilities and social interaction were collected to inform the action and the intervention was subsequently developed with the teachers.

Table 4: Types of data collected, with details of the methods used

<i>Data forms</i>	<i>The data collection methods used</i>
Field notes	Observations and informal conversations with children and teachers.
Semi-structured interviews	Face-to-face semi-structured interviews with children, their mothers and their teachers, recorded by my phone audio recording app.
Child’s portfolio	Review a sample of the child’s work and a record of his/her registration documents.
Visual ethnography	Record video footage and take photographs of the children’s behaviour and regular

	interactions during the school day, using my phone.
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In considering methods of data analysis, first, I interrogated my main purpose in analysing the data, which is answering the research question. After extensive reading, I determined this to be organising, describing, and interpreting the data in order to produce a clear final report that helps the readers to understand the research journey and the phenomena being studied (Braun and Clarke, 2006). In addition, I realised that I was looking for a flexible approach. In this regard, the thematic analysis approach seemed suitable as it is described as a highly flexible approach, that can be easily modified (Braun and Clarke, 2006) and is not tied to a specific theoretical framework (Willig, 2013) but suited to any paradigms (Braun and Clarke, 2006). Grbich (2007, p.16). has identified thematic analysis as ‘a process of segmentation, categorization and relinking of aspects of the data prior to final interpretation’. Matthews and Ross (2010), meanwhile, described the thematic approach as a recursive process starting from raw data and going back and forth with that raw data. Accordingly, I decided to use thematic analysis to work with my data. In doing this I closely followed Braun and Clarke’s (2006) phases of thematic analysis (see Table 5).

Table 5: Phases of thematic analysis (from Braun and Clarke (2006, p.87).

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

The process of analysis started with transcribing the interviews that I had done with teachers, mothers and children in Arabic. Then I translated parts of those transcripts that included information I considered potentially relevant to the research questions or connected to the theoretical framework or issues identified in the literature review. As participants and researcher in this study are native Arabic speakers, some issues of using non-English data to write an English study could result in nuanced meanings being lost in translation, translating culturally bound expressions in translate a quote (Van Nes et al., 2010). In order to ensure the quality of the translation and avoid such issues, a sample of the translated transcripts was anonymised and peer-reviewed by two of my colleagues who are native Arabic speakers and fluent in English.

Another strategy I used in translating culturally-specific words was direct translation of meaning; being bicultural and familiar with Saudi and western cultural was useful to address this issue. This process of transcription and translation was the first phase of familiarising myself with my data. Then, in order to organise the data, I worked to break it into smaller chunks to make it easier to work with. At this stage, bubble maps were shared with a few critical friends (i.e. my supervisors, and other students); their role was to review and provide feedback that would give me the chance to see my maps from different angles. Figure 5 is an example of one such map, in this case created with data from teacher interviews and produced while I was looking for information about the current teaching instruction and its relevance to children's needs for later comparison with individualised small group instruction. In this case, it was interesting that although the three teachers were working in the same class, using the same lesson plans and implementing the same activities, they provided three different answers during interviews.

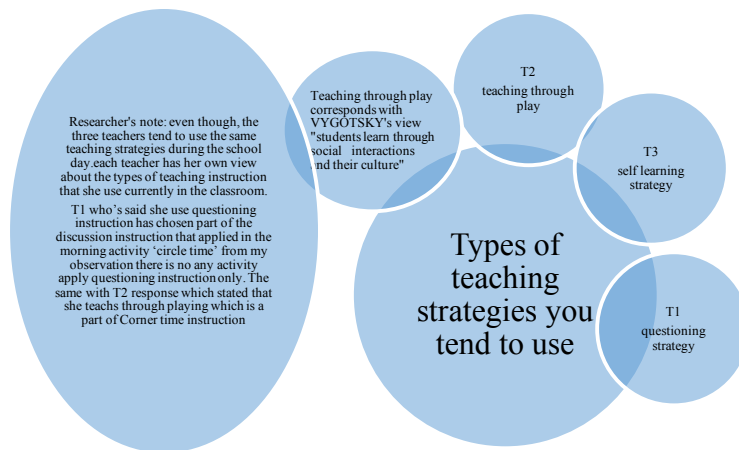


Figure 5: A bubble map used to analyse teachers interview data

Then I wrote a report for each of the four children. Initially, I used a different colour to highlight each child's name in the field note book (see Figure 6).

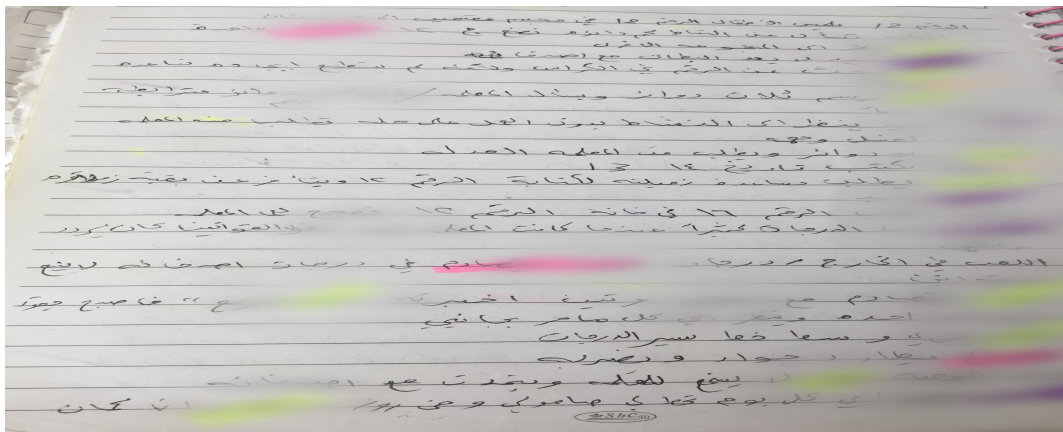


Figure 6: Highlighting cases names in different colours in a field note book.

Then, I translated the field notes and the children's interview transcript, combining them with visual ethnography data, such as photographs and videos, in order to write four reports. The visual data was used as follows. During the data collection period I viewed visual data that I had created either, a) because it linked to the information that I was looking for to answer the research question or, b) because it was interesting and worth more explanation from the children themselves to capture their point of view about their behaviour and interactions during the school activities. During the analysis stage, however, I treated visual data as tools to develop the findings story that I wanted to tell. Creating visual data to represent those children's

stories is a hard process (Banks, 2001). Since the meaning of the visual data can be viewed differently by different readers (Banks, 2007), creating and using the visual data to communicate an accurate and clear meaning to the reader requires continually assessing visual data accuracy. This is done by asking the children for their interpretations / views of the visuals record and by monitoring the quality of analysing and using the data.

By the end of this stage, I had analysed data set separately and also collectively, by putting the data together for each child and looking across all the data for that child. Through this process I produced four reports, each including the child’s name, age, gender, family, special experience, daily actions, and experiences with formal teaching instruction and the interventions. Another two documents were dedicated purely to teachers’ and mothers’ data. Next, I read the report to generate codes, which was the second phase.

4.7.1. Coding process.

Codes were inspired by both emic and etic understandings of teaching and children’s learning and attention span. In contrast to a theory-driven approach (etic), where the categories (codes) selected are set according to a present theory, here codes were generated by merging ideas from the literature review and data (emic). Tables 6 and 7 below identify the development of both theory- and data-driven codes (DeCuir-Gunby, Marshall and McCulloch, 2011).

Table 6: Description and examples of the theory-driven codes.

<i>Code</i>	<i>Description</i>	<i>Example</i>
<p>Inattentive code:</p> <p>1. Sub-code: does not look at teacher or the task direction.</p>	<p>The direction of the child’s eye gaze is recorded as a sign of child attention. If the child does not look at the teacher or task this is a sign of inattentiveness. This sub-code was theory-driven from Pellegrini et al. (1995, cited in Holmes, Pellegrini and Schmidt, 2006).</p>	<p>When the teacher is showing the class a picture for different types of fish, Saud is looking at the classroom ceiling. Field note data.</p>

<p>2. Sub-code: speaks about topics that are irrelevant to the task and disturbs other children or the teacher.</p>	<p>During the lesson, the child disturbs his classmates or teacher, speaking about an irrelevant topic or touching their classmate's body. This sub-code was theory-driven (Gurley,2011).</p>	<p>Ali disturbs other children while they are listening to the teacher; he is speaking about video games.</p>
<p>3. Sub-code: easily distracted</p>	<p>The child is easily distracted by outside movements or noises. This sub-code was theory-driven (Gurley,2011).</p>	<p>During circle time Saud looks at classroom door when someone opens it. He follows the people at the door's conversation by looking at them and listening to them.</p>
<p>4. Sub-code: left task unfinished</p>	<p>The child left a task incomplete, moving to another task. This sub-code was theory-driven (Gurley,2011).</p>	<p>In a writing task, children need to complete a worksheet which involves copying letters and words. Ali writes the letters but leaves the word box empty.</p>
<p>Attentive code:</p> <p>1. Sub-code: looks at the teacher or task direction</p>	<p>If the child looks at the teacher or task direction this is considered to be a sign that he/she is attentive. This sub-code was theory-driven from Pellegrini et al. (1995), cited in Holmes, Pellegrini and Schmidt, (2006).</p>	<p>During practical circle time, Khalid looks at the teacher, following her steps to cut vegetables.</p>
<p>2. Sub-code: completes the tasks</p>	<p>The child shows ability to complete a task. This sub code was theory-driven (Gurley,2011).</p>	<p>Norah finishes worksheet circle word with letter B. She circles all words</p>

		with the letter B independently.
biological and physical: sub-code: irregular sleep	Lack of sleep is a factor that may result in lack of attention (UC Davis Health System, 2015).	Ali's mother states that he has a messed up sleeping schedule which might affect his attention. A teacher provides the same statement, agreeing with the Ali's mother that his irregular sleep affects his attention and learning.

Table 7: Description and examples of data-driven codes

<i>Code</i>	<i>Description</i>	<i>Example</i>
Inattentive code: 1. Sub-code: did not answers teacher's question.	The child remains silent when the teacher asks him/her a question. This sub code was data-driven.	The teacher asks Khalid 'Could you please describe the girl in the picture?' Khalid keeps silent and touches his shoes. The teacher asks him another question: 'What is the girl's skin colour?' He does not respond.
Attentive code: 1. Sub-code: answers teacher's questions	During circle time, the teacher usually asks some questions. If the child answers these correctly (or tries to) this is considered a sign that the child is being attentive. This sub code was data-driven.	The teacher asks Norah a routine question about the first migration of the prophet Mohamed. Norah provides the right answer (i.e. from Mecca to Medina).

<p>2. Sub-code: asks questions about the lesson topic.</p>	<p>The child seeks knowledge and asks questions about the lesson or task. This sub-code was data- driven.</p>	<p>In a writing activity Khalid faces difficulties in writing a letter. He asks his classmate how one should write that letter.</p>
<p>3. Sub code: participates in lesson discussion.</p>	<p>When there a discussion in the classroom the child participant explains his/her point of view. This sub-code was data-driven.</p>	<p>At mealtime, teacher and children are discussing types of sandwiches. Saud said ‘I have roll sandwiches. My mom made them for me’. Ali says, ‘Me too, I have rolls’, Saud tells him, ‘This is toast, not rolls’.</p>
<p>4. Sub-code: shows a high level of engagement.</p>	<p>The child shows a high level of attention and interest in an activity. This sub-code was data-driven.</p>	<p>Visual ethnography data (video). Saud is watching a video in the computer centre. He is wearing headphones and showing a high level of engagement. He is listening, watching and reacting to the events in the cartoon, and making comments like, ‘Ooh the boy fell to the ground!’</p>
<p>The study environment</p>	<p>One of the children’s mothers state that the study environment is a factor that affects her child’s attention.</p>	<p>Khalid’s mother believes that the environment could affect Khalid’s attention. She states that, in his study time, no family member should be around as he usually faces difficulties avoiding distractions.</p>

Teacher beliefs	Interviewing the teachers about their classroom practices reveals a tension between teachers' beliefs and their classroom practices.	Teacher Sara believes that children learn better through play, and that using their senses and material resources can improve their learning. Observation data showed that Sara tended to use whole class instruction in circle time activities and guidance strategy in centre time activities.
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4.7.2. Searching for themes

The third phase of analysis, searching for themes, started with the bubble mapping techniques which helped to organise and present the interesting aspects of the data so as to allow coding, theory-related material, sub-questions that I developed before data collecting (see 5.1). I developed four initial draft themes that I planned to investigate further.

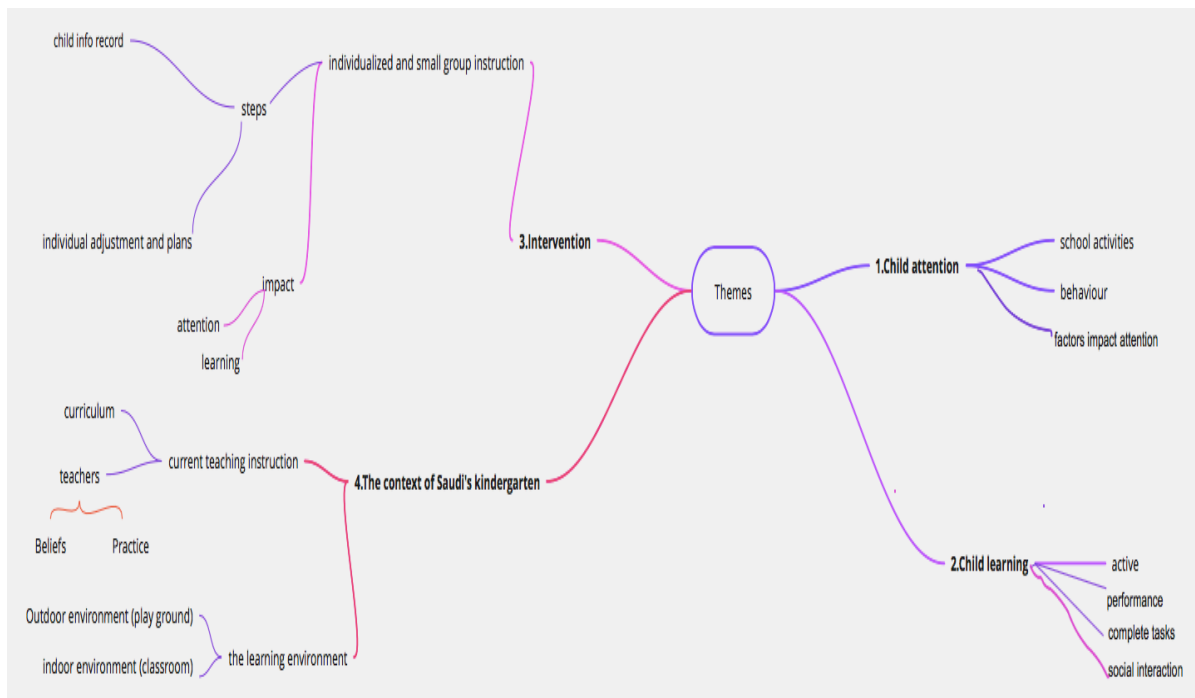


Figure 7: Searching for themes mind map

The process I used to develop this map of themes was inductive and deductive, since I used data generated from observations, from interviews, student portfolios and coding, and from theory-related material and sub questions that I developed before data collecting to drive the themes. First, I highlighted the biggest concepts in the research question, such as individualised small-group instruction (intervention), child’s attention and child’s learning. Then I collected the relevant codes that fitted with these concepts. The focus of the fourth initial theme was to find out the similarities and differences in the three previous themes after the intervention. Finally, I identified a total 6 themes and pasted related codes under each theme, which are presented in Table 8.

4.7.3. Definition of themes

Table 8: Definition of themes

<i>Codes</i>	<i>Themes</i>	<i>Theme definition</i>
Inattentive code Attentive code	Determine children’s attentive and inattentive behaviour	The theme represents the variance of children’s attention level and indicators of attention problems during school activities. The purpose of the theme is to select participants who suit the criteria of my selective sampling, and determine their child attention span during school activities and the interventions.
Teacher practice Teacher beliefs Assessment	Current teaching instruction and its relevance to children’s learning and attention behaviour	This theme represents the relationship between the current teaching instruction and children’s learning and attention span so

		as to compare the findings later with the individualised small group instruction.
<p>Irregular sleep</p> <p>Social issues</p> <p>Spoiling</p> <p>Motivation</p> <p>Nutrition</p> <p>Difficult task</p> <p>Very easy task</p> <p>Health issues</p> <p>Excessive use of technology</p> <p>Study environment</p>	<p>Factors affecting child's attentive behaviour and learning</p>	<p>This theme presents factors that teachers and parents think affects the child's attention.</p> <p>The purpose of this theme is to collect information about the individual case, since developing the individual plan requires a deep knowledge of the child.</p>
<p>Child's interests</p> <p>Child's needs</p> <p>Child's abilities</p> <p>Child's family culture</p> <p>Child's health issue</p> <p>Child's social interaction</p>	<p>Individualised instruction elements</p>	<p>This theme represents the aspects of individualised instruction and includes six elements that collected for the individual report before the interventions, so the teachers should consider these elements when planning the tasks.</p>
<p>Imitation</p> <p>Collaborative</p>	<p>Socio-cultural learning</p>	<p>This theme is theory-related material and links concepts generated from</p>

Teacher guidance Peer guidance Social mediated process Scaffolding Cultural influence ZPD		the theoretical framework to the data.
Child's performance Peer interaction Level of peer support Level of teacher support Inattentive code Attentive code	How individualised and small group instruction affected children 'attention span and learning	This theme presents the results of the intervention (individualised small group instruction). To answer the main research question about how the new teaching instruction can benefit the children's learning and their attentive behaviour.

4.8. Validity and reliability

Bryman (2015) explains reliability as the ability of the research to be replicated, so that results of a research study can be relied on. Validity also refers to the truthfulness and accuracy of the research process and data (Hitchcock and Hughes 2002) and to whether an indicator or set of indicators that are devised to gauge a concept really measures that concept' (Bryman, 2015, p. 158). The most common way in which validity can be achieved is through triangulation or a diversity of methods. Triangulation means using more than one method or source of data in the study of social phenomena (Bryman, 2015). This shows how an initial idea or hypothesis may be confronted from different angles (Hitchcock and Hughes, 2002).

However, in qualitative research, trustworthiness and its components replace more conventional views of validity and reliability (Lincoln and Guba, 1985 cited in Cohen et. al., 2013, p. 220). Credibility replaces the internal validity of a piece of research and relies on the

use of multiple data sources; a strategy which also enhances data credibility. Many qualitative researchers describe parallel concepts such as credibility, dependability, confirmability, and consistency as appropriate qualitative correlates to reliability, while others avoid the purposeful quest for reliability altogether.

In the context of this study, dependability replaces reliability – this means that it intends to show that the findings are consistent and could be repeated (Lincoln and Guba, 1985; Jensen, 2008). Dependability can be achieved through providing a detailed description of the research procedure and interpretation in order to provide a basis for an understanding of the findings and enable the reader to judge the quality of the research. With the aim of achieving dependability, the current study used an ethnographic method, which is one of its distinctive features - this enabled the researcher to provide detailed descriptions of what happened in the study setting.

4.9. Reflexivity

Reflexivity is a philosophy and the approach taken in this piece of research. ‘Reflexivity is an approach researchers can apply to bridge the gap between themselves and the researched’ (Cocks, 2006, p.262; Wasserfall, 1997, cited in Heyl, 2001). Being reflexive requires self-analysis, exploration of the researcher’s impact on the research process and critical questioning of how the researcher’s personal assumptions influence interpretations. In children’s studies, reflexivity is considered an essential part of the research process, where researchers should provide critical self-reflection of ‘their role and their assumptions and the choice of methods and their application’ (Davis, 1998, cited in Punch, 2002, p.323). However, a reflexive approach is highly demanding in this type of research due to the concern that researchers’ ‘ethical principles, previous experiences, and their institutional ethics requirements’ obviously appear in the frame of their research (Davis, 1998; Flanagan, 2012; Guillemin and Gillam, 2004; Lahman 2008; Skovdal and Abebe, 2012; Spyrou, 2011 cited in Powell et al., 2016).

In this study, I wrote a reflexive diary to describes my personal reflections on the fieldwork, my feelings, how my presence and perspectives impacted the data or the participants’ behaviour, and Vygotsky’s ideas. This diary is written with the aim of better understanding of how my own assumptions, values, and attitudes might affect the conduct and interpretation of the researcher. As I was born and grew up in Mecca, I consider myself as a part of the social world being studied, sharing with them the same nationality, social values and beliefs. Based

on this, recording my thoughts and feeling was important to ensure that they would be kept separate and compared with the participants' perspective in order to prevent biases.

My experience of living and studying in the US and the UK also has affected the way I see the data. For example, my accommodation in both the US and UK is few minutes away from a public library that include a children's area, equipped with appropriate materials. That made me realise, while analysing the data, that children in many cities in Saudi do not enjoy such facilities, which is definitely one of their rights. Moreover, my role and position as a researcher in this study, supported by the critical realist paradigm, encourage me to acknowledge the biases that my presence in the research context can create. For instance, based on my experience in our culture, most Saudis do not like to have someone observing them in their workplace. Initially, I tried to make a good first impressions on participants, which is an important step for all relationships types. I achieved that goal by being thankful, respectful, kind, and telling teachers how much I personally appreciated their hard work with the children. With children I did the same and tried to answer all their curious questions. Also, in the very beginning of my observation I did not use any paper or pen to record what I saw. I believe that the participants needed time to prepare themselves for research seeing me writing what they are doing and saying might not have been appropriate, since I was still considered a stranger at that time. It is worth mentioning that none of the participants had any experience of taking part in ethnographic research before. Since ethnography is still an emerging method in Saudi, I did not find any ethnographic research in Mecca however, it had been used in other parts of the country, such as in the capital. Further, I discussed my tentative themes with the teachers by reporting my findings back to them to encourage a questioning of my interpretations. The participants' interpretations help me triangulated the views and actions from multiple sources of knowledge – those of teachers, children and mothers- with my own view.

4.10. Ethical Considerations

This study takes into consideration a number of ethical issues. First, the research was conducted after a written Ethics form was completed by the researcher, then it was approved and signed by her lead supervisor and the director of studies to ensure that participants of research conducted under the auspices of the university were treated in such a manner that their wellbeing would not be compromised. The permission from the Ministry of Education in Saudi Arabia for data collection was a standard and lengthy process that is intended to confirm that

consent of participants would be satisfactorily addressed, as will be discussed in more details in this section.

Informed consent is a central ethical concern. This is a process that occurs at the initial point at which a participant makes the decision to be a part of a research project or not based on their understanding of the nature of the research (Diener and Crandall, 1978, cited in Cohen, 2013, p.78). The process they describe, consists of four elements. The first is the ‘competence’ of the potential participant to make a decision about their participation and which the researcher needs to ensure in advance. ‘voluntarism’ is the second element and refers to the participants’ freedom to decide on being part of the research without any restraints. The third element is the ‘full information’, which the participant needs to have about the research prior to giving consent. The last relates to participants ‘comprehension’ of the different aspects of the research and any related potential risks. Each of the above elements inform the process of gaining informed consent for this research project.

The ethical concerns in action research include being critical about the impact that the study will have on the children, respect for children’s rights and dignity, and decreasing anxiety and distress that may occur due to participation. As the intervention in this study considered the child’s individual’s interests, needs and abilities, the teachers and researcher frequently reminded the children about their right to stop participating in the intervention’s activities. Moreover, the children were allowed to speak and be heard freely to voice their views about participation in the research, which was a central part of the research process. I made every effort to ensure that the setting was friendly and comfortable, and the children were always in control, children’s verbal and nonverbal reactions that indicated discomfort were carefully followed to stop collect the data.

4.10.1. Informed consent

4.10.1.1. The Ministry of Education, Teachers, and Children’s parents

First, I obtained a consent letter from the superintendent of the school district in Mecca and the Saudi Arabian cultural bureau in London (see Appendix 6). The kindergarten classes which I used as my research field are those nominated by colleagues and visited previously during my employment period as a lecturer at Umm Al-Qura University in Saudi Arabia. The kindergarten teachers were made contact with during that time. Nominations from former colleagues were based on those teachers’ diligence and creativity as well as their consent to participate in this

study. I contacted the teachers who had shown interested in the study and were sympathetic to the research process and willing to be involved in a research study. Finally, I met the school principal and teachers, and I gained their permission to use their school as the research field for this study (see Appendix 4). This was followed by the meeting with nominated teachers and parents to describe the steps involved in the research, I listened to their suggestions, and responded to their queries. Another crucial step was to obtain a signed consent from the parents to include their children as subjects in this study (see Appendix 5). The form has addresses issues of confidentiality and anonymity of the identity of the participants and data collected. Furthermore, as part of research process, parents were requested to sign an agreement to take part in interviews about their children as part of the research process.

4.10.1.2. Children's assent.

The study aims to obtain consent from the child participants, although the nature of the consent is clearly different in this case (BERA,2011). Based on my convictions that it is a participant's right to know the researcher's aims, I explained who I was and why I was there. To do that with children I used a story method, since it is a popular method of sharing information with children in our culture and it was an age-appropriate format for the child participants. My brother, who is an artist, drew me as a cartoon character (see Appendix 8). Then, I designed the story in PowerPoint slides, the children sat in a circle on arounds the carpet, facing the whiteboard that the slide was being projected onto, I sat next to the whiteboard simply telling them my story and why I was there in a way that could enable them to understand the research information and respond to it. Next, I asked them to hold the colourful ice cream stick that had a happy face on one side and a sad face on the other said to express their feelings about becoming a part of the research. I explained, after telling the story to children, that if they agreed to help me and become a part of my research they should show me the happy face side, and if they did not want to be a part of it, then turn it to the sad face, or if they needed more time to think about it, just to put their masks on the carpet. All the children showed me the happy face except one child who decided not become a part of my research (see Figure 8). I granted the boy his wish to opt out of the study by avoiding collecting any information about him and keeping him out of the visual data. As this research focused on a numbers of cases, his response did not impact the data collection.



Figure 8: Children give their informal assent to become a part of the research.

One issue about using this method appeared when the teacher, Sara, who was seated with the children during the assent process said in a questioning tone, ‘Wouldn’t it be great to help the researcher answer her questions?’, to which some of the children replied ‘yes’.

Sara then asked, ‘Who would like to help the researcher?’

This could be described as encouragement while the teacher should not encourage students to assent to doing the research. Encountering such a situation is unavoidable in a natural setting. It would be preferable however, next time when using this method, to ensure that the teacher is clear about her role during the assent process, that is, remaining outside of it, to enable children to assent freely. It is very important that children feel no implicit pressure to participate. Nevertheless, that one child felt able to withdraw is indicative that the children had understood their right to assent or not.

4.10.2. Security, confidentiality and anonymity

Issues of confidentiality, anonymity, and security of the data are crucial to address once the data collection stage is completed. Confidentiality of the data is one important part of the research ethics and confirmed on the consent form. Maintaining participant confidentiality was explained to the participants as early as the first meeting with each group (i.e. teachers, parents, and child participants). Second, I fully explained that all data would be kept securely in a folder on the researcher’s laptop and iPad, which would be password protected, and that the researcher

would keep the data until the end of the PhD study. Moreover, during this time only my supervisors and I had the right to access and use the data. After that, data would be completely deleted from the stored folder, only anonymised transcripts of data that supporting the research findings would be kept.

Furthermore, anonymity would be maintained at all stages of the study. All details related to the identity of the participants and the location of the school were strictly anonymised. Data collected in a kindergarten was done so under a Memorandum of Understanding (MOU) between the school principal and the researcher; this was signed prior to the start of the research process and all data was anonymised under this MOU. Two steps were taken to safeguard the identity of the participants, including the children. First, I used pseudonyms for the children, teachers and school. Second, as I was filming and photographing activities in the classroom, the faces of the students were obscured and may show only the back of children's heads. Finally, it is important I noted that in interviews held prior to the data collection, that withdrawal from the study was granted as an option to the children, their parents and the teachers at any point of the study.

4.11. Chapter summary

This chapter has highlighted the different aspects of the research methodology that were considered and adhered to in this study. First, it discussed the interpretivism paradigm, then it discussed the importance of using action research partly informed by elements of ethnographic methodology. Detailed description of the procedures of the field work and research participants were explained in depth, together with the data collection methods and data analysis tools. Finally, the importance of the researcher's reflexivity and issues of reliability and validity of the research were presented. The chapter also provided a detailed explanation and rationale of my research decisions and strategies and how researching with vulnerable populations (children) was managed. The study's findings will be presented in the next chapter.

5. Findings: presentation of data

5.1. Introduction

Chapter five presents the findings of this research in relation to the research question: To what extent does individualised and small group instruction affect the attention span and learning of mainstream kindergarten students (5-6 years) in a Saudi Arabian context? The chapter presents the findings of the research I conducted with four children - Khalid, Saud, Ali and Norah - within a single public kindergarten classroom in Mecca, Saudi Arabia. The chapter analyses each child's strengths and needs as learners, and their experience with the old and new methods of teaching instruction; that is, the intervention. Since the curriculum is a key component of the teaching and learning process, it is important to take this into account in order to provide a comprehensive understanding of the children's stories. This chapter is therefore divided into five parts. In the first part, I set out the particular sub-questions that guided my data collection with a view to answering the overall research question. In the second part, I summarise the context of Saudi public kindergartens, including their curriculum. In the third part, I introduce the classroom teachers, discuss their practice and beliefs regarding teaching and children's learning. In the fourth part I present the four cases' journey during the data collection, analysing the findings before, during, and after the interventions. The final part summarises the chapter.

Prior to commencing data collection, I developed sub-questions aimed at ensuring that the process of collecting and organising data was focused on answering the overall research question. Accordingly, the data is presented in this chapter with respect to these sub-questions. However, these six sub-questions were limited to questions posed prior to the intervention, so the core issue of the children's response to the intervention will be discussed under the cases' section.

1. What is the classroom culture, curriculum, routine activities and relationships?
2. What types of teaching instruction do teachers use currently in the classroom and how do these differ from the individualised and small-group instruction?
3. Is there any important data on children's behaviours, performance and attentiveness in the classroom that can be captured before, during and after the intervention?
4. Are there factors that teachers and parents think affects the particular child's attention?

5. What is the participant child's needs, interests, health issues and favourite methods of learning? (This question was sub-divided to collect specific data during the data collection period).
6. What do teachers and the researcher need to know and do in order to develop individualised instruction activity plans?

First, I will illuminate how these sub-questions help to answer the main research question. Since the main objective of the fieldwork was to analyse the impact of individualised small-group instruction on children's attention and learning in a kindergarten, so the key element in the study as a whole is the relationship between the nature of teaching instruction and children's learning and attention. It is therefore important to describe this relationship before the intervention so as to be able to explore how this changed during it.

Questions 1 and 2 were addressed at the beginning of the data collection period in order to find out about the research setting and the classroom culture. This enabled the researcher to understand the educative, behavioural and social processes taking place in the setting in order to draw a full picture of the research problem. Moreover, these questions focus on how teachers teach children in this kindergarten classroom, specifically, what types of teaching strategies they tend to use and why. In order to answer this, it was necessary to observe teachers' interactions with children during various activities, with a particular focus on how these interactions affected children's attention behaviour and learning (see section 3.6.4 for more details about assessing children's attention behaviour and learning). These two questions also elicit data on the teachers' perspectives about their teaching instruction, as well as on the nature of the teacher-child interactions and the classroom environment. Question 3 relates to the children's behaviours, performance and attentiveness observed during regular activities to find out how they might differ during intervention activities. Questions 4 and 5, meanwhile, aims to collect the data needed to write an individual child information record, which is the first step in individualised instruction. Question 6 relates to my work in partnership with teachers to prepare the learning resources needed for individual plans. The answers to all these sub-questions were collected before the intervention and were then utilised to design the intervention in collaboration with the teachers.

These sub-questions influenced the data that I gathered, since I entered the classroom holding these questions in mind looking for specific data to answer and ways to answer it. The sub-

questions worked as an umbrella for the information that I was looking for. They also helped me plan the data collection stages (See Appendix 1), which explained how the above questions established specific paths for me to follow in order to collect the data that I needed.

5.2. Data from classroom

5.2.1. Curriculum

Curriculum in this study refers to the subjects that should be taught in school, and how the Ministry of Education expects them to be taught. The self-learning curriculum (SLC) is the official curriculum in Saudi Arabia's public kindergartens. It was introduced in 1991 by the General Presidency for Girls' Education which was responsible at that time only for girls' education (Ministry of Education, 2019). The SLC is a result of an agreement with the United Nations Educational Scientific and Cultural Organization (UNESCO) and the Arab Gulf Programme for Supporting Developmental Organization to develop childhood education in Saudi (Ministry of Education, 2005). The SLC was updated in 2005, and according to Badawood (2006, cited in Bahat heg, 2011), it did not include any radical change in the curriculum's units, instead focusing mainly on redesigning the teachers' book to become more practical for teachers. The SLC is a curriculum that focuses on children's self-activity by providing children with opportunities to learn independently and interact with their educational environment in order to explore and develop their abilities (Ministry of Education, 2005). The curriculum is built on ten thematic detailed units, for which each unit has its own book; the period of teaching this type of unit is three weeks. The summary units come in one book and the period of teaching these units is two weeks (see Figure 10). The Ministry of Education supplies the teachers with two books that guide them in implementing the SLC in their classroom. These are the Thematic Unit book, which includes a full description of each unit, explaining its goals, materials and concepts, and the Teacher Manual Guidance book, which contains six chapters (general goals and objectives, guidance for children's behaviour, organising the learning environment, daily routine, preparation for the academic year, and planning and structuring the educational units).

The interviews conducted with the teachers in this research showed that teachers are following the lesson plans provided in those books strictly, which affects their teaching in terms of the subjects they teach and how they organise the activities. During the interviews, teachers provided the following answers in response to the following question 'What is the extent of

freedom that you have to change the teaching instruction from that provided in the curriculum?’

Sara responded in the following way:

‘It is not impossible to make the changes, but the head teacher discusses with us adding very simple suggestions to lesson plans, but this does not cover everything in the lesson plan. For example, in teaching personal cleanliness in the My Health and Safety unit, lessons come in different levels as you know, we have three levels in the kindergarten and children who joined the third year directly missed lessons in year one and two. I suggested that we could provide the lessons for all three levels during the third year this year, but the head teacher refused. This stand against my suggestions caused conflict between us’

(Teacher interview, 29th January, 2018).

Raja said, ‘we can discuss the lesson plans with the head teacher, but it is difficult to make changes’ (Teacher interview, 31st January, 2018), while Mariam said, ‘I can add very simple things, like types of books or stories in the reading centre, but the change should not contradict the Ministry of Education’s objectives’ (Teacher interview, 1st February, 2018).

In the light of these answers, it was clear that the teachers in this research played only a very limited role in changing subjects and teaching instructions that come from the Ministry of Education. They agreed that they had to apply the lesson plan that came from the Ministry of Education, with two of them saying this is mandatory, although it was possible to suggest some simple changes in the lesson plan at the beginning of the academic year. The purpose of this question was to check whether the teachers were able to apply different teaching instruction such as individualised and small-group teaching as a way of developing teaching instruction. Overall, the data from interviews and observations showed that teachers believed that they had very limited ability to apply different teaching instruction. Another Saudi PhD researcher that surveyed kindergarten teachers also confirmed that teachers abided strictly to the curriculum. Specifically, Aljabreen (2017) reports a teacher saying, ‘I use the lesson plan that comes from the Ministry of Education’ (p.222).

Despite this restriction on teaching innovation, in phase two interviews (see section 4.4.2.2) the teachers in this study state that it is time to change, or at least develop, this curriculum so

as to design a curriculum that fits better with the needs of the current generation of children. In the phase two interviews, Raja said that:

The curriculum includes lessons that are too easy for the children. I believe children already know the information in these lessons. On the other hand, other lessons sometimes include too difficult information which is complicated for children in this age. For example, in the clothing unit there is a repetition of information that children already know, information like what type of clothes people wear. I would like to provide new lessons, but the curriculum plans restrict my ability to do so. Moreover, I believe we do not need to take children back to the silkworm and the sheep and its wool. We instead need to keep up with the times.

(Teacher interview, 25th December 2018).

Researchers who have attempted to evaluate the SLC have confirmed that one of its weaknesses is the lack of educational activities, such as writing, reading, and maths (Al-Ameel, 2002; Al-Otabi and Alswilam, 2002; Al-Shanawani, 2019). Those findings correspond with the data in this study. Specifically, the observation data shows that only fifteen minutes were allocated in the daily schedule for teaching numbers or letters (as can be seen in Table 9, section 5.2.3). While some of the centres, such as the writing and reading centres, include such tasks, the field note data shows that children usually are not usually being actively encouraged to engage with such tasks. In the phase two interviews, two of the teachers agree that there needs to be more focus on academic activities in order to achieve the curriculum's goals.

That said, the teachers agreed with their colleague Raja's opinion when she said, 'I believe children's families share us the responsibility of reviewing what their children have learned in the school which could help children to gain skills and learn better' (Teacher interview, 31st January, 2018). Indeed, educators generally agree with the idea that a child's education is not purely the responsibility of teachers and schools, but the family also has a significant role to play in supporting children's learning (Goodall, 2015). Some families, however, such as large families or those with parents working long hours, may not have enough time to help their children in learning, even though they try. Implementing individualised instruction may help children in such situations, become better learners by providing them with tasks that meet their needs.

Another issue that appeared from the lens of current research data was that the child assessment system was unclear and not considered to be a fundamental element of the SLC. The participant teachers confirmed that ‘we did not have a clear system to allow us to find out if the child gained the benefit from the lessons or not’ (Teacher interview 25th December, 2018), and ‘we do not have time to assess children’s knowledge or skills frequently. If we got extra time, we could do the assessment’ (Teacher interview, 31st January, 2018). Even the Ministry of Education appears to accept that there is a weakness here. For example, a Ministry of Education supervisor stated that, even though child assessment is vital, since the SLC does not provide a clear process for assessment, many public kindergarten teachers do not focus on it (Al-Shanawani, 2019). Nevertheless, some types of assessment were noticed during classroom observation, like verbal assessments such as ‘good job’, ‘well done’ and ‘keep trying’ and the use of star stamps or smiley faces as feedback on letter and number tasks. In addition, children who faced difficulties with these tasks were asked to try again.

However, since the current research intervention of individualised instruction was planned to meet the needs and abilities of individual children, it was vital to be able to assess each child’s needs and abilities. I worked with the teacher to use different assessment methods, such as observations, direct questions and analysis of the children’s portfolios.

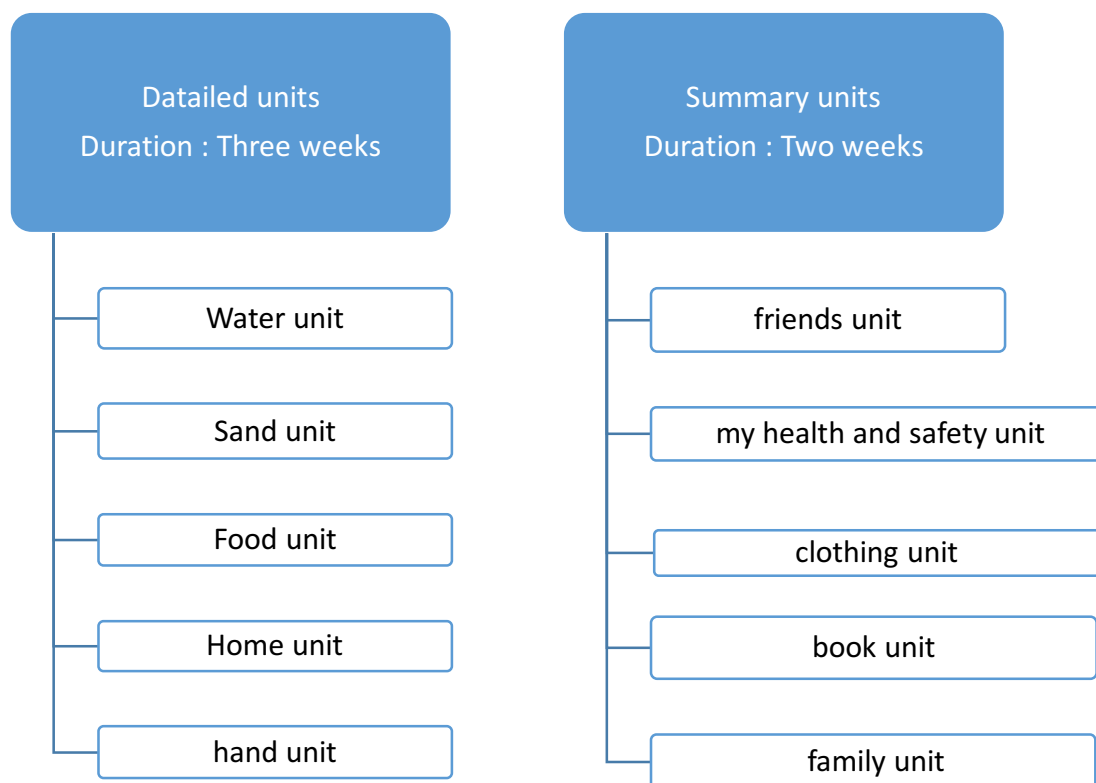


Figure 9: The Self Learning Curriculum Units

5.2.2. The learning environment

5.2.2.1. The indoor environment (classroom)

The classroom space is divided into ten centres: Discovery Centre, Art Centre, Reading Centre, Building Block Centre, Planning Centre, Writing Centre, Computer Centre, Dramatic Play Centre, Individual Centre and Cognitive Centre (See Figure 10). Each centre contains manipulative materials that children can use to play and learn.

The Discovery Centre is based around small experiments that a child can do individually (e.g. a magnifying glass that a child can use to explore materials on the table). Usually, there are brainstorming questions installed on paper holders on the desk, although, of course, most of kindergarten children cannot read the questions, so they need the teacher's guidance. Observation data, however, showed that teachers were not always available to provide this guidance to children using the centre. Children became more active and showed enjoyment in the use of the centre when the teacher asked questions or created conversation with the children, or provided them with the chance to share their discovery work with the teacher.

In the Art Centre, children usually produced small art pieces using various art materials. According to The Ministry of Education (2005), the aim of this centre is help children to express their feelings and thoughts through their artwork as well as to improve their small motor skills by practicing controlling colour pencils and paint brushes.

The Reading Centre is the centre that provides children with various educational books and stories. One of the teachers describes how they can browse books, learn new vocabulary, and describe the pictures to their classmates, using hand puppets to tell stories from books, all of which develop their language skills. The policy perspective on this centre presents the importance of developing children's literacy skills and supporting their desire to read (Ministry of Education, 2005).

In the Block Building Centre, children use different types of construction blocks to build objects. The purpose of the centre is to develop the child's self-esteem through being able to control their work, as well as to shape their cognitive development by exposing them to various

sizes, dimensions, measurements and shapes of blocks. Moreover, it provides a rich social environment for dialogue development (Ministry of Education, 2005).

The Planning Centre usually includes three tasks - cutting skills, matching and a pencil control – with accompanying worksheets that children should complete. The Writing Centre provides children with opportunities to practise writing. The Computer Centre contains one laptop and headphones and aims to support the class environment with technology by allowing children to watch some educational videos.

The Dramatic Play Centre is a space where children can play different roles. The teacher frequently changes the design of this centre to make it fit with the curriculum unit. So, this centre may be transformed into a café or supermarket in the food unit, or a clinic in the health and safety unit.

In the Individual Centre the children can do puzzle boards individually, while in the Cognitive Centre, they can use educational toys for matching, sorting and sequencing activities.

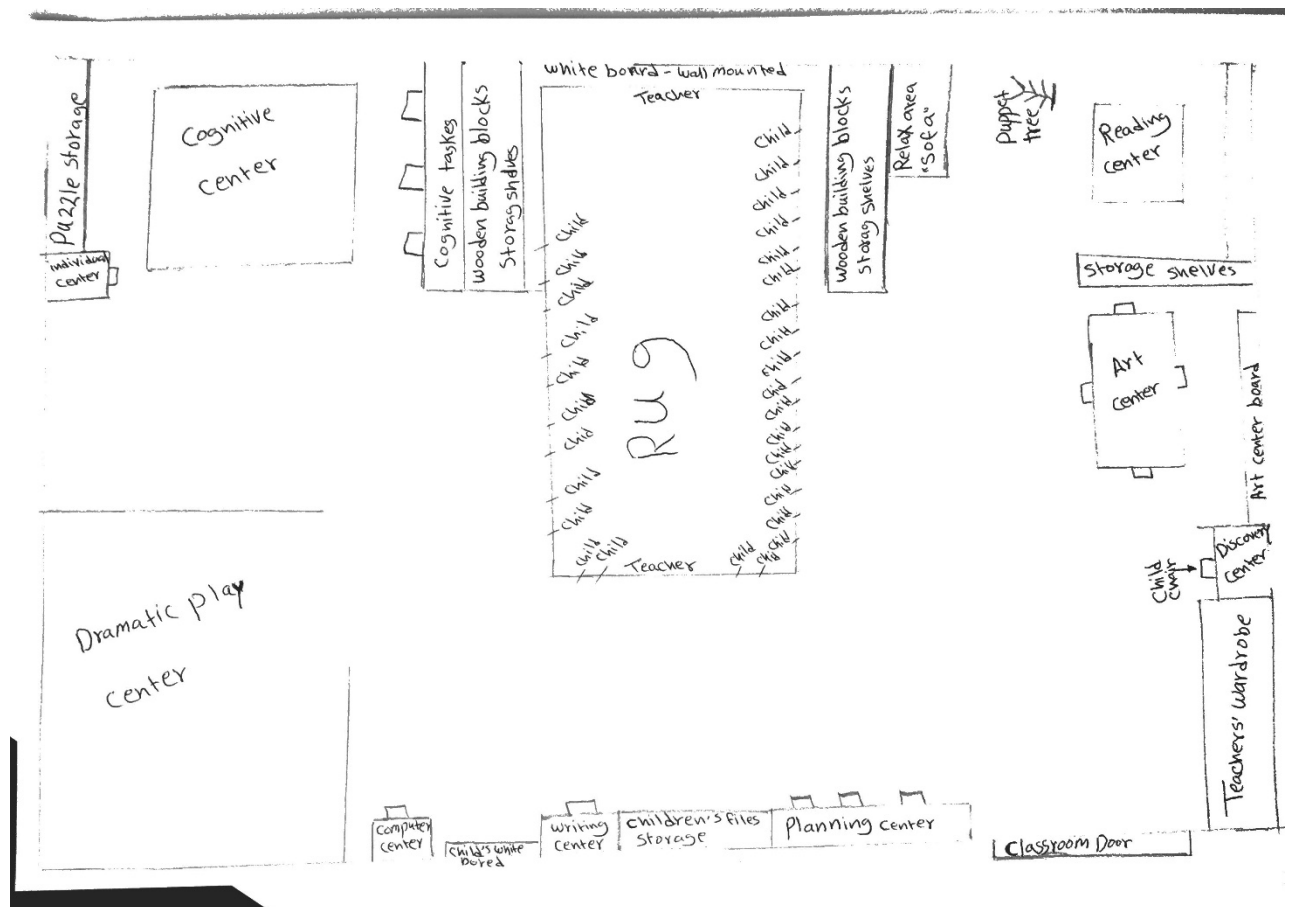


Figure 10: Indoor environment classroom design

As described above, the education centre provides children with a rich learning environment that could be considered fertile ground for the development of their creativity and learning (Abdul-Haq and Al-Felfely, 2014, cited in Aljashaam, 2017). Each centre contains special materials and is designed to allow children use it individually or in small groups to support different aspects of their development, including cognitive, social, language, and motor skills. This tallies with the overall idea of the SLC: to encourage children to learn independently. Teachers have three main roles in respect to centre time activity: to renew the content of the centres to fit with new units, or sometimes new lessons; to deliver an experience for the children (and to switch children between the centres to ensure that no centre exceeds its capacity); and to guide children during this activity.

Observations revealed, however, that teachers provided assistance only if children asked for help, and that there were children who were struggling with tasks but not asking for help. A later section will discuss the impact of teacher's guidance on children's learning during centre time activity. In addition, observation revealed that child-centred activities (namely, centre time and outdoor play activities) comprise only a minority of the overall routine for children in kindergarten. The majority of time is spent on teacher-led activities. This was also shown in Khoja's (2013) study with kindergarten children in Saudi.

5.2.2.2. The outdoor environment (playground)

Outdoor activity is the second child-centre activity that children are exposed to. This involves children playing freely in an environment that is divided into five areas: indoor play area, a sand play area, trampoline, bicycles and a climbing frame. The curriculum advocates the preparation of a safe play environment where children can have the freedom to move, to explore by themselves and develop their gross motor skills (Ministry of Education, 2005). The outdoor play activity is child-centred in that children freely make the choice of using rule and tools available in the area, spending one hour interacting with other children to play and learn.

This activity can link to individualised small-group instruction in ways that might meet children's interests and needs, since the children have the opportunity to work with a small group under the teacher's guidance. To sum up, this part of the daily schedule can support the new teaching instruction that was implemented during this study since both encourage the

provision of a rich environment and social interaction that meets children’s needs and interests under their teacher’s supervision. A map of the outdoor environment that facilitates play for these children can be seen in Figure 11.

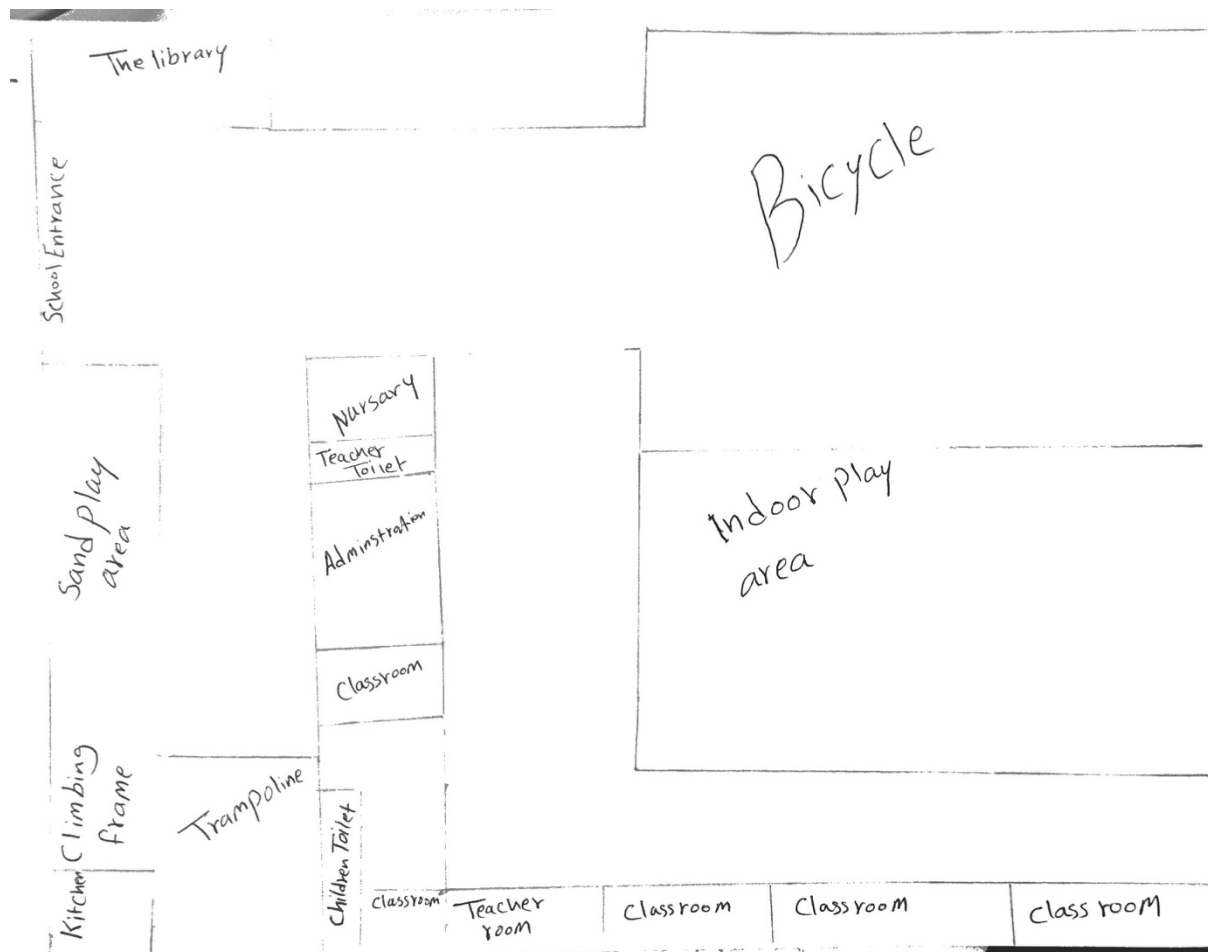


Figure 11: Outdoor environment (playground) design.

5.2.3. Daily schedule

The children’s schedule is the same each day with a variety of activities which last between fifteen minutes and one hour; the majority are thirty minutes or less (see Table 9).

Table 9: Daily schedule.

Activity	Time	Duration
Morning activity (sport)	7:15 to 7:30	15 min
First meal	7:30 to 8:00	30 min
Circle time	8:00 to 8:30	30 min

Free outdoor play	8:30 to 9:30	60 min
Second meal	9:30 to 10:00	30 min
Numbers or letter circle	10:00 to 10:15	15 min
Centres time	10:15 to 11:15	60 min
Last circle	11:15 to 11:45	30 min
Quiet centre play	11:45 to 12:30	45 min
Third meal	12:30 to 12:45	15 min
Teacher preparing classroom	12:45 to 1:30	45 min

5.2.3.1. Description of the activities

For morning activity (sport), children from different classes gather in the indoor playground to have free play and some workout with their teachers. During conversations with teachers, the teachers expressed their support for this activity since they believed that doing some physical activity helped children obtain the energy needed for school day. A number of studies support this belief about the benefits of morning exercise for children. For example, Xu, Byker and Gonzales (2017) showed a positive effect on mathematical performance among children in their experimental groups who participated in morning physical activity. This also served to raise the children's confidence in their academic ability. Park and Moon (2018) also found that morning exercise improved elementary school students' health and fitness and their interpersonal skills. An earlier study in a number of Scottish and Welsh schools found that engaging elementary school students in physical activity improved their academic performance and concentration (Lowden et al., 2001), thus specifically linking to the aim of the current research, to improve children's attentive behaviour. We can therefore deduce that morning physical activity is an important part of the kindergarten daily programme that might have a positive impact on children.

For their first meal, children gather with their teacher in the classroom to eat (usually) dates and milk. Since not all children have a breakfast at home, policymakers in Saudi Arabia encourage teachers to plan the first meal as an opportunity to share healthy food with children. Dates are chosen because Saudi Arabia is one of the top producers of dates, and because they are the most frequently mentioned fruit in the Qur'an and one of the top foods recommended by the Prophet Mohammad, who said in the hadith: 'those who eat seven dates on an empty stomach in the morning will be protected from any poison and ill-wishes'. (Sahih Al-Bukhari, 2020). Islamic teaching also says that the Prophet recommended combining dates with milk in one meal.

At circle time, children sit in circle on the carpet with two teachers to discuss the day, month, and year via a calendar on a hardwood teaching easel. Then children and their teacher take the attendance, with the teacher choosing one of children to shake hands with the others while the class count together as the teacher asks, ‘How many of my friends are here today?’ and ‘How many of my friends are we missing?’. Then, the teacher uses cards with the children’s names and pictures on to check if the child on the card is present in class that day. The teacher then discusses with children the possible reasons for their friend’s absence saying, ‘we hope they are well’, noting that we can ask them tomorrow when they come back to school.

Next, teachers introduce new concepts and discuss new lessons with children. In this respect, there are two types of circle time: practical and theoretical (traditional), where the teacher usually explains the topic using pictures, video, or physical materials (e.g. vegetables or pets). The teacher is more active in this type of circle time, which is also the most common type used in the school schedule. In the second type, children are engaged more actively to perform a project, for example, making soup in the food unit, cleaning a piece of cloth in the clothing unit, and making a breakfast box to give to the street cleaner in the My Hand unit, under the topic ‘my hands make the good’.

According to the Ministry of Education (2005), the aims of the circle time is to let children experience a sense of equality when they sit with an adult at the same level in one circle in a positive classroom atmosphere, since this helps the child to engage in the discussion. Conversations with the teacher revealed that this activity aims to prepare children for pre-school in the following year, where they will need to abide by rules more directly. This activity does not seem to be aligned with individualised and small-group instruction, however, the activity plan does not consider the child’s needs and interests, and a single method is used to teach the whole class with teacher centred-activity.

In free outdoor play, children engage in free play in one of the play areas outside of the classroom (see section 5.2.2.2). This activity helps develop their gross motor skills.

For the second meal, children gather with their teacher in the classroom to eat (usually) a sandwich and juice. After play, children need to recharge their energy by eating healthy food.

In the numbers or letter circle activity, the children are divided into two groups with the teacher teaching each group a new letter or number using word cards that include the letter in different

places in the word, and touch and feel letter cards. Then children complete a worksheet focused on the number or the letter.

During centre time, children have the freedom to work individually or with small groups in the different centres.

The last circle usually involves a story, game, song, or finger song.

By the time of quiet centre play, many children have already gone. Sometimes, however, some parents are late picking up their children, in which case the teacher can open one of the centres for those children to play in quietly.

A third meal can be eaten at this time if the child brings something to eat.

Finally, preparation of classroom and materials is made in the centres by the teachers for the next day's activities.

5.2.4. Data from the teachers

On the first day of the fieldwork, I met three teachers working in the classroom that I planned to observe. Interview and observation data showed that these teachers' experiences in teaching were varied and that they also had different beliefs about teaching children. During the observation I recorded in field notes that the teachers were using the same teaching instruction: whole class instruction, in all the circles time activities, supervision in free outdoor play, and self-learning instruction during centres time. Later, when I began the teacher interviews, I discovered that what I had seen and recorded was not necessarily what the teachers saw themselves doing. For example, in response to the interview question: What type of teaching instruction do you tend to use? Mariam's answered 'I tend to use a self-learning strategy' (Teacher interview, 1st February, 2018). In contrast, the observation data showed that Mariam tended to use whole class instruction in the morning activity, circle time, number or letter circle. The section below introduces the participating teachers.

5.2.4.1. Mariam

Experience: 24 years of teaching.

Education level: she holds a diploma in early childhood education and a distance- learning bachelor's degree in management sciences.

Mariam's Practice: observation data showed that she is consistently concerned about keeping the class under control (e.g. asking children to keep quiet and remain seated). She was strict about children following the rules and exhibited a serious personality most of the time. She tended to use whole class instruction during circle time usually paying more attention to providing children with physical materials and self-learning instruction during centres time.

Mariam's beliefs about teaching and learning: she emphasised the importance of the home-school connection. In her interview she said:

Children will not benefit from the school if no one is taking care of them and of their learning at home. For example, we teach them the appropriate behaviour but if the environment of their home does not support this appropriate behaviour this will destroy most of the values and skills that we provided in the school. As a result, the child will not benefit from his time in school.

(Teacher interview, 1st February, 2018).

Mariam's opinion aligns with Vygotsky's theory regarding the significant role that environment and culture play in a child's development. This sociocultural theory stresses the idea that a student's experiences outside the school matter and need to be connected to their learning. Vygotsky pointed out that the teaching process is more effective when it builds on students' background knowledge (which will be presented in section 5.2.4.4, Table 10). The relationship between the family and the kindergarten therefore plays a vital role in child development. Mariam also emphasised, however, another type of relationship, namely the importance of the family's cooperation to support concepts and behaviours that the child has learnt in school in terms of helping children develop and practice these concepts and behaviours.

Mariam further believed that the teaching instruction that she generally uses in the classroom was the self-learning strategy. She said that 'The children did everything by themselves. This type of instruction comes from the Ministry of Education which activated the self-learning curriculum and we just applied it' (Teacher interview, 1st February, 2018). She believed that

self-learning instruction was an effective method of instruction, and that children would work independently and benefit from materials and activities that the teacher had prepared for them (presents later, in section 5.2.4.4, Table 10). From her point of view, ‘children’s inattentive behaviour always translates into misbehaviour. For example, when children struggle to pay attention, they usually start to talk, move, and disturb other children and teachers’. She considers these actions to be misbehaviour

(Teacher interview, 1st February, 2018).

5.2.4.2. Raja

Experience: 13 years of teaching.

Education level: bachelor's degree in early childhood education.

Practice: observation data showed that Raja never answered children’s questions instead she provided them with a brainstorming question to find the answer they are looking for by themselves.

Beliefs about teaching and learning: Raja tended to use a questioning strategy. She said:

I used brainstorming questions that develop the child’s imagination. I don’t use the closed questions because I believe this type of question limits the child’s thinking skills. Questions that lead children to think and imagine give them the chance to be creative and lead the discussion to different paths that even as teacher we weren’t thinking about before. We aspire to change the traditional way of teaching. The child’s environment has changed and developed due to technology, and their perception about learning is different now from ten or twenty years ago. It’s more open.

(Teacher interview, 31st January, 2018).

Raja confirmed that there was a need to reform the curriculum and teaching instruction to make it suitable for children’s needs in the current generation:

Curricula sometimes include subjects that aren’t important for the child or concepts and tasks that are either too easy or too difficult. The curricula have not

changed over the last two decades but in that twenty-years, things around us have changed, and the children as well. Curricula need to be developed in order to emulate the environment facing today's children.

(Teacher interview, 25th December, 2018).

This perspective aligned with one of the goals of this research that seeks the possible ways to enables teachers and policymakers to develop the teaching instruction to help children receive the support needed to enable them to perform at their optimum. Raja's opinion sheds light on the gap between the students' experience outside the school and the school subjects. She confirmed the significance of developing and changing the current curriculum in order to bridge this gap, providing concepts from the children's present or even imagining the future that children will live in. Her point of view corresponds to the concept of individualised instruction that requires teaching and learning to take account of the child's needs, abilities and interests.

5.2.4.3. Sara

Experience: 6 years of teaching.

Education level: bachelor's degree in early childhood education.

Practice: observation data showed that Sara had a friendly relationship with children. She would speak with children about any issues in a private place rather than in front of his/her classmates (thus respecting children's privacy). She could be described as a teacher who is highly attuned to children's emotions and who always considers children's feelings, and encourages the children to speak about them.

Beliefs about teaching and learning: Sara believes that children learn better through play and through using their senses. She said, 'I personally use teaching through play because I feel that the child should learn through materialistic stuff. I think it's more suitable for this age. Child should see, feel and touch and use their senses to learn' (Teacher interview, 29th January, 2018). This point of view can be linked to Vygotsky's play theory, which posits the existence of a strong relationship between play and development, especially cognitive, emotional and social development (Scharer,2017). Indeed, Vygotsky (1967) identified play as a source of development that creates the zone of proximal development. He explained that, in play,

children behave beyond their age, which reinforces their learning. It is worthy clarifying, however, that Vygotsky's writing was limited to a focus on one type of play, namely sociodramatic play for preschool children (Bodrova and Leong, 2015; Scharer, 2017). Moreover, Vygotsky did not view play as children's free activity, rather he specified three components: 'create an imaginary situation, take on and act out roles, and follow a set of rules determined by those specific roles' (Bodrova and Leong, 2015, p.374).

Children in Sara's classroom experience this type of play when engaging in the dramatic play centre, regarding which she stated, 'I enjoyed watching children develop the story and conversation during play in this centre'. Sara's practice supports Vygotsky's ideas that dramatic play provides children with new experiences that involved language, social, cognitive development.



Figure 12: Two pictures taken by teacher, Sara, showing various children playing in the dramatic play centre which had been set up with different themes.

Sara shared the pictures in Figure 12 above to explain her opinion about how children benefit from the dramatic play centre. In the first picture, the children play doctor and patient roles that help the child to experience what being a doctor might be like, taking responsibility for helping patients, using doctor's equipment, wearing a doctor's white coat, developing conversations between doctor and patient and using medical language. All these offer positive developmental opportunities for children in areas of language, problem solving, socialising, emotional and cognitive development. Discussing the second picture, Sara said that she had heard the child who was working on the airport check-in counter telling the passenger 'sorry but your luggage

is overweight', and she commented how great it was that children linked their prior experience with play and acting out future roles. Sara believed this enriched their learning. To sum up, the teacher's beliefs are in line with Vygotsky's ideas in terms of the importance of play for children's learning and development. Despite these beliefs, however, the time allocated for playing in these centres was sixty minutes a day, and only five children can play at one time in this centre, which limits the number of children who can take advantages of the learning from play opportunities in the dramatic play centre. Providing more time for children to play in this centre could increase the chance for each child to benefit from the developmental opportunities.

5.2.4.4 The relationship between teachers' beliefs and their classroom practices

A comparison of the observation data and the interview data reveals a tension between teachers' beliefs and their classroom practices. While the three teachers tended to use the same lessons plans and teaching instruction during circle time and school activities, in their interviews each described using different teaching instruction. Interestingly, none of the teachers mentioned the whole class instruction that they used in the morning circle, number or letter circle, and the last circle (where teachers usually led and ran the activity), where the teacher introduced the circle concept using visual materials and asked some questions. During most of the circle time, the teacher was speaking and running the circle. In these activities, children were supposed to sit still and listen, and answer some questions verbally. In the follow-up group interview with teachers, they explained that 'we might tend to use all these types of teaching instruction within the whole class instruction during the school day. For example, children learn through play and independently during free outdoor play and centres time' (Teacher interview, 25th December, 2018). For the reasons behind the choice of teaching instruction, to answer the researcher's first question (see Appendix 3), each teacher explained that she believed the teaching instruction that she had mentioned in the first interview was the most effective type. In this phase of the interview, Raja who mentioned the questioning strategy in phase one interview said that 'I used a questioning strategy in the circle time to stimulate children's thinking, I believe it is an effective strategy to use in the circle time'

(Teacher interview, 31st January, 2018).

The links between teachers' professed beliefs and Vygotsky's sociocultural theory are highlighted in Table 10.

Table 10: Potential links between teachers’ practices and beliefs and sociocultural theory

<i>Teacher’s practice</i>	<i>Teacher’s beliefs</i>	<i>Potential relationship to Vygotsky’s theory</i>
<p>Mariam: tended to use whole class instruction in the circles time, which she usually led. During centre time she was keen to manage children’s movement from centre to centre and keep the children work quietly. She was not involved in supervising outdoor play since she was responsible for mealtime.</p>	<p>Emphasised on the importance of the home-school connection.</p> <p>Emphasised the child’s need to play.</p> <p>Used self-learning strategy.</p>	<p>Vygotsky believed that a child’s individual awareness is constructed from external factors through social interactions (Vygotsky, 2012). In his view, learning and development occur through interaction with others (e.g. teachers, family members, and community members). Thus, these people are involved in children’s learning.</p> <p>Contextualised instruction is also one of the sociocultural education’s principles, emphasising the importance of the connection between students’ life outside the school and their learning (Eun, 2010).</p> <p>See these points discussed in depth after this table.</p>

Raja: tended to use a questioning strategy and whole class instruction.	Use of a discussion strategy of teaching instruction and belief that the curriculum should keep up with time and meet the new generation's needs.	Discussion related to mediation through human (e.g. teachers or peers) in the ZPD.
Sara: tended to use whole class instruction in circle time activities and guidance strategy in centres time activities.	Teaching 'learning through play and interaction with learning materials'.	Mediation through material tools (Kozulin et al., 2003). The role of the sociodramatic or make-believe play (Vygotsky, 1967).

Taking the first point, is that family culture influences children's learning and development and, in this, Mariam's opinion is in accordance with Vygotsky's theory regarding the significant role that environment and culture play in an individual's development. Vygotsky argued that the child's individual knowledge is built through interaction with others. Inevitably, the child's family members are part of their daily interaction and, as a result, they are deeply involved in the child's learning. Obviously, Mariam's belief is aligned with Vygotsky's idea that children's learning and development can take place beyond the narrow confines of the school environment, thereby highlighting the importance of reinforcing the partnership between family and school in order to improve children's education (Moll and Greenberg, 1990; Moll, Amanti, Neff and González, 1992, and Pontecorvo and Sterponi, 2002 cited in Eun, 2010). Moreover, some studies have revealed that the majority of teachers emphasise the impact of children's home experiences on their performance in school tasks (e.g. Ashton et al, 2008). So, considering children's experiences outside school brings us to the next point that was discussed in Eun (2010), what sociocultural education refers to as contextualised instruction. This type of instruction is based on the idea that learning at school needs to be contextualised in relation to children's prior knowledge and abilities, using this as a basis for their learning process. Individualised small -group instruction supports this point since it treats children's abilities and needs as the starting point for planning the learning activities.

From Raja's perspective, children learn through social interactions, as she mentioned discussion as a key method of teaching and learning. This links directly to Vygotsky's belief that individual development happens through the social transmission of tools: language and signs (Meece, 2008). Despite Raja's belief about the vital role of discussion in children's learning and development, field note data showed that this method was only attempted in circle time but that two teachers led the discussion of thirty children at the same time, which did not provide the opportunity for all the children to participate in the discussion. One of the solutions for this issue might be to implement the small-group instruction. Studies have shown that children get more opportunities to participate in discussion when teachers utilise small-group instruction, and that this has a positive impact on their learning and achievement (Rimm-Kaufman, 2005; Connor et al., 2006).

Finally, the importance of play in learning and development was cited by both Mariam and Sara, and this links to Vygotsky's stress on play as having a crucial role in the development of higher mental functions, as described in detail earlier (see section 3.2.1). Based on these insights, when planning individualised small-group tasks, we used the teachers' particular preference (e.g. learning through play, discussion and independent learning) in some tasks. The following sections will provide more details about how using their teaching approaches were built on the intervention.

5.3. Data from the children (cases)

This section discusses the four cases' journey before, during and after the intervention. In this way we bring together data from the first part of the study, drawing on ethnographic data, which informed the intervention, and data from the action research and intervention. Each case starts with a brief introduction about the child's background to help the reader visualise the case situation. This is followed by a description of the child's attentive behaviour during traditional school activities, which aims to identify different aspects of the child's attentiveness behaviour; this enables comparison with the same child's attentiveness behaviour during the intervention. Then, the steps taken to plan the intervention for that child are explained so as to help the reader follow the intervention sequence. Next is the child's information record, which includes significant detail about the child that was used to plan the intervention. Then there is a short elaboration of any adjustments and plans that were added to the teaching instruction to support the child's learning. Finally, the reader is provided with a full description of the

individualised and small-group instruction lessons (the intervention) with a rationale for the instruction and how the child reacted to each intervention.

5.3.1. Background of the first case (Khalid)

Khalid is a five-year-old boy living with his single mother (divorced), his sister, grandmother, and his aunt and cousin. He meets his father weekly, and, on that day, Khalid does not come to school. He joined kindergarten from level three, which is the level designed for his age group, so the year of the data collection was his first year at the school (Mother's interview 11th February, 2018).

Before starting the data collection, Khalid was suspended from school for two weeks due to misbehaviour. This included disturbing the teachers and classmates, making fun of others, and laughing during lessons and hitting his classmates. Conversations with two teachers confirmed that the punishment did not solve Khalid's misbehaviour problem. That said, he has learnt that there could be a consequence if he continues misbehaving. Ormrod (2016) discussed this form of punishment as ineffective in that it might have a negative impact on students by reducing their chances for learning achievement.

5.3.1.1. Khalid's attention during school activities

Following Khalid's attention during different school activities, it was soon evident that his attention level differed from one activity to another. The researcher recorded his behaviour during both indoor and outdoor activities. Behaviour coded as inattentive included, not responding to questions or commands from the teacher or classmates, not looking in the direction of the task or the teacher, talking about topics irrelevant to the task, being easily distracted, disturbing other children, not completing tasks, and showing difficulty engaging with tasks. Behaviour coded as attentive included looking in the direction of the task or the teacher, answering the teacher's questions, asking questions relevant to the task, providing comments relevant to the task and persisting at a task until successful. The contradictions in his behaviour found on the four cases, this point will be discussed later in the cross cases analysis chapter.

The circle time was divided into two types, as explained earlier. Khalid was more attentive in the practical circle than the traditional one. For instance, in the practical circle in the kitchen

entitled “vegetable soup” he showed high level of attention: he was listening to the teacher and following her steps to make the soup, looking at the teacher when she was explaining how we cut the vegetables, and after he had cut the vegetables, he asked the teacher proudly to look at what he had just done. In the traditional circle, however, Khalid very often did not look at the teacher, disturbed his classmates by touching their faces or bodies and laughed or talked to them about topics irrelevant to the circle topic. He also covered his head with his hand, took his shoes off and tried to put them on again. Also, in the letter or number circle, Khalid used to disturb his classmates, looked at other groups, and examined one of his classmate’s work commenting to the effect that ‘this is right or wrong’ while he was supposed to be working on his own worksheet.

Centre time is another indoor activity. In this activity field note data shows that Khalid was more attentive to tasks in the Art Centre, Building Block Centre, and Dramatic Play Centre than tasks in the Planning Centre, Cognitive Centre, Reading Centre, and Writing Centre. For example, in the Building Block Centre, he worked in a small group to build a house with his classmate. When the latter brought four pillars, where one was a different size than the other three, Khalid told him that the four pillars should be equal. They worked together and he persisted at the task until successful. He was proud and satisfied, looking at the house that they had just built with a broad smile. In the Planning Centre meanwhile, he had left his worksheet unfinished in the centre, which forced the teacher to ask him several times to return to complete the task.

In the outdoor play activity, his attention appeared high, with actions recorded, like listening to the teacher and his classmates, answering questions, enjoying use of the play area facilities. That said, he did not stand in the queue after playing with his classmates and did not follow the play rules, he misbehaved and pushed his classmates (see Figure 13). These findings were extracted from field note and visual ethnography. This behaviour did not happen once but were repeated on different days.



Figure 13: Khalid pushed one of his classmates in the girl's queue

I discussed Khalid's behaviour with him using visual ethnography that I had captured while he was disturbing his classmate. Khalid watched the film that showed his behaviour during circle time. I asked him to speak about his behaviour in the film, about what is the meaning of his actions in the film were. The film showed that he was licking his fingers and putting them in his classmate's face while the teacher was discussing the day's date with the children in the circle time. Khalid, in explaining his behaviour, said:

Khalid: I want to play with her, but she doesn't want to play with me

Researcher: She is listening to the teacher in the circle time

Khalid: Smile at me yes, but I want to play

(Child interview, 30th January, 2018).

In terms of the factors that appeared to affect Khalid's attention, the interview with his mother revealed that she thought the environment affected Khalid's attention. She said, 'I always like to teach him at times when there none of the family members are around. When we study maths or writing tasks, specially, he usually faces difficulties avoiding distractions'. The participant's teachers were agreed that the family issues, such as his parents' divorce and the custody disputes between his mother and father, could be a factor affecting Khalid's behaviour, attention and learning. The teachers linked Khalid's attention and learning issues with that of

other students who lacked a stable home. According to Galera et al.,'s (2011, cited in Mahone and Schneider, 2012) longitudinal study results shows that a non-intact family is one of the factors that can cause inattentiveness in children. In light of the above, making the child feel stable and secure at home and school is necessary to support that child's attention and learning.

5.3.1.2. The steps for Individualised and small group instruction

The first step in individualised and small-group instruction is knowing the child very well in order to adapt the teaching instruction according to their needs, abilities, and interests. This is done by collecting information about the child from different sources, such as observing the child during various activities, analysing the child's work documents, interviewing the child, his teachers and his mother. In order to record the child's needs, ability, interests, and social interaction. Khalid was able to identify the things that he was most interested in.

5.3.1.3. Individual child information record

The individual child information record is an organised account of all the information collected about the child. It was inspired by Gronlund (2016) whose record includes ten columns about the child's: culture, life experience, family, learning style, developmental strengths, interests, emerging developmental areas, approaches to learning and responses to challenges, emotional makeup, physical needs and health issues (see Appendix 7). After discussing this record with teachers, however, due to limited time, they preferred to reduce the number of columns in their own record to include only the child's: family, interests, needs, abilities, health issues, and social interaction. Thus, Gronlund's record was used but with some modifications.

Khalid's interests: Khalid said, 'I like to spend time playing with my iPad at home or playing with my sister, riding a scooter in front of our home'. Regarding the kindergarten, he said, 'I love playing in the building block centre and riding a bike. Also I like the puppet theatre in the dramatic play centre' (Child interview, 26th February, 2018). His interests, based on the interview with his mother, are watching TV and playing with his iPad. She added 'he is very good in using technology he has learnt how to use the iPad and download the app independently. I think he will be creative in technology in the future' (Mother interview, 11th February, 2018).

Khalid's needs: the researcher observed that Khalid was not able to identify or writes numbers from two to ten. For example, during play when his classmate asked him to pass the specific number written on the card, Khalid passed the wrong number. His mother stated that he needs special support in maths since she believes that 'Khalid is not a math person'. Based on an analysis of Khalid's worksheet document, which included number, letter, and word tasks that children needed to complete independently, it was evident that he experienced difficulties with numbers and letters. For instance, with the letter (ط) he wrote the line either in the middle of the letter, far away from the letter or not connected to the letter in some boxes. Also, data shows incomplete tasks. For instance, numbers 14 and 16 in his worksheet were left incomplete, and he did not successfully complete the task of drawing circles on maths counting worksheets.

Sara, who described Khalid's difficulties, stated that, 'he faces problem in writing. We tried to motivate him with candy and toys, I believe that his writing level had developed. He needs special support in writing'. Khalid was doing mirror writing, when he did that, he seemed to be applying himself to this task and concentrating (see Figure 14) and field note data showed that he could write the same word in the normal direction as well, but usually he does mirror writing, even when he writes his name on the worksheet. In the interview with his mother, she said that she was worried about his mirror writing and had taken him to see specialists in order to identify his problems. The specialists who checked Khalid, however, told his mother that everything was all right and confirmed that Khalid does not have any special needs. Fischer and Koch (2016) stated that mirror writing is an unstable phenomenon that can appear in children aged 5-6 years and continue for several months due to an inability to make automatic composing motor motions when writing, and a difficulty inferring correct writing rules once they are not certain about a letter's direction when they look at the sample that they intend to copy. Also, children at this age are usually unable to write a lot of words from memory.

Khalid's abilities: Field note data showed that Khalid was able to work with a team and able to express himself. From the interview with Khalid and his mother it was evident that he was able to use a tablet, and to search and download applications independently. He also has practical abilities (e.g. from the cooking and the building blocks activities), so he has fine motor skills.

His health issues: He has had two surgeries, the first for removal of the adenoid, and the second for removal of tonsils. These health issues were from before he joined the school, however, so

it is unclear whether these surgeries have implications for his learning and attention, or if they may have affected him psychologically.

Social interaction: Mariam and Raja described him as a shy child. Observation data showed that he did not face any challenge in social relations, had no difficulties with teamwork, did not have a favourite classmate, and was able to develop peer relationships, and start conversations with peers. Usually, he showed a desire to play with other children by inviting them to join him in tasks.



Figure 14: Khalid copies the word in reverse direction and writes numbers 3 and 2 in Arabic backwards.

5.3.1.4. Individual adjustment and plans

The researcher and teacher developed a plan based upon Khalid's abilities and interests, as recorded in the data, collected through observations, interviews with Khalid, his mother and his teachers, and his worksheet documents. The plan suggested an activity content biased towards technological material (iPad or laptop), building blocks and the whiteboard in order to teach him numbers and some concepts in small groups.

5.3.1.5. Individualised and small group instruction provided to Khalid

Table 11: Individualised and small-group instruction provided to Khalid.

<i>Lessons</i>	<i>Lesson has been covered</i>	<i>New lesson</i>	<i>Reason for choosing the lesson</i>
Numbers from 1 - 10 iPad application	✓		Observation and teacher assessment showed that Khalid was not able to identify numbers 2-10 (a curriculum goal). We chose this task to help Khalid achieve this goal.
Numbers 6 and 7 on whiteboard	✓		Khalid was not able to write numbers (a curriculum goal). The task was designed to support his maths skills.
Drinking water etiquette		✓	Lesson from circle time – ‘drinking water etiquette’ To compare his attentive behaviour and his ability to acquire the lesson information during traditional instruction and individualised small- group instruction.
Numbers 11 – 15 building blocks	✓		Create and identify numbers 11-15 (a curriculum goal), was chosen to support his numeracy skills.
Water sources game	✓		Circle time concepts. Lesson chosen to support Khalid’s learning in circle concepts.

There were no strict criteria for choosing lessons. Instead, lessons were chosen from the government curriculum to develop his academic skills in some subjects, depending on the child’s needs. Lessons were developed by the teachers and the researcher. There was more of a focus on numbers because this is a fundamental requirement in the curriculum and was identified as a major problem for Khalid.

5.3.1.6. Findings in respect to how individualised and small-group instruction affected Khalid

The conceptualisation of impact in this research includes, child performing independently after an activity at which unassisted achievement is achievable, excitement, level of peer support or teacher supervision and support. Behaviour was coded as attentive or inattentive as mentioned earlier (see section 3.7.1). In order to capture these behaviours, I utilised observations during the activity and friendly conversations immediately following the activity. Children and teachers were asked to provide their feedback about the activity conversation by responding to the following questions: If the activity was exciting? Would you do it again? How was the activity? What did you learn? The teacher asked the child at the end of the activity (or the end of the day), to list concepts or identify the number or letter and write the number or letter independently.

First intervention: count and identify numbers 2-10 on the iPad app

Sara used the Primary Arabic app on an iPad, which includes numbers and letters, to teach Khalid numbers from 2 to 10 with two other children. The activity was implemented during centre time, and many children gathered around Khalid to use the app. Sara had promised them that they would be allowed to use the app later. Sara's role was guiding the small group. She first explained how to use the app and helped children to understand its instructions, the she answered questions that the children asked about the app.

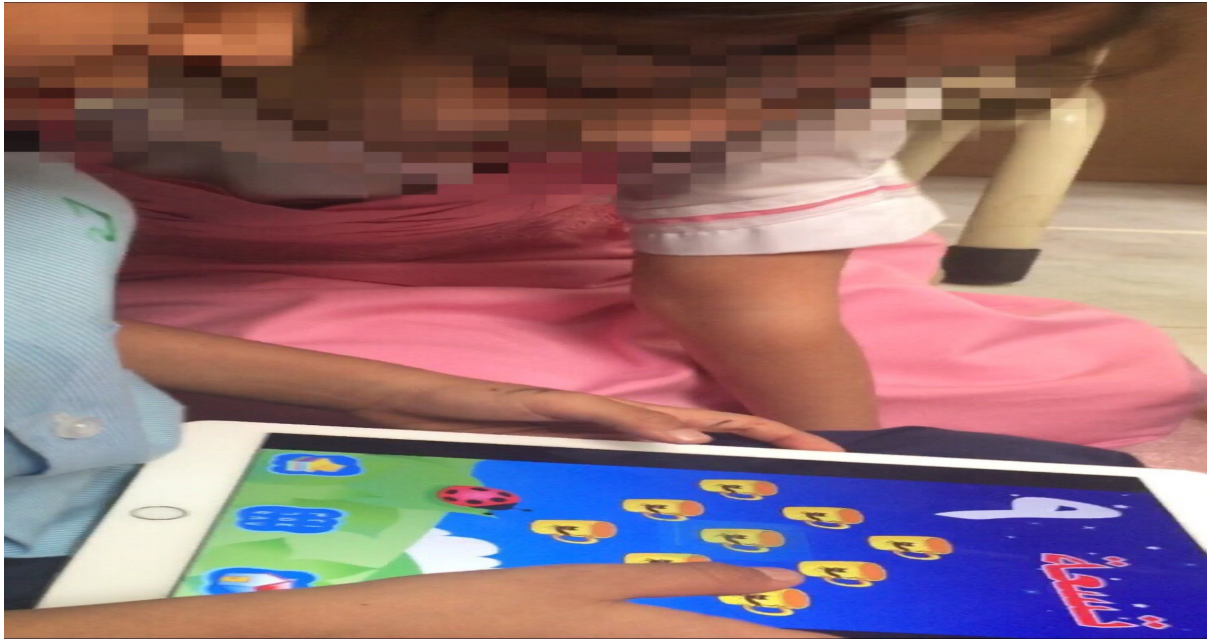


Figure 15: Khalid sat in small group, counting subjects in the app to identify the number

During the activity Khalid appeared attentive. Specific behaviours that were observed included the following: he looked at the task directly, did not look around, worked until he had finished the task, showed interest in learning numbers by asking questions only about the task, he made an effort to answer the question (counting objects several times), didn't talk about topics that were irrelevant to the task. The children in the group were excited to use the app, showing the desire to solve task on the app. They worked together as a group to count the number of objects on the screen, then touched the number to receive a positive tone for a correct answer or a negative tone for incorrect answer. After the activity Khalid was able to identify some numbers that he could not before: two, three, six, seven, nine, and ten.

As explained, the activity involved use of a physical tool that the child could touch, and social interaction with peers and a teacher. Vygotsky supports the importance of the social interaction and physical manipulation in child development (Bodrova and Leong, 2006) Khalid constructed his own understanding about numbers through counting objects, touching the iPad screen to choose his answers. This differed from the conventional requirement to sit still and listen to the teacher speak about numbers or count objects, providing instead the chance to do the activity by himself. This appeared to help Khalid to identify numbers after the activity, and it might help him to acquire information to moves to the internal stage (i.e. 'intrapyschological') when he makes sense of his experience so he can apply it to other different materials in the future, independently without peers or teacher assistance. On the other

hand, the social interaction involved in this learning process, with the teacher's guidance helping him to focus on what was important about the activity, supported his knowledge about using the app. The peer interaction also appeared to motivate him to exchange his experience with other children of the same age, discuss and share their ideas about the activity and this created a positive social interaction environment that enhanced learning and development.

Developmental learning goal: identify numbers 2-10.

This individualised instruction considered Khalid's interest in using materials, such as an iPad, his need to learn numbers from 2-10, and his ability to work with a team and use technology.

Here is Khalid's feedback after the activity:

Researcher: How was the activity?

Khalid: Fun

Researcher: Would you like to do it again?

Khalid: Yes

Researcher: What did you learn?

Khalid: silent

At this point the researcher opened the iPad to show Khalid number 6, and asked him whether he could say what it was?

Khalid (smiling at researcher): six

Researcher: Well done.

Second intervention: writing numbers 5,3,6,7 and 9 on the whiteboard.

Khalid worked with two of his classmates to write numbers of their choosing from 1-10. The activity was implemented during centre time. The teacher provided a whiteboard marker pen and asked the group to choose a number from 1 to 10 to write on the board. What was happening in this activity was that children were working as a team to write the numbers that the teacher had asked them to write, providing assistance when needed. This activity reinforced the idea that children learn through interaction, and that children's cognitive development is socially mediated and affected by interactions with others (Karpov, 2005). At the beginning of the activity, Khalid showed a high level of engagement, looking at the task, holding the marker to

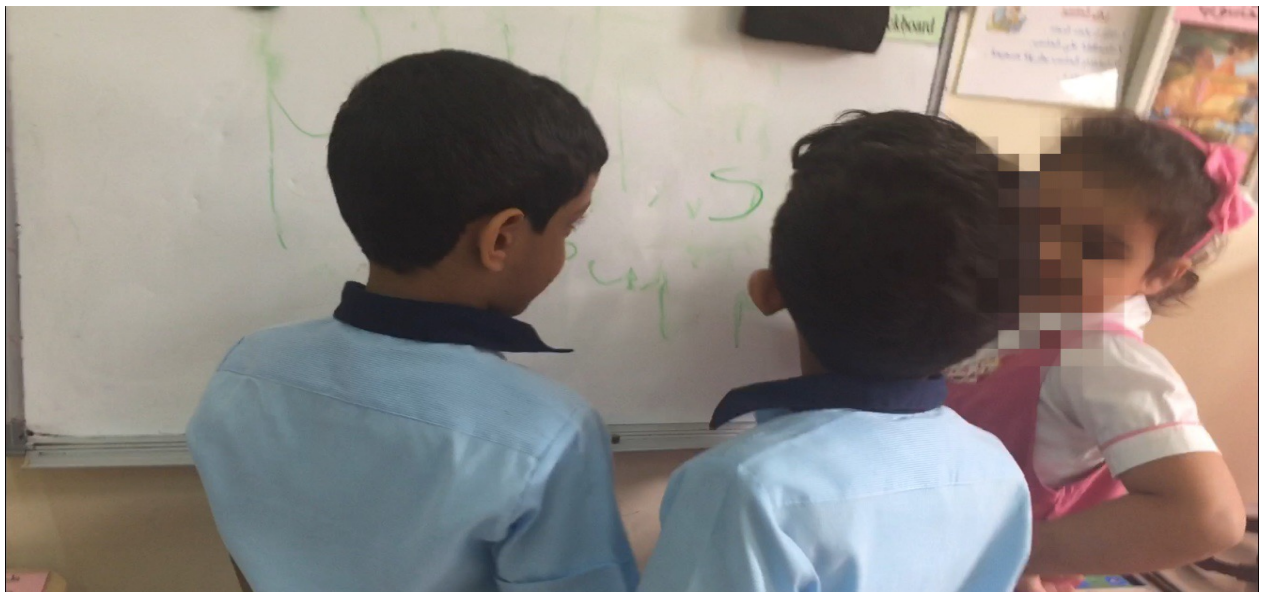
suggest a number, explaining how to write number 5 and telling his classmates ‘number five like a circle’, He also wrote the number 9 correctly when a classmate asked him to write number 9. He wrote numbers 6,7,5,9, and 3 successfully. Of these, he discussed with a classmate how number 6 is written. He did mirror writing in respect to number 3 then corrected the number direction by himself. He became less attentive in the middle of the task, however (i.e. in laughing, he disturbed his classmate who was working in the next corner).

Results: after the activity he was able to write numbers 3,6,7,9 independently. The developmental learning goal for this intervention was writing numbers from 1-10.

This intervention considered: the child’s favourite writing materials (whiteboard and marker) The child’s need (to learn to write numbers from 1-10) and ability (to work with a team).

The child’s feedback after the activity: children reported that ‘they enjoy using the white board as a small group’. The researcher asked Khalid ‘What did you learn?’ Khalid replied, ‘numbers’. He did not provide an answer to the question about whether he would like to do the task again.

What I might infer from this intervention is that working with small groups helped Khalid to perform at a higher level compared with his performance in individual activity, consequently, achieved the task goal.



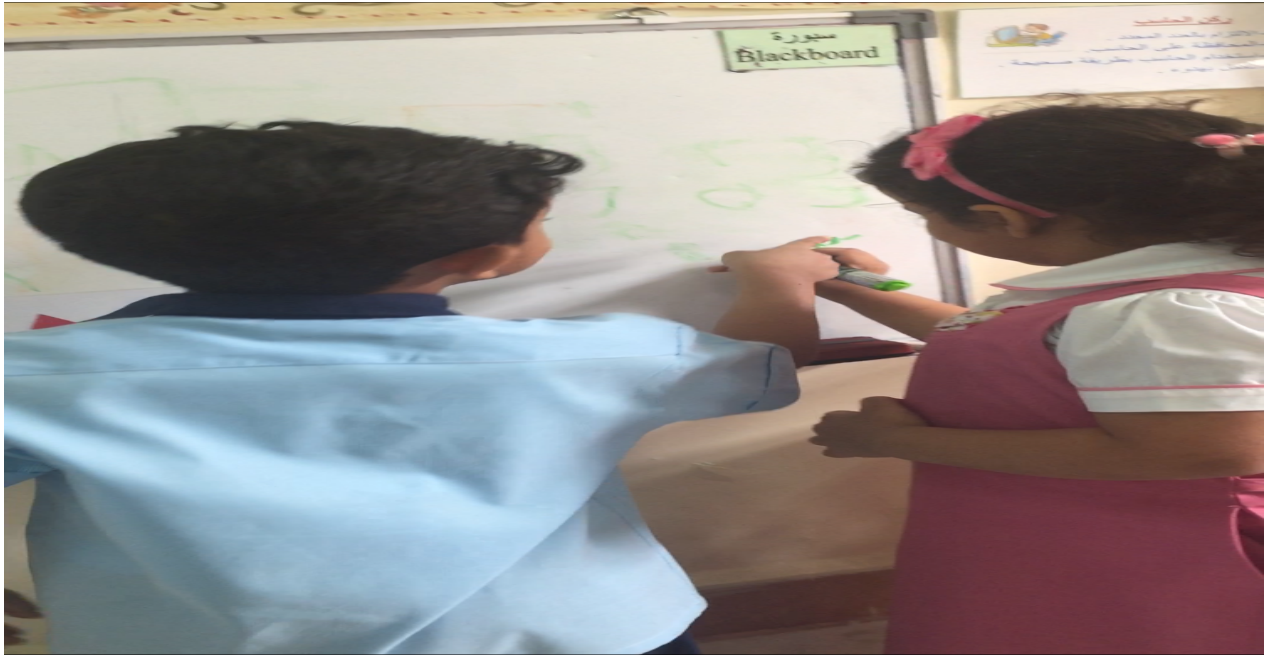


Figure 16: Khalid worked on a writing number task with a small group.

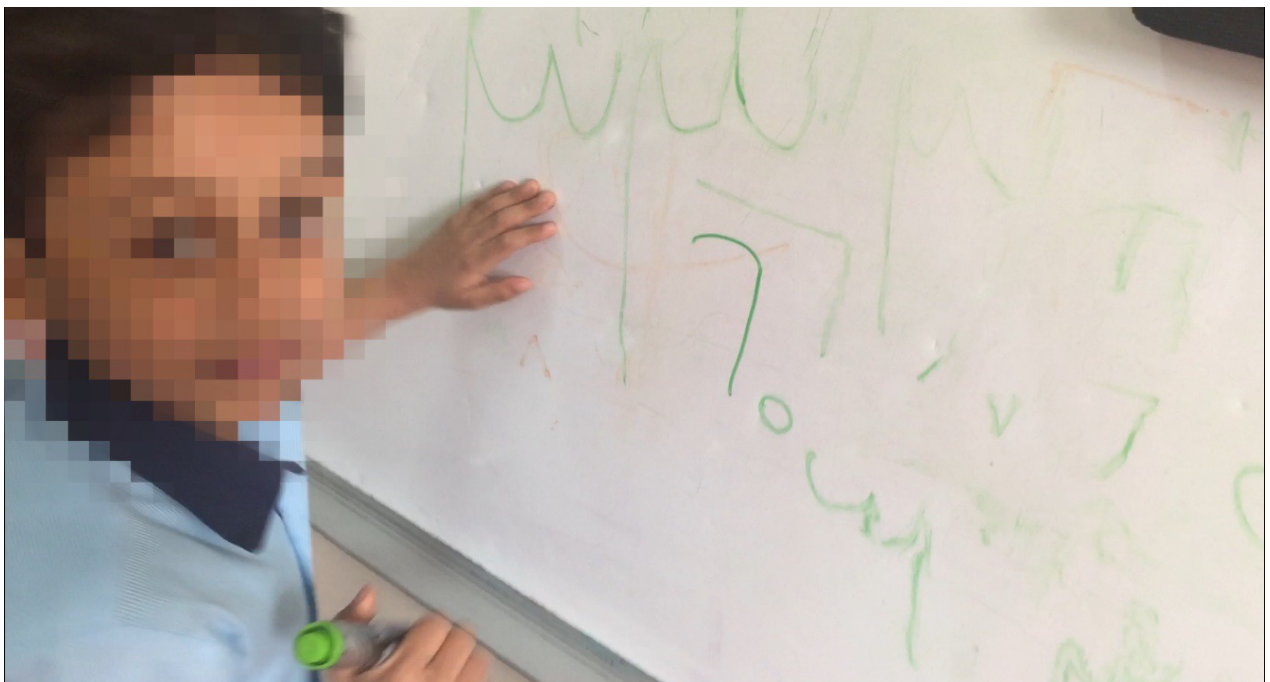


Figure 17: Khalid wrote number 6 independently.

Third intervention: drinking water etiquette.

In this activity, the teacher used visual material, namely pictures and video, to engage a small group of children with the topic of drinking water etiquette. In this lesson, the children were expected to learn the etiquette of drinking according to Islam, which includes steps that people

should follow when drinking, such as using the right hand and a clean cup and saying grace before and after the drink. After the circle time activity, in which the teacher used traditional instruction to teach, Khalid was not able to answer the following question: ‘Can you describe the etiquette of drinking water?’ So, Sara worked with him and two other children to teach them the same lesson about drinking etiquette using different instruction. During the activity, Khalid’s attention appeared higher than during the circle time. He sat next to the teacher looking at the pictures on the iPad, listening to her questions and providing comments like, ‘the child sits to drink’. The teacher responded by asking whether this was correct behaviour or not, and Khalid said ‘yes’. Then Sara gave the children time to discuss the pictures and watch the videos. Allowing them to lead and run the task, to play an active role, had a positive impact on Khalid since it increased his engagement and attentive behaviour. This is linked directly with Vygotsky’s theories which are based on the assumption that learners should play an active role in their learning and construct their knowledge (Geary,1995 cited in Schunk,2012).

Results after the activity: he was able to describe the etiquettes of drinking.

The developmental learning goal: the concepts of the etiquette of drinking water.

The individualised instruction considered: the child’s interest in technology by using an iPad to convey the lesson.

Fourth intervention: learn numbers 11 to15 using building blocks. This was shared with another case (Ali).

In the building block centre during the centre time activity Sara sat with Khalid and Ali to create numbers using building blocks. Khalid and Ali said they were excited to do the task when Sara asked them whether they were ready to begin. They followed the teacher’s instructions and identified the numbers that she created. The group helped the teacher to build the number forms. Then they worked as a group to create numbers 11, 12, and 15. Field note data showed that both Khalid and Ali exhibited attentive behaviour, such as looking at the teacher and the task, only talking about the task, and persisting at the task until successful.

Results of this intervention: children built forms of the following numbers 11,12, and 15 using building blocks.

The developmental learning goal: create and identify numbers from 11-15.

The individualised instruction took account of: the child's interest by using Ali and Khalid's favourite centre, the building block centre to deliver the lesson.

The child's need: to identify numbers from 11 to 15.

The child's feedback after activity: Khalid said, 'I enjoyed using building block to create numbers. I would like to do it every day.'

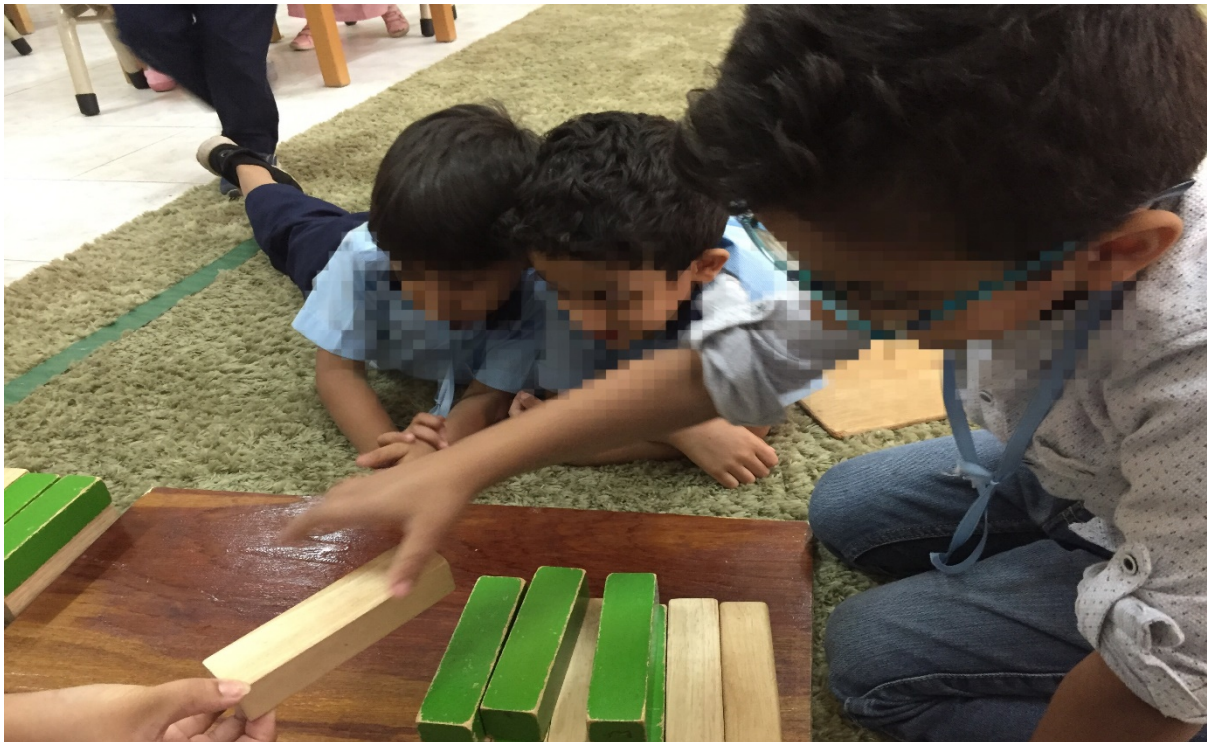


Figure 18: Khalid, Ali and one of their classmates works with Sara to create numbers 11-15 using building blocks.

Fifth intervention: water sources game with Saud and Norah

After a circle time entitled 'water sources', Khalid was unable to answer the following question, 'what is the natural source of water?'. His answer was, 'the tap'. This intervention was implemented in the outdoor play area; it was a cognitive-physical activity. Raja printed photographs of natural sources of water and used a plastic hula hoop. She organised the photographs next to the hula hoop and when the child correctly named the source, he/she was allowed to jump to the next hula hoop. The children could help the child if he could not name the natural source of water on the photographs. He was enjoying play, while still answering the teacher's questions. By the end of the intervention Khalid was able to list four sources of water:

the sea, rivers, wells and rain. Field note data showed that Khalid exhibited a desire to learn when he was being active in a task.

The developmental learning goal: to learn about the natural sources of water.

This intervention took account of: the child's interest in doing physical activity, since one of Khalid's favourite activities is riding a scooter front of his home, as he stated in the interview.

The child's need: to learn concepts about the natural sources of water (the subject of the circle time).

Child's ability: he was able to move and jump.

Child feedback after the activity: Khalid said, 'I liked the game. It was good'.

5.3.2. Background of the second case (Saud)

Saud is a five-year-old, boy who lives with his parents and five siblings. He has four brothers and one sister, all of whom are older than him, except one of the brothers, who is three years old. In the interview his mother stated that Saud likes to spend most of his time with this younger brother. Saud has a thumb-sucking habit that annoys his parents and teachers. Field note data showed that there is a link between this habit and his attention, in that once he starts sucking his thumb, he starts showing inattentive behaviour. Sara explained her concern about this problem, saying:

You know children at this age are impressionable. As a results, some of the children in our classroom have picked up this annoying habit from Saud. Other teachers and I started to speak about how bad this habit is for children and our classroom environment, and confirmed that the bad habit is not acceptable. We keep reminding them from time to time about this, and this was affective in that some of them at least stopped the thumb sucking (from conversation with Sara).

Saud joined kindergarten at level three, thus the year of this study was his first year at the school.

5.3.2.1. Saud's attention during school activities

The participating teachers agreed that there was an issue with Saud's attention. Raja explained that in activities like writing and repetition tasks, 'he first follows me to check if I am watching him or not, so he can then start thumb sucking and daydreaming' (conversation with Raja). Saud showed varying levels of attention during the school activities. Behaviour coded as inattentive included: not responding to teachers' and classmates' questions or commands, not looking in the direction of the task or the teacher, not repeating with classmates after the teacher, talking about topics irrelevant to the task, being easily distracted, disturbing teachers or other children, not completing tasks, and exhibiting difficulty engaging with tasks. Behaviour coded as attentive included: looking in the direction of the task or the teacher, answering the teacher's questions, asking questions relevant to the task, providing comments relevant to the task, persisting at a task until successful. These contradictions in his behaviour will be discussed in the next chapter.

In circle time he very often did not repeat with his classmates after the teacher or count with them during the attendance check. He tended to suck his thumb, looking at the classroom ceiling or the classroom door and seemed to daydream. Due to this, he would take a long time to follow the teacher's instructions or answer questions. Often, he asked the teacher to repeat the question. He showed more attentive behaviour, however, during the practical circle. For example, in the 'cleaning fabric circle' he asked the teacher questions about the topic, such as 'Do we clean the fabric using our hands?', and 'Teacher, we don't need too much laundry cleaner, is that right?'. Here, he looked in the direction of the teacher direction, listened to her, followed her instructions and was involved in the task.

During centre time, his attention appeared higher in some centres, such as the Computer Centre, Reading Centre and Building Block Centre, than in others, such as the Planning, Discovery, Writing, and Dramatic Play Centres. For example, video footage showed that when he was watching a fire fighters cartoon and wearing headphones, he was focused on the computer screen, did not look around, and commenting on the cartoon, 'speaking' to the characters by saying things like, 'wow!' or 'No! Do not go there.' Field note data showed that Saud repeated the same activities that he likes every day, so every day he went to the Computer Centre and asked the teacher to play the YouTube video about 'fire fighters', and he would not stop until the teacher asked him to move to another centre. Also, in the Reading Centre he showed

excitement about the story of *The Little Baker*. This story book comes with a reading pen, and he would put the pen on the word and listen carefully with a smile on his face every day during the food unit. Saud showed anger and disappointment when he found out that the teacher had changed the reading centre for a new unit, meaning that he would not be able to read *The Little Baker* story again. In contrast, in the Planning Centre he was moving from one task to another without finishing them. Here, the field notes revealed that he needed more explanation for tasks in this particular centre; indeed, twice when he noticed me observing him, he asked me to explain the task again. After reading the question instruction to ‘circle what plants need’. He pointed at a picture of a jug that was circled on the sample. Then I asked him what this was and he said ‘tea’. I explained to him that it was a water jug. This would suggest that he needed help to access tasks like this. He also left the cutting task in the same centre, and when Mariam asked him to go back to finish the task he refused. I asked him why he did not want to go back to the task and he explained, ‘I want to do it at home.’ I said to him that this was fine but why he likes to do it at home, and he replied, ‘My mother will do it for me.’

In outdoor play activities Saud always showed attentive behaviour, following what the teacher said, following orders, listening carefully and looking at the teacher when she spoke. He showed a high level of enthusiasm about playing outside his classroom.

Observation data revealed that Saud’s attention level was changeable depending on the type of activities he was doing. It is important therefore to define the type of activities that Saud showed more attentive behaviour in. These were outdoor play, practical activities, the Computer Centre, the Reading Centre and the Building Block Centre. Identifying these types of activities might offered an opportunity to utilise Saud’s interests when preparing individualised plans. He showed inattentive behaviour during repeating with the class tasks, cutting task, cognitive and writing tasks. So, the mode of tasks appeared to affect his attention level. These tasks are also important to define since we can infer through them his needs and the kinds of difficulties he might face in some tasks. This would make it possible to provide an assistant, whether a teacher or a suitable peer, when he was engaged in these tasks during interventions.

5.3.2.2. The steps for Individualised and small-group instruction

In order to record Saud’s needs, abilities, interests, and social interactions, the researcher observed him during various activities, analysed his work documents and interviewed him, his

teachers and his mother. During the interview, Saud did not identify the things that he was most interested in.

5.3.2.3. *Individual child information record*

Saud's interests: According to the interview with Saud's mother, he loves songs, watching video and TV, cars, building blocks and riding a bike. He also prefers writing on the whiteboard to writing on paper. Saud did not provide answers to questions about these activities or offer other things that he likes to do in or outside the school. In fact, he kept silent during the interview. He just said, 'I like riding a bike, the red one'. Field note data showed that he often chooses to work in the Computer and Building Block Centres and that he showed excitement about stories that came with a reading pen. He always asked the teacher to allow him to ride a bike during outdoor play.

Saud's needs: based on an analysis of Saud's worksheet documents, the teachers and the researcher identified that he faces difficulties with writing some letters and words. The data showed incomplete tasks. In some cases, he had tried to complete the task, but was unsuccessful. Sara, who described Saud's difficulties, stated that at the beginning of the year he had problems holding a pencil and scissors, and she said, 'I personally provided special support to teach him how to hold a pencil correctly.' The teacher then explained that he is now much better in grasping a pencil, and able to do so using only three fingers.

Saud's abilities: He is able to identify the numbers 1-10 independently but needs the teacher's help to identify numbers 11-18. He could not identify the following Arabic letters ف, ر, and م.

Health issues: He suffers from hypermetropia. The mothers of participating children were asked to identify any health issues with their children, since these could be a factor in lack of attention (Galera et al., 2011, cited in Mahone and Schneider, 2012). The three teachers and Saud's mother agreed that his attention was affected by his hypermetropia. His mother said, 'I think Saud struggles to pay attention if he does not wear glasses' (Mother interview, 11th February, 2018). Hypermetropia is long-sightedness which affects the ability to see nearby objects. During conversations with teachers, they confirmed that his ability to pay attention in the class was affected if he was not wearing his glasses, and also that he could not focus on any tasks, especially during circle time. The results of a study in the United States involving 244 preschool and kindergarten children with moderate farsightedness, and 248 preschool and

kindergarten children with normal vision, showed a significant negative relationship between farsightedness and grades in attention-related exams (Kulp et al., 2017). Poor nutrition could be another factor that affected Saud’s attention. Field note data showed that Saud is a picky eater. He refused to eat his meals if his mother changed the types of bread, or if he found jam in his sandwich. Sometimes, he refused to get his breakfast from his backpack at mealtime, instead sucking his thumb and watching his classmates eating. In the interview with his mother, she mentioned, ‘I am suffering with his eating. He refuses to eat everything and eats slowly’ (Mother interview, 11th February, 2018).

Social interaction with peers: Saud showed strong prosocial behaviours. He was able to develop friendships, start conversations, help his classmates, share food and other materials, and collaborate with peers and teachers. He often chooses collaborative play when playing outdoors.

5.3.2.4. Individual adjustment and plans

The researcher and teacher developed a plan based upon Saud’s abilities and interests. We looked at Saud’s data and tried to point out what tasks he could achieve with assistance in order to identify his ZPD. This plan suggested an activity content biased towards the use of auditory material in teaching, and music and building blocks, and the use of the whiteboard in order to teach him numbers and some concepts in small groups.

5.3.2.5. Individualised and small-group instruction provided to Saud

Table 12: Individualised and small-group instruction provided to Saud

<i>Lessons</i>	<i>Lesson has been covered</i>	<i>New lesson</i>	<i>Reason for choosing the lesson</i>
Song for letter ج		√	Use individualised and small-group instruction to teach Saud the new letter, allowing comparison of his learning and attentive behaviour during different kinds of teaching instruction.
Outdoor play, water sources	√		Circle time concepts. Lesson chosen to support Saud’s

			learning in circle time, where he did not show attentive behaviour during traditional instruction.
Bingo game		√	Saud did not engage with this activity. The teacher plans to provide him with additional support using individualised instruction to improve his understanding.
Cutting task. Teaching him to hold scissors.	√		Teachers agreed that Saud needs activities that support his fine motor skills. This task was planned to provide assistance from the teacher and peers to improve his small motor skills.

5.3.2.6. Findings in respect to how individualised and small-group instruction affected Saud

First intervention: Song for letter ج

Raja played the letter song video on a laptop, while Saud watched the video with three of his classmates (see Figure 19). Then Raja asked him to identify the letter and write it on the whiteboard, which he did. He exhibited a happy smile and clapped. He showed a high level of excitement, looked at the task, answered the teacher's questions and followed the teacher's commands.

Developmental learning goal: identify and write the letter ج



Figure 19: Saud watching the letter video song on a laptop with classmates, demonstrating attentive behaviour.

This individualised instruction takes account of the child's interest in visual and auditory materials such as singing videos on the laptop (as his mother stated that he loves songs and watching videos). The Field note supported this information since Saud showed attentive behaviour when the teachers used visual or auditory materials. This individualised instruction also takes account of Saud's need to learn to identify and write letter from a new lesson, and his ability to follow a video, watching, listening, and using marks to write the letter on the whiteboard.

Saud's feedback after the activity:

Researcher: How was the activity?

Saud: I like it

Researcher: Would you like to do it again?

Saud: What?

Researcher: Would you like to do it again?

Saud: I love songs.

Second intervention: holding scissors and cutting

Sara encouraged Saud and his classmates to work together in a cutting task. Everyone held a pair of scissors and cut out the shapes printed on the paper. Saud showed more interest in working on this task in a group than when he was doing it alone. He was looking at the teacher and followed her instructions. Sara provided guidance about how to hold scissors correctly. First, she held Saud's hand and cut with him, and then gradually she let him continue to cut the shapes independently. After the activity Saud proudly showed me the shape that he had cut from the paper.

Developmental learning goal: how to hold scissors and use them to cut.

This individualised instruction takes account: of the child's need to practice holding things like scissors so as to train him in controlling small muscles with group and teacher support.

Saud's feedback after the activity: he did not answer the researcher's questions (he immediately, moved to play in another centre).

Third intervention: bingo game

In the bingo game in a previous circle activity, Saud appeared confused and did not follow the teacher's instructions. The teacher and researcher discussed his need for special support to help him understand the game. The teacher played with him in a small group to teach him the bingo game rules step-by-step. She provided individual instructions to him and asked him to look first at the card in her hand and then look at his paper to find the matching word. The teacher asked him to focus on the word shape and the first and last letter. Gradually, he engaged with the bingo activity and did very well at the second attempt. He showed a level of attentive behaviour and excitement that was not evident without the teacher's individualised assistance.

Developmental learning goal: teach him the steps of the game in a small group.

Saud's feedback after the activity: He said, 'It was fun', but he did not answer the other feedback questions.

Fourth intervention: Water sources game with Khalid and Norah

Water sources is a lesson that Saud has already attended in traditional instruction (circle time). After the circle time, however, Saud did not achieve the lesson goal set from The Ministry of Education, namely the ability to list at least three water sources. Sara and Raja therefore varied the teaching instruction (as explained more fully in section 2.4.1.6) in respect to Khalid.

During the activity, he repeated the task three times, which indicated that he enjoyed the game. He helped his classmates to answer the teachers' questions in the game. He enjoyed answering the questions standing next to his classmates to provide help when they needed.

After the activity: Saud was able to list four water sources and he commented that the activity was fun.

The game was designed to support the three cases in learning the concepts previously introduced in circle time. The outcomes were as follows: Saud showed more attentive behaviour during the game, achieved the lesson goal, and enjoyed the activity.

5.3.3. Background of the third case (Ali)

Ali is a five years-old boy who lives with his parents and five brothers, all of whom are older than him. Ali's mother is a member of the kindergarten administration. Ali sometimes escaped the class to sleep in her office. He joined the kindergarten at age three, and studied level one, two and three at the same kindergarten, so the year of the data collection is his third year at the school.

5.3.3.1. Ali's attention during school activities.

During traditional circle time Ali's attention decreased, he often looked sleepy, yawning, closing his eyes and lying down on the floor. He did not repeat after the teacher and his classmates. Sometimes he talked about topics irrelevant to the circle (e.g. video games and feeding pets). He also disturbed other children when they were listening to the teacher. Sometimes he sat facing the opposite direction to his classmates. More attentive behaviour was

recorded during the practical circle, however, such as with the cooking and cleaning circles.

In the Art Centre he created a new way to draw, holding many pens of different colours together so that they can be used as one pen. Two of his classmates who were working in the same centre imitated his way in drawing, but he asked them to stop copying, saying, ‘This is my way. Do not copy it.’ Observation data showed that he exhibited more attentive behaviour in the Art and Building Block centres than in the Planning, Writing and Cognitive Centres, which do not have the same freedom, and which include tasks that children need to complete correctly. There are a number of possible reasons for his inattentive behaviour: misunderstanding the task, insufficient sleep and the difficulty of the task.

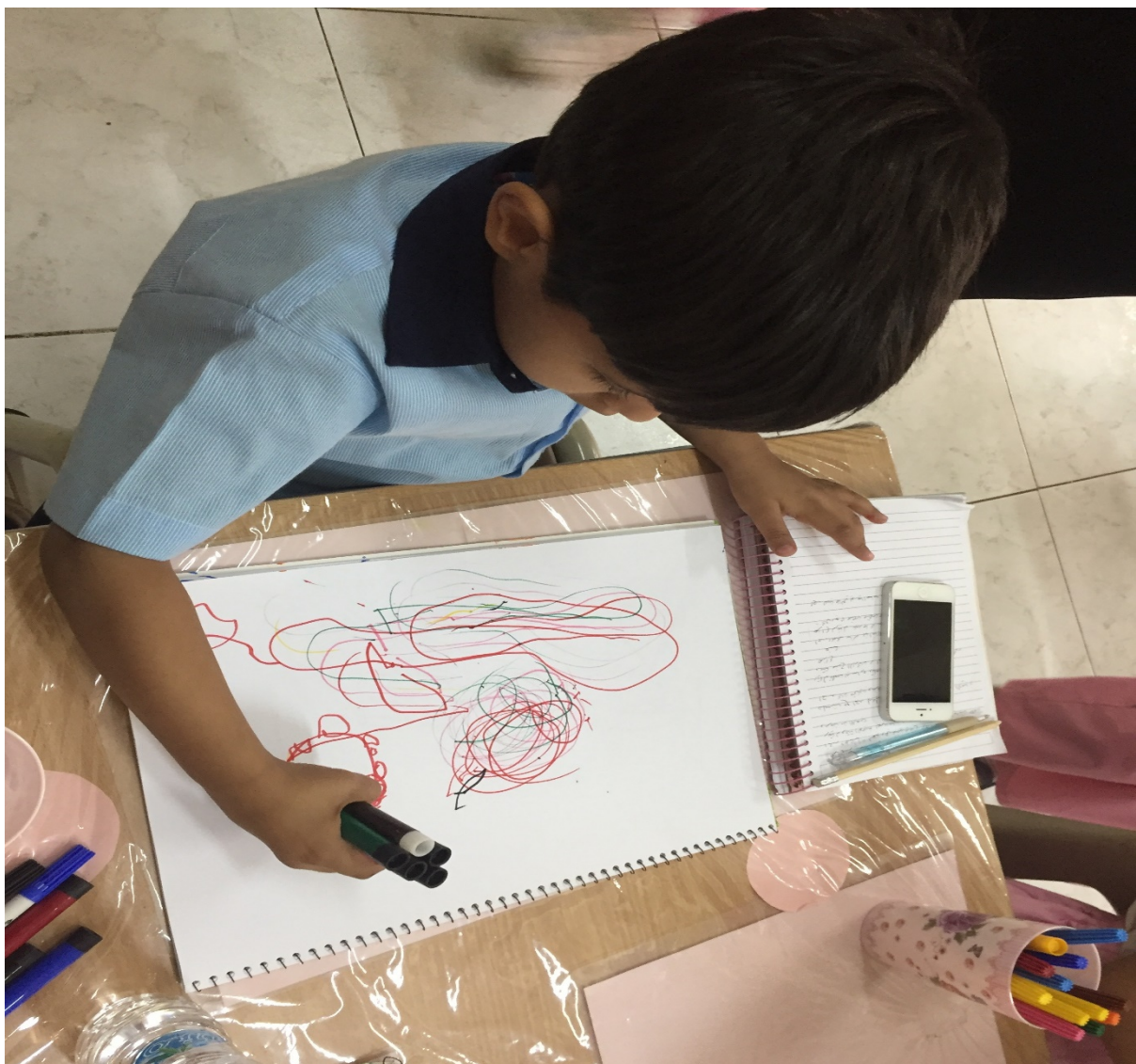


Figure 20: Ali created his own method in the free drawing task in the Art Centre.

In the outdoor playing activity, he discovered static electricity under the slide. Ali has silky soft hair and, as a result, contact with the area under the slide left his hair positively charged. He then put his head under the slide to charge his hair and ran behind his classmates saying ‘Run! I’m electricity!’. Some of his classmates tried to do the same but their hair would not stand on end like Ali’s due to their hair types. Ali usually showed attentive behaviour in outdoor play activity.

5.3.3.2. The steps for individualised and small-group instruction

In order to record Ali’s needs, abilities, interests and social interactions, the researcher observed him during various activities, analysed his work documents and interviewed him, his teachers and his mother. Ali was able to identify the things that he was most interested in.

5.3.3.3. Individual child information record

Ali’s interests: he said, ‘I love video games (PlayStation) using an iPad, car toys, building blocks and puzzles.’ His mother mentioned that he liked to take care of pets and listening to educational stories (Mother Interview, 8th February, 2018).

Ali’s needs: based on an analysis of his worksheet document, it was evident that he faced difficulties with writing numbers and letters. The data showed some problems that might be caused by lack of motivation, such as incomplete and unsuccessfully completed tasks as well as blank pages (the teacher’s comments on some of these papers were that he was absent and, in another case, sleeping). Based on these problems, Ali needed to be motivated to complete tasks. He was not able to identify the numbers 2-10, so he needed to learn these.

Ali’s abilities: He was creative, and on many occasions was able to see things in new way, creating his own unique way to use tools around him (see section 5.3.3.1).

Health issues: He experienced sleep problems (i.e. a disrupted sleeping schedule). UC Davis Health System (2015) mentioned lack of the sleep as a factor that can contribute to lack of attention. Ali’s mother also mentioned teeth and gum problems that might affect his performance at school or home since sometimes he felt uncomfortable due to toothache.

Social interaction: Ali is a social person who likes to start conversations with other students. He often chooses competitive activities, and invites his classmates to work as a team, developing peer relationships, and helping others.

5.3.3.4. Individual adjustment and plans

The researcher and teacher developed a plan based upon Ali's abilities and interests. This entailed an emphasis on activities utilising building blocks and the whiteboard. In order to teach him letters, numbers and some concepts in small groups.

5.3.3.5. Individualised and small-group instruction provided to Ali

Table 13: Individualised and small-group instruction provided to Ali.

<i>Lessons</i>	<i>Lesson has been covered</i>	<i>New lesson</i>	<i>Reason for choosing the lesson</i>
Letter ص	√		Ali needed support in literacy skills
Number block building	√		Ali was not able to identify numbers from 11-15 (a curriculum goals). This intervention was designed to support his numeracy skills.
Using cars in circle time		√	Use different teaching methods to improve his attentive behaviour during circle time.
Holding a pencil and copying writing	√		Teachers mentioned that he needed to develop his pencil grasping skills to improve his writing.

5.3.3.6. Findings in respect to how individualised and small-group instruction affected Ali

First intervention: Letter ص

Raja used a puzzle involving the use of thick thread to sew the shape of the letter with the thick thread puzzle in order to teach him the letter in a small group. One of his classmates was helping him keep the thread in the right direction. This activity was implemented during centre time with the aim of teaching him one letter and improving his fine motor skills. The teacher's role was observing the two children working and provided help when needed.

During the activity he devoted great effort to completing the task successfully. After he had finished the puzzle Raja asked them to write the letter on the whiteboard.

Developmental learning goal: identify and write the letter ص

This individualised instruction took account of: Ali's interests by using materials from the puzzle centre, as well as the child's need to identify and write the letters, the child's ability to hold a thread and follow a teacher's instructions and to work with peers under the teacher's guidance.

After the intervention: Ali was able to write the letter independently.

Ali's feedback after the activity:

Researcher: How was the activity?

Ali: Sweet

Researcher: Would you like to do it again?

Ali: Maybe tomorrow

Researcher: What did you learn?

Ali: To play with this [pointed to the puzzle].

Second intervention: Numbers from 11 to 15 using building blocks (with Khalid).

This intervention was described in an earlier section (see section 4.4.1.6).

Ali followed the teacher's instructions to write numbers using blocks. He discussed with Khalid the number that he had built on the rug. After the activity he identified three numbers that he built with the teacher and Khalid: 11, 14 and 15.

The individualised instruction took account of: Ali's interest in working in small groups in one of his favourite centres, which is the building block centre, as well as his need to identify numbers from 11-15.

Ali's feedback: 'I like the activity.'

Third intervention: Using cars in circle time.

The teacher used cars to hide pictures of various professions following the circle time entitled 'Professions in the water'. This activity was implemented during the morning circle time. The teacher asked Ali, 'Who's under the blue car?'. He was smiling and looking and listening carefully before saying, 'He is diving inside the sea.' Ali explained what a diver did, but he did not name the profession. The teacher said that we call this person 'a diver' and Ali repeated this after her. Then he helped his classmates to collect the diver's clothes.

Developmental learning goal: improve his attentive behaviour during circle time.

This individualised instruction took account of: Ali's interest in using materials such as cars, as well as his need to learn morning circle concepts and his ability to follow the teacher's instructions.

During this intervention Ali showed attentive behaviour and engaged with the activity, commenting and answering the teacher's questions.

Fourth intervention: Holding a pencil and copying writing.

The teacher wrote letters and numbers on the whiteboard and asked Ali and one of his classmates to identify numbers and copy them on his side of the white board. He had his own side and one of his classmates had the other side of the board to copy the same letter in, so they were able to help each other. He showed the ability to follow the teacher's instructions during

this activity and showed a high degree of attentive behaviour. The teacher showed them the correct way to hold the pencil and tried to correct his hand position.

Developmental learning goal: develop his pencil grasping skill to improve his writing.

This intervention was designed to work in a small group, but it turned into a competitive activity that encouraged Ali to do his best. He tried to write more than his classmate and asked the teacher proudly to see what he had done.

5.3.4. Background of the fourth case (Norah)

Norah is a five-year-old girl, who lives with her parents, three brothers and one sister. She has a twin brother who is studying with her in the same class. Raja describes the relationship with her twin as one in which ‘he always pranks her and hides her glasses which causes a problem at home and school’. Raja stated that ‘her attention decreases when she comes to school without her glasses, which means a difficult day for us and her’ (Teacher interview, 31st January, 2018). Norah had missed a lot of school days, and this affected the richness of data about her case. Although she had attended kindergarten in levels one, two, and three, she had studied in two different kindergartens since her family had moved house.

5.3.4.1. Norah’s attention during school activities

The observation data showed that her attention was poor in traditional circle time. This was associated with behaviour like playing with her classmate’s hair or putting her hair into her classmate’s eye. She did not look in the direction of the teacher and tried to get out of the circle by hiding under the corner curtains. On the other hand, when the teacher asked the class to repeat after her, Norah always did so. In practical circle she showed a higher level of attention and expressed her feeling of excitement, saying, for example, ‘I am so excited.’

In outdoor play she showed high attention in some areas, such as the sandpit. For example, she worked to build a castle with one of her classmates. While she was preparing toys to build the castle, the teacher walked into the sand area to bring more sand toys for the children, but without taking her shoes off. Norah reminded her, saying to the teacher, ‘You are breaking the rules. We are not allowed to walk in the sand area wearing our shoes.’ Although she did not join her class to ride a bike in the bicycle area, she stood at the gas station and asked who needed petrol, offering to fill up their bicycles. Although she did not ride the bike she still

engaged in the activity, which infers a connection between her interest and her attention and level of involvement in the task. This point will be discussed in detail in the next chapter. Norah showed attentive behaviour during centre time, and she usually asked for help when she needed it.

5.3.4.2. The steps for Individualised and small group instruction

The same steps were followed as mentioned in the previous cases. Norah was able to identify the things that she was most interested in.

5.3.4.3. Individual child information record

Norah's interests: her mother mentioned stories, pretend play and using the iPad as Norah's interests (Mother interview, 18th February, 2018). Norah said, 'I like drawing and colouring, and the Dramatic Play Centre and playing with puppets and sands' (Child interview, 18th February, 2018).

Norah's needs: she needs support with letters and numbers from 12-18.

Norah's abilities: she expresses her feeling very well, and she can identify numbers from 1 to 11.

Health issues: has a squint eye, and hypermetropia (see section 4.3.2.3). She sometimes has nightmares and can become hyperactive at night, which affects her sleep schedule.

Social interaction: observation showed her to be a caring, helpful child who always provided help to her classmates. Although her mother stated that she did not engage with other children easily, the observation showed her regularly helping others.

5.3.4.4. Individual adjustment and plans

The researcher and teachers developed a plan based upon Norah's abilities and interests. This entailed an emphasis on activities and content involving colours and stories, and practical activities in order to teach her letters and some other concepts in small groups.

5.3.4.5. *Individualised and small-group instruction provided to Norah*

Table 14: Individualised and small-group instruction provided to Norah.

<i>Lessons</i>	<i>Lesson has been covered</i>	<i>New lesson</i>	<i>Reason for choosing the lesson</i>
Letter ض	√		Observations and document analysis showed that she needs support in her literacy skills.
Water sources colouring	√		Assessment results after the traditional circle showed that she needs support in grasping curriculum concepts.
How materials affect water		√	Using new teaching methods in order to compare between her attentive behaviour during the new and traditional teaching methods.
Hand puppet story	√		She needs support in grasping curriculum concepts.

5.3.4.6. *Findings in respect to how individualised and small-group instruction affected Norah*

First intervention: Letter ض

The teacher printed the letter form on a coloured page. She provided watercolour pens to Norah and two of her classmates to work together in a small circle during the task. Norah was looking at the task, discussing her colour choice with the group, and it was evident that she enjoyed colouring and identifying the letter in the form. During the task, Norah spoke about irrelevant topics, like going to the shopping mall with her family, but she was able to go back to the task. After the activity she wrote the letter independently on an empty page as the teacher had asked her to do, as well as listing with the group, words that include the letter.

Developmental learning goal: identify and write that letter ض.

This individualised instruction took account of Norah interest in using materials such as colouring pens and colouring worksheets, as well as her need to learn the letter ض, and her ability to work with a team and in colouring.

Norah's feedback after the activity:

Researcher: How was the activity?

Norah: Fun.

Researcher: Would you like to do it again?

Norah: Yes, every day.

Researcher: What did you learn?

Norah: The letter ض, like in the word ضوء, which means light (which in Arabic starts with the letter ض)

Second intervention: Water sources colouring.

Mariam printed the water sources colouring worksheets for Norah and her small group. Norah showed attentive behaviour during the activity, colouring the sources with a smile on her face and then identifying each source to the teacher. She persisted at the task until successful and helped her classmate in identifying the source in the colouring worksheets.

Developmental learning goal: she learned about water sources concepts (from formal curriculum).

The results of this intervention showed that, after the task Norah was able to list a numbers of water sources, thus achieving the lesson goal.

Norah did not provide feedback after this activity as she was busy playing in other centres.

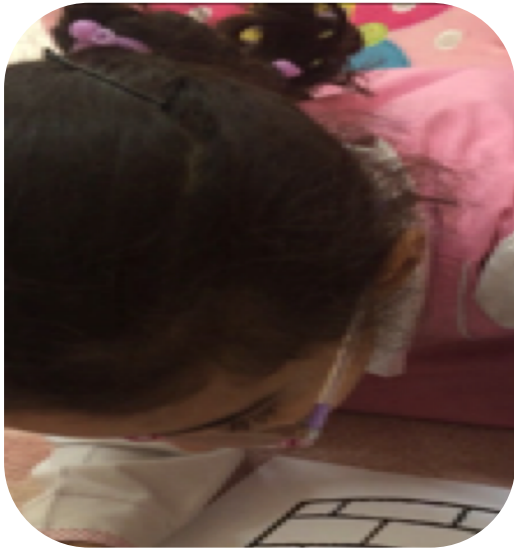


Figure 21: Norah colouring water sources (well and river) worksheet with small group.

Third intervention: How materials affect water.

This was a practical activity using Discovery Centre materials to teach the concept of how materials affect the water's colour and smell. Raja guided Norah and three of her classmates to add materials and explain the changes in the water. (Usually the Discovery Centre is only for one child but Raja implemented this exception for the intervention). Norah showed a high level of attention, adding tea, colour and a stone to the water and describing what she saw.

Developmental learning goal: to learn how different materials can affect water.

The results of this intervention: showed that Norah was able to speak about changes that she noticed in the water after adding different materials, which achieved the task goal.

Fourth intervention: Story hand-puppet hand finger names.

In the reading centre, Norah and two of her classmates were holding a puppet and repeating a story that Sara had told them about the names of fingers: when the thumb asked the bee 'How are you a bee?' The bee replied, 'I am fine'. The thumb asked, 'Do you have a thumb on your hand bee?'. The bee replied, 'No, I don't have a thumb'. And then they asked about all the fingers' names. Sara scaffolds play in this activity, sitting next to the small group and playing with the same material that the children were using, thereby modelling the way of using the material.

Developmental learning goal: identify the names of the fingers (from the formal curriculum).

This individualised instruction took account of: Norah's interest in using stories and pretend play, her need to learn the circle concept of finger names, and her ability to repeat stories after the teacher and play different characters.

The results of this intervention: showed that Norah was able to list some of fingers' names.

Norah's feedback after the intervention was: 'I liked the activity and I want to do it again.'

5.4. Chapter summary

In this chapter I presented the data of the research from both parts of the study, part 1 (data about children and their attention, the classroom, the teachers, teaching methods and curriculum) and part 2 (data about children's attention when experiencing individualised and small group instruction activities), the chapter brought this together by focusing on four children as the main cases. It includes current teaching instruction and its relevance to children's learning and attention behaviour in relation to the curriculum as well as the teachers' beliefs and practice; the four cases stories and discuss their attentive behaviour during formal curriculum activities; the factors affecting these children's attentive behaviour and learning, the individualised instruction elements, and the socio-cultural learning. the last theme presents the findings of how individualised and small-group instruction affected the cases' attention and learning which served to answer the research question mentioned earlier in this chapter. The next chapter provides discussion of a cross-cases analysis that focuses on comparing children's attention behaviour and learning and discussing the similarities and differences between the current teaching instruction and individualised small-group instruction with respect to a number of themes.

6. Findings 2: discussion / analysis chapter

6.1. Introduction

Chapter five thus sought to articulate the children's experience of two different forms of teaching instruction, highlighting the unique features of each particular case. In Chapter six, I will compare the children's attention span during school activities and interventions and analyse the factors that affect their attention span and learning across the cases. This chapter will also seek to look across the four children by identifying the similarities and differences in the children's responses to current teaching instruction, on the one hand, and small group individualised instruction, on the other. I have organised the presentation of analysis data and discussion with respect to a number of themes (see section 4.7.3). The themes are: 1. current teaching instruction and its relevance to children's learning and attention span, 2. determining children's attention span theme, 3. factors affecting children's attention span and learning, 4. the elements of individualised instruction, 5. socio-cultural learning and the small-group instruction, and 6. how individualised and small-group instruction affected participant children's attention span and learning.

6.2. Current teaching instruction and its relevance to children's learning and attention span

Details of the activities in the daily kindergarten programme were described earlier (see section 5.2), with two main types of activity being identified in the formal curriculum: practical and traditional. One similarity that appeared across cases was that children showed more attentive behaviour during practical activities than during traditional ones. Observation data revealed that, during practical activities, Khalid, Saud, Ali, and Norah recorded more attentive behaviour, such as speaking only about the lesson, looking at the teacher or in the task direction, answering the teacher's questions, and engaging with the class discussion. There were relatively limited opportunities for children to engage in practical activities in the kindergarten programme, however, the practical circle, centre time and outdoor play, provided children with time to play an active role and interact with other children. The increase in the children's attentive behaviour during these activities suggested that they preferred them to other activities.

Although children might be expected to show more attentive behaviour to activities they preferred, I sought to confirm these observational findings through interviews with the

children. This parallels a similar approach taken by Khoja (2013), in her study of Saudi kindergarten children. She aimed to provide opportunities for the children to share their perspective about school activities through drawing and using the researcher's camera to take photographs of their favourite activities. This revealed that the children who participated in her study preferred practical open-ended activities in centre time and outdoor play where they could socialise in groups or choose to work individually. Her study's findings seem to be reflected in the children's behaviour in the current study. That is, the children showed more attentive behaviour during work on these type of activities as they described them as their favourite activities during the interviews.

In my study, I used the interview to ask the children, 'What is your favourite activity in the kindergarten?'. To which they responded as follows:

Khalid: 'I love playing in the building block centre and riding a bike. Also I like the puppet theatre in the dramatic play centre.' (Child interview, 26th February 2018).

Saud: 'Riding a bike.' (Child interview, 18th January 2018).

Ali: 'I love block building and puzzles, and the indoor play area.' (Child interview, 20th February 2018).

Norah: 'I like drawing and colouring, and the dramatic play centre and playing with puppets and sand.' (Child interview, 18th February 2018).

It can be seen from the above that the children in this study also confirmed their favourite activities gave them an opportunity to be active learners, doing practical tasks, and being able to socialise. This can be described as a preference for active socially-embedded learning, which is defined by Education Reimagined (2018) as a learning model that refers to more than engaging with others in social activities:

Socially Embedded, to refer to a learning model in which, 1) a learning community has been intentionally created that provides everyone with a place to be known and a place to belong; and 2) the social nature of learning has been consistently enabled and it is emphasized as a central part of the learning experience (p.9).

Socially embedded may also refer to activities that reflect social life, such as the playing with puppets activity that Norah likes, which can still be described as a socially embedded activity (even if she is not with other children) because it is social in that she likes the puppets, which reflect social life. Education Reimagined (2018) describes how:

making a learning model Socially Embedded involves a significant decision to make learning with others in the learning community a central part of each learner's journey. This requires that each learner's pathway be planned so that they are engaged in sustained relationships that support their learning (p.9).

This aligns with Vygotsky's concept of sociodramatic play – with the puppets – acting out previous social experiences which can be promote children's learning (see section 3.4.1). It also aligns with Vygotsky's social constructivist theory of learning, which emphasises that social interactions and hands-on activities are essential for child development since they allow learners to construct their own knowledge (Geary, 1995 cited in Schunk, 2012; Erbil, 2020). For example, Bodrova and Leong (2006) explain how to teach children about the concept of size, a teacher through social interaction indicates that blocks have various sizes, and the children can then construct a concept of size. But, they add, to help the child construct his/her own understanding and enable him/her to apply the concept to other materials independently, the child must manipulate materials through touch and compare different-sized materials, and it is that interaction that helps the child to retain the concept within their cognitive repertoire. The three participant teachers within this research agreed that when children play an active role in a given task, their attentive behaviour is usually better, and this then promotes learning. Mariam reported that, 'in activities that child plays an active role the child's response is not limited to saying things but it goes beyond that to doing things which promotes the child's learning'. Sara reported that she 'noticed children being more attentive usually when they playing an active role'. Raja acknowledged that 'it is normal that when the child plays in an active role and is allowed to participate in activities, there are more attentive' (Teachers interview, 25th December 2018).

On the other hand, even though the children showed generally more attentive behaviour, some differences were apparent in their level of involvement and enjoyment during different practical activities. For example, Saud, who loves bicycles, frequently expressed his happiness and was highly involved during the bicycle activity. In contrast, Norah, who said, 'I don't like

bicycles, I would like to play in the sand every day’, only exhibited short periods of engagement and most of the time did not become involved in riding the bicycle. This indicates that the level of interest appears to play a significant role in children’s attention, level of involvement and, consequently, their learning.

6.2.1. Similarities and differences within practical activities

As discussed above, even though visual and observational data showed that children were more active and attentive during practical activities than traditional ones, data from centre time activities conducted under the current teaching instruction paradigm found that children shared common interests (see Table 15). The similarities and differences that appeared between children in these activities may be related to their interests or levels of task difficulty. For example, Khalid, Saud, Ali, and Norah showed more attentive behaviour when working in centres that they had identified during interviews or conversations, as ones they were interested in. These centres shared a few of characteristics, however, they allowed the children freedom to be creative, such as in the art and block building centres, which contained manipulative materials that the children could use individually or in small groups. Moreover, the work in the centres was not focused around the need to complete a specific set task, so the children were free to construct new knowledge and skills themselves. Vygotskian theory emphasises the idea that kindergarten activities bring benefit to children when these activities link with their interests and provide suitable social situations, like dramatic play activity, block building and art (Bodrova and Leong, 2006 cited Zaporozhets, 1978). ‘Benefit’ here may mean long-term developmental gains, but this research focuses, in contrast, on the short-term benefit as represented in children’s attentive behaviour and their learning attitude and performance. Clearly, however, this is a key foundation for future learning and, in general, a positive present learning experience leading to positive impacts on children’s learning in the future (Nieto, 2002 cited in Darling-Hammond et al., 2020).

<i>Child's name</i>	<i>Contexts in which attentive behaviour was exhibited</i>	<i>Contexts in which inattentive behaviour was exhibited</i>
Khalid	Art, block building, dramatic play	Planning, cognitive, reading, writing.
Saud	Art, computer, reading, block building	Planning, discovery, writing, and dramatic play centres.
Ali	Art and block building centre, and dramatic play	Planning, writing, and cognitive.
Norah	All centres	Inattentive behaviour did not usually appear during centre time, except occasionally in the cognitive centre.

Table15: Children's attention behaviour during centres time (see section 5.3.).

Khalid, Saud and Ali showed inattentive behaviour during time in the planning and writing centres, which included tasks and worksheet papers that children needed to complete individually, with the answer sample being provided on the table. This behaviour might be related to the level of difficulty of the activities; for instance, Saud, abandoned the cutting task because, as Sara and Raja stated, that 'he faced difficulties in holding the scissors' (Teachers' conversation). When I asked Saud why he did not want to complete the task, he said, 'I will leave it for home, my mother will do it for me'. Other children misunderstood the task in this centre. For example, Ali was drawing a circle around pictures when the task required him to draw a line connecting each picture with its shadow (see Figure 22). So, misunderstanding the task may be one of the reasons that caused his inattentive behaviour that the observation data frequently showed when he was working at this centre, or may explain his tendency to avoid working on during centre time. Teacher Mariam's interpretation of his behaviour and misunderstanding was that 'he was not attentive when I was explaining the task for the class, he did not listen' (Conversation with teacher, Mariam). Ali, however, was able to completed this task with Sara's help. This aligns with the individualised instruction as it recommends that teachers observe children who struggle and provide them with instructional support. Sara provided Ali with some instructional support, which helped him complete the task.



Figure 22: Ali showed misunderstanding of the task in the planning centre.

All the participating children showed attentive behaviour in the dramatic play centre, except Saud, who spent less time playing in this centre, even though he had strong prosocial behaviours, which refers to human actions to help others (Beilin, 2013). He, in fact, was the only one who showed inattentive behaviour during play in this centre. On the other hand, Saud was the only child in the sample that showed high engagement in the computer centre, whereas the other children showed no interest in using the laptop in the computer centre. Saud in particular, watched cartoons (see section 5.3.2) on the computer. Norah and Ali showed inattentive behaviour during play in the cognitive centre without teacher guidance, but it was observed that their attention behaviour improved when the teacher later provided assistance. For example, in the visual data (video), Ali had been set the task of putting some play tools alongside the appropriate figure; so sewing tools were to be placed by a figure of a tailor, and kitchen tools by a figure of a chef. It was evident though that he was just touching the tools and looking around. His attentive behaviour, to engage in the task, increased after he had asked the teacher, Raja's, guidance on how to do the puzzle, and he stopped looking around (see Figure 23). The conversation went as follows:

Ali: [moved the pieces of puzzle after placing the rolling pins piece under the tailor's boxes, and he asked the teacher] 'Is that right?'

Raja: Do you think a tailor needs a rolling pin?

Ali: [shook his head no, and then moved the chef's hat from the chef's box, indicating to the teacher to place the rolling pin in the box].

Raja: [asked Ali to identify the pictures on the pieces. Pointing at the cake] What is this?

Ali: Cake.

Raja: Good and what is this? [pointing at the tailor's pin cushion].

Ali: Food, cake.

Raja: [holding the cake picture] if this is a cake [then pointing to the tailor's pin cushion], what is this? Look again.

Ali: Needle.

Raja: [in a positive tone of voice] Needle. And who is using the needle?

Ali: The chef

Raja: [in a questioning tone] Is chef using a needle in a pin cushion? Does your mum take a needle in a pin cushion with her to the kitchen?

Ali: No

Raja: Then, who uses the needle here?

Ali: [Pointed at the tailor].

Raja: Who is this in the picture?

Ali: Mum [the tailor is female]

Raja: She is mum, what she is doing here is sewing clothes, so she is the tailor.

Ali then completed the task and proudly asked the teacher, Mariam, to look at what he had achieved.



Figure 23: Teacher Raja provided assistance to Ali in the cognitive centre.

The video footage transcript above supports the view that the teacher's guidance, which may be considered a social source of the child's learning and development, plays a vital role in children's learning, achievement and attention. According to Erbil (2020), Vygotsky stressed the significant role that the more knowledgeable other (MKO) plays in children' learning. From Vygotsky's perspective, the child is initially dependent on the teacher (e.g. Ali's reliance on the teaching assistant) but then, when the teacher starts removing her assistance gradually, the child is encouraged to take more responsibility for his own learning and to become involved in activities. John-Steiner and Mahn (1996, cited in Martin and Smolcic, 2019), argued that through the internalised impacts of cooperating, the novice learner obtains valuable strategies and essential knowledge. Moreover, through asking open-ended questions Raja frequently scaffolds Ali's understanding of the task. The term 'scaffolding', developed by Wood, Bruner and Ross (1976), seems to stem from Vygotsky's (1933) idea of the support that builds a bridge for children to achieve a goal that beyond her/his ability.

To sum up, the above is an example of working in the ZPD where collaborating with small groups or the teacher can help in moving the child to achieve the learning goal and as a step towards working independently. Ali benefited from Raja's guidance and next time, if he wants to do the puzzle, he may use skills that he gained from his experience. Whilst no evidence of that progression in Ali's case has been collected in the current study, there is evidence for other research that confirms the claim that adult guidance improved the children's understanding and

performance compared to when the children attempted the task alone (e.g. the Freund, 1990, study). The possibility of progression still needs further research, but improved attention is evident from this example.

Saud and Norah showed attentive behaviour during play in the reading centre. First, Saud read a storybook, using a reading pen so he could listen to the story. The availability of storybooks with audio pens motivated Saud to visit the reading centre frequently, where he read the same book every day, pointing the pen at the word in the story and listening. Norah, on the other hand, chose to play with a hand puppet in a small group. Ali and Khalid, meanwhile, rarely visited the reading centre and generally showed inattentive behaviour when working there.

The field note data showed that when the teacher asked Ali to complete tasks in the planning centre and he did not want to, he would sometimes scurry off to the discovery centre and sit in front of the materials there, or speak with the children in other centres. The four children showed more attentive behaviour in the discovery centre when the teacher stood near the centre and provided assistance, such as by discussing with the children what they could see, and how they could use things in the centre. This shows that indirect adult involvement can promote children's participation in school tasks.

To sum up, comparing the findings in respect of children's attentive behaviour and learning during school activities (before the intervention), revealed that Khalid, Ali, Saud, and Norah showed more attentive behaviour and better learning involvement when engaged in practical activities than in passive ones. Moreover, factors such as the children's interests, level of task difficulty and extent of teacher guidance appeared to have an influence on their learning attitude and attention. Observation data indicated that children preferred activities that allowed them to choose freely what they wanted to do and how. It is a common assumption that free choice activities provide children with opportunities that helps children's learning and development through allowing children to construct and control their own learning (Wood, 2014). The children's choices, however, as it reflects their social life and family culture may sometimes be unaligned with the classroom rules and learning goals which disadvantage some children. In this vein, this type of activity needs to be under teacher supervision, but the teachers need to be careful about the nature of their involvement in children's choices (see section 6.6.1). Also, children's confidence and personality will affect their choices, for example, choosing

things that seem easy, or taking risks to face a challenge. Again, the teacher can help with this – to boost confidence and encourage the child into and beyond the ZPD.

6.3. Determining children’s attention span theme

Two techniques were used in order to determine children’s attention: general observation and an assessment tool (see Appendix 2). The tool was developed to measure the attention span of preschool-age children. It was adapted from Conner’s Teacher Rating Scale-Revised (Gurley,2011) and was used to support the observation data (see section 4.6.2.2.). The results derived from the tool are the average scores over three separate applications between weeks three and five of data collection, when I used it to observe the children’s attention during school activities. Thus, an average score of ‘often’, given for a particular indicator of attention, for example, means that the researcher recorded ‘often’ in respect of that indicator twice in the three times when the tool was applied. The results shown in Table 16 might differ from behaviour recorded during the general observation, since the attention problems reported via the tool relate only to the specific times when the tool was applied. Moreover, data on the participants comment section on the tool will be discussed in the next section as factors which affected the child’s attention (see section 6.4).

Table 16: Average descriptors over three separate applications in weeks 3-5 of data collection

<i>Children’s common attention problems at school</i>	<i>Khalid</i>	<i>Saud</i>	<i>Ali</i>	<i>Norah</i>
The child does not persist at a task until successful or moves from an unfinished task to another quickly	Often	Often	Never	Often
Fails to pay attention to details or makes careless mistakes in schoolwork	Very often	Never	Often	Never
Fails to return to a task after an interruption unless prompted to do so	Occasionally	Never	Never	Never
The child is easily distracted by external stimulation	Very often	Very often	Often	Very often
Shows lacks interest in schoolwork (tasks)	Very often	Often	Never	Never
Refuses to comply with an adult’s requests or rules	Very often	Often	Never	Never

Has difficulty to engaging in a task	Occasionally	Occasionally	Very often	Often
Disturbs other children	Very often	Often	Often	Very often
Talks about a topic irrelevant to the task	Very often	Very often	Often	Never

When applying the tool, it was evident that Khalid, Saud, and Norah often left tasks unfinished in the planning centre and in the number and letter file. Ali, however, kept trying to finish the task once he had started.

During the time when the tool was applied, Khalid's record showed that he very often failed to pay attention to details. For example, when the teacher asked him to put the planning centre worksheet in his work file, he put it in the number and letter file. At another time, when the class returned to the classroom and the children created two queues, one for boys and one for girls, Khalid joined the girls' queue. Ali also often failed to pay attention to detail. For example, when the teacher reviewed what the children had learnt during morning circle, his answer related to something they had done during centre time. On another occasion, when the teacher asked him to describe the children's clothes in a picture, he described their hair. Saud and Norah, however, did generally pay attention to detail.

Khalid occasionally failed to return to a task after an interruption, especially when he had been uninterested in the task from the beginning. For example, when a circle time lesson that had been interrupted (as someone had opened the classroom door and left), the other children were able to return to their task, whereas Khalid was distracted, and the teacher had to ask him to look at and listen to her. In contrast, when he was interrupted playing in the sand area, he was able to return to his play easily. This suggested that Khalid did not need the numerous reminders from the teacher to return to play in sand, the desire to return to play appear to be caused by internal motivations. It is possible that he was working in his ZPD, as Vygotsky (1978) stated that during playing child behave beyond their abilities (see section 1.4), whereas he may have found the circle time boring or difficult – too far beyond his ZPD.

Khalid, Saud and Norah were very often easily distracted by external stimulation; for Ali, this was less of a problem. The problem, however, was only recorded during circle time.

Khalid very often lacked interest in schoolwork, especially during number and letter circle activity. He tended to follow other children's work without attempting to complete the task himself. Saud, meanwhile, often showed a lack of interest in schoolwork in the planning centre,

resulting in the teachers asking him several times to complete his tasks in the planning centre. The assessment tool, however, did not suggest that Ali or Norah showed a lack of interest in schoolwork.

Khalid very often broke the play rules and refused to comply with teachers' requests. For example, when the teacher asked children to clean the classroom after centre time, Khalid refused to do so, and made fun of other children. Saud often showed the same problem; for instance, he refused to enter the classroom after outdoor play, especially in bicycle time. Ali and Norah did not have this problem.

Ali very often had a hard time starting a task. In number and letter circle, for example he showed interest in starting but looked confused and usually ending up asking for help from peers or teachers to help him start. Norah often appeared to have difficulty engaging. This was true in circle time lessons, as well as in some of the centre and outdoor activities, in the indoor play area and on the bicycle. She appeared inattentive to what was happening around her. Khalid occasionally found it difficult to engage in some tasks. This problem was particularly evident with routine tasks, such as counting, repeating prayers (religious texts) or songs. Saud also occasionally exhibited difficulty in engaging in planning centre tasks. He looked tired and had no energy to complete the task.

Khalid and Norah very often disturbed other children during circle time, doing things like touching their classmates' bodies or whispering in their ears. Ali and Saud also often disturbed other children. Saud touched his classmates or pushed them, and, during circle time, Ali showed them things that he had brought in from home.

Khalid and Saud very often talked about topics irrelevant to the task and topic, such as things they did at home. Ali, often talked about video games during school activities. Norah, however, was never found talking about irrelevant topics.

In terms of recording an 'often' or a 'very often' for the nine problems, Khalid received seven, out of the nine problems. Saud received six, Ali received five and Norah received four.

During the development of the tool, the teachers and I agreed that the children average descriptors over three separate applications should record 'often' or 'very often' at least in five attention problems out of the nine to ensure that the child frequently showed the same problems

(see Appendix 2). However, Norah, who recorded four out of the nine, was not excluded, however, since the tool was used only to support the selection of cases and to determine children's attention for the purpose of the study. This meant that the tool was not essential to excluded children who recorded lower scores than the number described by myself and the teachers in the instructions for using the tool.

By looking across the tool's results it appeared that children usually showed inattentive behaviour during the same activities that the general observation identified as ones they were having attention problems in, such as in traditional circles, the planning centre, and the number and letter tasks, which were discussed previously (see section 6.2). This might be related to the difficulty of the activities or the child's baseline level of interest which can be considered factors that influence children's attention.

6.4 Factors having a negative impact on children's attention and learning across cases

With regard to the factors impacting children's attention behaviour and learning across the cases, findings showed both shared and individual factors (see Table 17).

Table 17: Factors that had a negative effect on children's attention across the cases. (Note: factors written in a bold font indicate shared factors).

<i>Child's name</i>	<i>Factors causing inattention from the mother's perspective</i>	<i>Factors causing inattention from the teacher's perspective</i>	<i>Factors causing inattention from the child's perspective</i>
Khalid	Environment (lack of privacy and a quiet place to study at home)	Family issues e.g. his parents' divorce and the subsequent custody disputes between his parents	I do not like to sit and listen. I want to play'.
Saud	Watching television, hypermetropia , malnutrition	Hypermetropia , and inadequate care.	Did not provide comments about his

			inattentive behaviour
Ali	Sleeping problems and teeth and gum problems	Inconsistent sleeping schedule	The lesson was boring: ' I felt bored '.
Norah	Hypermetropia	Hypermetropia	I am just back from work and I am tired, I felt bored and I want to sleep.'

These were identified from the stated perceptions of the participating children, their teachers and mothers. Factors that had a negative effect on attentive behaviour could be divided into three groups: biological and physical factors, environmental factors and emotional factors. Biological and physical factors refer to genetic or acquired factors that influences the child's health such as malnutrition, sleeping problems, hypermetropia (i.e. eyes cannot see close objects as clearly as it sees the distant objects, World Health organisation, 2013) and teeth and gum problems. Social and physical environmental factors refer to children's social and physical home environment. These include home-life factors (e.g. an unstable home environment, lack of privacy or a quiet place to study, and inadequate care) and emotional factors, that related to the child's emotions (e.g. feeling bored, lack of interest in joining in with particular activities).

Since this research examines how different methods of teaching instruction affect children's attention and learning, it is important to identify the factors that cause inattentive behaviour so that subsequent interventions can target these barriers in the children. The data shows that, across the cases, there were both similarities and differences in the causes of inattentive behaviour. The following section starts with the similarities that impact the children's attention.

6.4.1. Biological and physical causes

6.4.1.1. Hypermetropia (longsightedness)

According to their parents and teachers, Norah and Saud's inattentive behaviour was linked to hypermetropia, in that this was worse when they were not wearing their glasses. A number of

studies supporting this observation of a link between hypermetropia and attention problems in children (Kulp et al., 2017; Ho et al., 2019). Ho et al. (2019), for example, stated that hypermetropia may diminish a child's vision and attentiveness, prompting side-effects of inattention and hyperactive movement.

Khoshhal et al., (2020, p 1) stated that ‘The prevalence of hyperopia is relatively high in Middle Eastern children’. Indeed, a study focused on the common childhood eye diseases that are a matter of concern in Saudi Arabia, found hypermetropia to be widely prevalent among Saudi children (Darraj et al., 2016). A systematic review of the factors underlying hypermetropia in children, identified age as having an inverse relationship with it (Castagno et al., 2014). The meta-analysis in this review demonstrated that the predominance of hypermetropia reduces as age increases (see Table 18). In general, hypermetropia is common in younger children but can improve as children get older, with the prevalence in children aged 5 to 15 ranging between 2.1% and 19.3%.

Table 18: Summary of hypermetropia prevalence by age group (Castagno et al., 2014).

<i>Prevalence measure</i>	<i>Age group</i>
5%	7 Years
2-3%	9 to 14 Years
About 1%	15 Years

Since hypermetropia is linked to inattentive behaviour in children, and since the only solution at present is glasses (Darraj et al., 2016), the teachers and I identified the appropriate intervention for Norah and Saud as being to encourage them to wear their glasses.

6.4.1.2. Malnutrition

One factor Saud’s mother mentioned as potentially affecting her child’s attention was malnutrition. The observation data reported that Saud was a picky eater (see section 5.4.2.3). The definition of paediatric malnutrition is ‘an imbalance in nutrient requirements and intake, resulting in adverse effects on growth, neurocognitive and body functions, and other clinical outcomes’ (Ooi et al, 2019, p.408). Malnutrition has been found to be prevalent among Saudi children; studies show the number of children suffering there is higher than in some low-income countries (El Mouzan et al., 2010; Aljohani and Aljohani, 2020). Almuneef et al., (2019) highlighted that, children in Saudi Arabia, under the age of five, suffering from anaemia,

fatigue, and mental impairment, are likely to be suffering from malnutrition. Saud's mother's perspective is in close agreement with studies that identified malnutrition as a factor that may result in inattentiveness (Tjituri, 2014). Moreover, comparisons between well-nourished and malnourished children found that the latter have poorer school attendance, lower levels of academic achievement and attention and health problems (Florence, Asbridge, and Veugelers, 2008, cited in Tjituri, 2014). Other researchers have focused on identifying nutrients that affects children's attention. For example, iron deficiency has been shown to lead to difficulties in concentrating, short attention span, poor mood and tiredness (Sorhaindo and Feinstein, 2006; Benton, 2011). Despite this established connection, however, Tjituri's (2014), research on the link between diet, attention span and scholastic performance in seven-to nine-year old children, found no strong linear correlation between malnourishment and children's poor academic performance and attention. The study concluded that the malnourishment may not be the main factor that caused poor attention and academic performance. Further research is therefore needed to find out more about the relationship between malnourishment and attention.

This discussion highlights how important it is that parents and teachers ensure that children eat healthy food that contain the essential nutrients that children need. According to Maslow's theory of motivation (1981), there are five categories of necessities that lead to the individual motivation: physiological needs, such as food (identified as among the most basic needs), must be met in order individual can be motivated. Obviously, it is well-known information and has been supported by research (e.g. Benton, 2011), but parents and teachers need to be aware of practical steps to help children develop healthy eating habits. Schools need to provide specialists to help teachers and parents deal with these problems or hold parents' meetings to provide them with a chance to share their experience about this problem and effective solutions that can help parents support their children's eating habits.

6.4.1.3. Teeth and gum problems

Oral health problems are a significant general medical issue around the world (Alsubaie,2019). The Ministry of Health (2019) reported that 96% of Saudi six- year-olds and 93.7% of twelve- year- olds have cavities in their teeth. There is no denying the fact that poor oral health can impact both children and adolescents' life quality and daily activities. The literature identifies negative impacts on children that include, toothache, eating problems, antisocial behaviour, low self-esteem, poor school attendance, and lack of concentration (CDC, 2016; BaniHani., et

al., 2018, both cited in Alsubaie, 2019). Another study recently conducted on 465 Iranian children aged five to nine years concurred that the toothache interfered with children's eating and their sleep (Kalantary et al., 2020). Although, overall, there is a lack of research into the precise relationship between children's inattentive behaviour and their oral health status, both these problems were apparent in the case of Ali, whose tooth and gum problems appeared to be linked to difficulty concentrating and poor sleep. Kindergartens teach children about dental care and healthy oral behaviour, but as the problem grows and impacts children more, school health programmes are required to raise awareness among parents too. Knowing about oral wellbeing practices and the need to treat these problems in children, is important not just for children's long-term oral health but to prevent the more immediate negative effects on learning and attention. School can host some volunteer dentists to speak to the children and their parents.

6.4.1.4. Sleep problems

Sleep problems are common among young children. Ali's mother and teachers both reported that his disrupted sleep schedule could be a major factor that contributing to his inattentive behaviour. Norah's mother also reported that Norah frequently woke up at night. Factors identified as contributing to poor sleep in children include, a very busy lifestyle, extracurricular requirements and use of technology at bedtime (Sadeh, 2007; O'Brien, 2009; Fuller, 2017). Paediatric research advocates that children with sleep problems are at more serious risk of suffering from inattention, low academic achievement and behavioural and emotional disorders (Konofal, Lecendreux, and Cortese, 2010). A number of other studies have also confirmed that sleep problems in children are associated with increased inattention (Epstein, Chillag and Lavie, 1998; Fallone et al., 2005; Owens, 2008; Meltzer et al., 2010; Bhargava, 2011; Gruber et al., 2011; Maski and Kothare, 2013; Paruthi et al., 2016 cited in Hunter, 2020). Researchers have suggested that this may be because the part of the brain most affected by poor sleep is the prefrontal cortex (Sadeh et al., 2003 cited in Waldon, 2018) which is the area believed to play a critical role in the control of attention (Jones and Harrison, 2001 cited in Waldon, 2018; Rossi et al., 2009).

Based on the above evidence, researchers have emphasised the importance of providing children with good sleep to improve their mental health and physical wellbeing (Gruber et al., 2011; Paruthi et al., 2016 cited in Hunter, 2020; Blackwell et al., 2020). A good sleep includes both sleep quantity and quality. In respect to the first, parents must ensure that children get the

appropriate amount of sleep for their age. For example, the recommended amount for children aged 3 to 5 years is between 10 and 13 hours a day (American Academy of Pediatrics, 2016; Ministry of Health, 2017). Parents can support good sleep quality, meanwhile, by checking that children do not have sleep problems (e.g. waking up in the night, disordered breathing). If they observe any sleeping problems, they need to take that seriously, and seek further professional help if required. Health and wellbeing issues therefore seem to be affecting children learning and attention. This reinforces the point that we need a holistic approach to understanding children's learning, including at school, home and family. From Vygotsky's socio-cultural perspective, in socio-cultural environmental factors, such as culture and social interaction with others (peers, family and community) structure the child's learning and development (Moll, 1990). For Vygotsky, children's learning and development cannot be understood in isolation from environmental factors that shape their learning and development. Therefore, each child needs the necessary support to enable his/her learning and development.

6.4.2. Social and physical environmental causes

6.4.2.1. Exposure to technology

Other factors appeared to differ from one participant to another. From Saud's mother's point of view, the level of his exposure to television was related to his inattentive behaviour, since she noticed that Saud did not respond to what was happening around him while he was watching television. Nonetheless, this was mentioned as a factor causing attention problems by only one participant in this study, despite the fact that the mothers of all four participants confirmed that the children had access to either their own technological devices or played with their mothers' smartphones for hours every day. From my experience with children in my family and friends, children spend a lot of their time at home using technology such as iPads and PlayStation, something confirmed by Saudi's studies (e.g. Almogbel, 2019). This will be discussed later in this section.

Various studies have associated television exposure with inattention in children (Christakis et al., 2004; Miller et al., 2007; Foster and Watkins, 2010; Ansari and Crosnoe, 2016). Moreover, there is research showing that children generally have too much 'screen time' and that this is associated with various negative health and behavioural outcomes, such as sleep disturbance and other disorders (Restrepo et al., 2020).

The increasing use of technology by Saudi children has prompted concern among parents nationally (Almogbel, 2019). The Global System for Mobile Communications Association (2014) reported that over 84% of Saudi parents were worried about their children's use of technology, especially, smartphones. One reason for the large amount of time that children spend using technology may be a lack of other leisure activities available for children in Saudi Arabia. For example, there is no public library for children in Mecca, and there are only a few playgrounds and indoor play areas in shopping malls. Alturki et al. (2020) argued that children in Saudi Arabia have limited outdoor activities due to the extreme climate, classified as a desert atmosphere, with described by extraordinary heat during the day across a large part of the country. This and a lack of suitable facilities for children's activities, and that this leads to increased screen time for children. In their study, Zainab, Haneya and Nadia (2019) found that 40 out of the 68 five-year-olds their parents surveyed in five regions across Saudi Arabia were overusing mobile devices and video games.

Overall, therefore, even though the participants in the current study did not mention screen time as factor that may affect their children's attention. The combination of the interview data, which showed that all the participants spent hours connected to technology devices, and the large body of research highlighting the effects of such screen time on attention, suggests that this is a factor that needs to be addressed in the intervention (Barnes et al, 2007; Yoo et al., 2004).

On the other hand, we have to recognise that technology use is a double-edged sword. While overuse of non-educational interactions with technology may have an adverse effect on learning and attention, technology can enhance learning and attention in other instances (Bester and Brand 2013; Kawas et al, 2019). According to Vygotsky (1978), learning is mediated through two types of learning tools: psychological tools, such as language and symbols, and technical tools, such as books and other material that exists as part of human environment. Technology can therefore be viewed as technical tools that can work together with psychological tools as a learning mediator. Moreover, the Ministry of Education in Saudi Arabia encourages schools to integrate technology in the classroom; and most of the children enjoy using it and it would be difficult to stop it being used. As a result, the teachers and I decided to use technology as a tool in some individualised and small-group activities, for educational tasks, and particularly as a tool to stimulate the child's interest in some interventions.

6.4.2.2. Home factors

The teachers and Khalid's mother identified an unstable home environment as an issue affecting attention, including lack of a quiet place to focus on tasks and inadequate care. In an interview, Sara mentioned that 'Saud's family size affects his learning and behaviour. I believe that he needs more care at home' (Teacher interview, 29th January 2018). Sara explained that as Saud lives in a large family with many children, his mother face challenges in providing Saud and his siblings with adequate care. The three teachers agreed that an unstable home environment could be a major factor in Khalid's behavioural problems and his poor attention and learning. Khalid's mother agreed that the problems with her former husband had a negative impact on Khalid's behaviour and learning. Mariam, Sara, Raja and Khalid's mother were therefore all agreed that the child's home environment influences different aspects of the child (see section 5.3.1). According to Bush et al. (2020), it is widely recognised that the family environment plays a critical role in shaping children's cognitive, behavioural and emotional development. Sociocultural theory supports Bush's perspective that family culture underpins socio cultural perspectives in learning (see section 5.2.). Based on Vygotsky, Rogoff's (1990) work examined how children learn through interaction with family activities. Rogoff concluded that during family cultural activities, guidance and participation are fundamental in children's learning and development.

This also has implications for children's behaviour. For example, instability has been found to be positively associated with increasing child misbehaviour due to parents' failing to provide sufficient emotional and material support (Sandstrom and Huerta, 2013). In addition, D'Onofrio and Emery (2019) reported that parental break up increases the risk of poor academic performance and disruptive behaviour. Since the lack of a stable home environment appears to have a serious negative impact on children's learning and behaviour, parents should seek help from teachers, schools and social counsellors in order to mitigate the negative effects of instability and protect the child from such problems. It is beyond the scope of this to provide interventions to Khalid outside the classroom, nevertheless, it would be recommended for further study following the results of implementing individualised instruction to provide interventions at the school by the teachers and at home by parents.

This section discussed important social and physical environmental factors that had a negative effect on children's attention. The next section will consider a further overlapping factor, the emotional factor.

6.4.3. Emotional causes.

Interviews with the children revealed that boredom was a potential explanation for Ali and Norah's inattentive behaviour. In his ZPD concept, Vygotsky stresses the idea that we need to avoid boring and frustrating activities, and those educational activities should be challenging and slightly beyond the child's ability so that the child can reach goals by working with teachers or peers. Murray and Arroyo (2002) (cited in Shabani, Khatib and Ebadi (2010)), identified two features of the ZPD: the cognitive perspective and affective perspective. The cognitive perspective relates to activities that are not too complicated or too simple, while the affective perspective relates to the need to avoid tasks that result in learners becoming bored, disappointed and muddled, since these emotions may cause distraction. The interviews with the children in this study, working to elicit their point of view on their inattentive behaviour, confirmed this theoretical point that boredom is a factor that might lead to a lack of concentration on school activities. To avoid this problem, the teacher should design activities that ensure each child in the class is appropriately challenged to create a better learning environment for every child to develop their abilities. Even Khalid explained that his inattentive behaviour was for emotional reasons saying, 'I do not like to sit and listen. I want to play', his perspective could be interpreted as his not being interested in that still activity and he would prefer to do another activity instead sit and listen.

In summary, the factors that the current study identifies as affecting children's attention and learning share some similarities, such as in hypermetropia, sleep problems, boredom, home factors and exposure to technology. There are also some shared differences, such as malnutrition and teeth and gum problems, depending on the individual child's situation. Parents can help their child succeed at school by providing them with the basics of appropriate sleep and nutrition, limited use of technology, an optimal, safe, supportive and stimulating home environment, and challenging activities. While these factors may not be new in the context of wider research, they have not yet been brought together into a holistic intervention in the Saudi kindergarten context. What is needed next is to identify how parents and teachers can work together to use these factors to solve the problem of poor attention. How can Ali's mother help

him get proper sleep? How can Khalid's mother improve the home environment to make it less stressful for Khalid and his sister? How can Saud's mother help him to get proper nutrition? Schools need to work in partnership with parents to support their children and I believe this is the responsibility of researchers, policymakers, society and schools. It is also necessary to raise awareness about these factors and the negative impact they can have on children. More educational programmes and regular parents' meetings in and outside school are needed to communicate experience with these problems.

The factors identified need further research in the specific Saudi context since there is a striking lack of studies on factors affecting kindergarten children's attention and learning in Saudi Arabia and the best ways to limit their negative consequences for children in this environment.

6.5. Similarities and differences between current and individualised teaching instruction theme

This section highlights the similarities and differences between the current teaching instruction and individualised small-group instruction (the intervention). Part 2 of the research drew on data from part 1 to develop an intervention. This combined small group instruction with individualised instruction in order to produce activities that consider individual's needs and abilities, while at the same time providing appropriate social situations to support individual learning.

Five differences were identified between the two types of teaching. First, the current teaching instruction did not encourage project work for small groups, where children were able to work as a team to achieve a shared goal. While the children did have opportunities to work together in the centres, such as gathering blocks to build a building in the block building centre, this was not a structured team learning activity flowing from any plan or specific encouragement provided by teachers. However, in the small group instruction approach used for the intervention, the teachers were asked to design a task that aimed at engaging students to work towards a common goal. In this type of teaching, teachers would guide and encourage children to work together. For example, in an intervention to count and identify numbers from 2 to 10 using an iPad app, Khalid worked with a small group to solve the maths problem together (see section 5.3.1.6). A number of studies support the effectiveness of cooperative learning (Gillies, 2014) and stress the importance of social interaction in children's learning. As Vygotsky stated, 'with collaboration, direction, or some kind of help, the child is always able to do more and

solve more difficult tasks than he can independently' (Vygotsky, 1934/1987, p.209). This type of instruction aligns with the notion of represented by the acronym TEAM -Together Everyone Achieves More (Tong, 2016). The children showed real enthusiasm to complete tasks together, both during and before the intervention, in some practical activities. One challenge facing the teacher during the intervention, however, was managing the concurrent work with the small intervention group while the rest of children in the classroom continued with their regular tasks. This meant that the teachers had to ask the other children to focus on their work in the centres and try the intervention activity later (taking turns). To sum up, the first difference between the two teaching instructions was that individualised small group instruction reinforced the idea that tasks that encourage children to work together to achieve one goal promotes their learning and, in the context of the current study, promotes their attentive behaviour.

Second, the observation and interview data showed that the current teaching instruction had no formal assessment system (see section 5.2.1). Individualised small-group instruction, however, requires assessment that intertwines teaching with observations, direct questions and analysis of children's portfolios. For example, during observation I observed that Khalid could not identify numbers from 2 to 20 (section 5.3.1.3) while some other children in the same class could identify numbers from 1 to 20 in both Arabic and English. When I discussed this with teacher Sara, she was shocked that Khalid was not unable to recognise these numbers. In the visual data (video), the teacher Sara directly asked Khalid to identify numbers from 1 to 10. The conversation went as follows:

[Sara wrote a number on a piece of paper and asked Khalid]: What is this number?

Khalid: It is D.

Sara: This is a number not a letter, look again and try.

Khalid again: D.

[Sara wrote another number and asked him to identify the number. Khalid did not answer or recognise the number].

Sara: We already learned this number.

[Sara looked at me and asked 'Is this reasonable'. She was shocked.

[Sara wrote number 1 and asked Khalid] What is this number?

Khalid: One.

Sara: What comes after number 1?

Khalid: [silent]

Sara [after a while]: You don't know how to count Khalid?

Sara: Please sit properly come and count with me. Let's start 1-2-3-4-5-6-7-8-9-10.

[He counts with her from 1-10].

Sara: Great! Well done. Okay, now by looking you have recognised the shape of number 1. Can you recognise the shape of number 2?

[Khalid smiled and looked to the other side of the corridor. Sara asked him to look at the paper and repeated the question]: Can you recognise the shape of number 2?

[Khalid made non-verbal 'yes' head movements].

Sara [pointing to a paper that included different numbers]: Where is 2 here?

[Khalid pointed to a different number.]

Sara: No

[Khalid pointed to another number]

Sara: No, that is number four.

[Khalid pointed to another number, which was 2].

Sara: Good, show me number 3.

[Khalid pointed to the wrong number].

This transcription shows that the teacher, Sara, was unaware of Khalid's problem with numbers that he was supposed already to be able to read and write. It is evident, therefore, that the lack of a clear and formal assessment system in the current curriculum might result in teachers being unaware of the level that children had reached.

Individualised instruction, on the other hand, requires types of assessment to gauge students' acquisitions of knowledge in one subject in terms of the outcomes of the programme. Based on these outcomes, decisions can then be made about the amount and type of instruction the

student will receive (Al Otaiba et al., 2011; Nurmi et al., 2012). Individualised instruction, therefore, allows teachers to adapt their teaching instruction to meet the individual needs of each child. The type of assessment used in the intervention produces an information record for each child that will help the teacher understand his/her needs, abilities and interests, thus facilitating better teaching and learning outcomes.

The individual child information record document also has uses more broadly. For example, in the current situation where many classes have had to go online due to Covid-19, teachers can use this document to design online tasks for children, considering their needs, abilities and interests. This could also be a useful guide for parents to enable them to focus on the things their child is interested in, thus fostering his/her learning engagement and motivating the child to become more engaged in online education. Moreover, teachers are sometimes replaced, when they retire or move schools, so it would support the transmission of information to new teachers, and thus maintain progress. Further to this, all kindergarten teachers in Saudi Arabia are women and are entitled to ten weeks of maternity leave. The information record could make it quicker and easier for cover teachers to understand the needs of their children, and thus smooth the teaching and learning process during the transition. Thus, the second difference between the two teaching instructions is that the individualised instruction considers child assessment as an essential part of the teaching process, with instruction provided based on the child's assessed needs and abilities. In contrast, the current teaching curriculum does not have a clear system.

The third difference is that observation data showed that assistance from teachers and peers was limited during school activities in the current teaching instruction. Observations showed that, usually, children who faced difficulties in the planning centre were not provided with the assistance that they needed, and thus left the task unfinished, as was the case with Saud's efforts in the cutting task (see section 5.3.2.1). In individualised small-group instruction, however, the teaching and learning process is dependent on interventions by a teacher or peers if it is to deliver the desired outcomes. For example, in the second intervention for Saud, Sara and the small group provided assistance, which that encouraged Saud to cut the shapes independently.

Fourth, the current teaching instruction provided the same tasks to all children without considering differences between individual students. Individualised small group instruction tasks, however, are designed based on children's abilities and needs. It could be argued,

however, that giving all children the same tasks enables different outcomes (i.e. enables the child to work at their own level), as long as all children can access the task. This assumes the task is accessible to all children, and not too easy for some.

Fifth, in circle time the teacher's role could be more seen as that of a lecturer, to give students information. From Mariam's perspective the importance of this activity lies in preparing children for school, since that is one of the curriculum's goals (e.g. disciplining children to sit still and listen). Children can still learn these skills, however, if teachers change the design of circle time in such a way as to plan a project for a small group. Circle time activity is thirty minutes; with two teachers managing the activity, they could not give all children in a large sized class the opportunity to be involved in the discussion or express their thoughts. The data showed that Norah and Khalid expressed their disappointment when they had something to share, and the teacher did not give them the chance to speak (see Figure 24). So, if teachers divided the circle into small groups to share their point of view about the task and lesson, that might provide more opportunities for each child to express their ideas, helping them to learn better with the teacher's support and questions.



Figure 24: Norah ignored the circle lesson when she was not chosen to answer the question.

Norah explained this picture by saying, ‘I am upset because the teacher chooses my friends every day and does not chose me’. Observation data showed that the two teachers make every effort to provide all the children with opportunities to participate in the discussion. The size of class, however, makes it difficult to allow all children to say everything they wanted to say.

In terms of the similarities between the two teaching instructions, both include a rich learning environment with laptop, books, building blocks, puzzles and puppets. In both methods, children have access to learning resources (centres) and the teaching supports learning through play centres and outdoor play. Moreover, both allow access to a range of technology, such as the internet and interactive video.

6.6. Elements of the individualised instruction intervention

This section discusses the content of the individual child information records that the teachers and I worked to produce, and which built on the first phase of data collection (Table 19 and Appendix 7). In this record, the child’s interests, family culture (including the child’s favourite methods of learning at home) from the mother’s perspective, the child’s needs, the child’s abilities, and social interaction.

Table19: Summary of children’s individual records

<i>Child’s name</i>	<i>Interests</i>	<i>Learning method at home</i>	<i>Needs</i>	<i>Abilities</i>	<i>social interaction</i>
Khalid	iPad riding scooter riding bicycle block centre puppet theatre (dramatic play)	Using the white board	Support in reading and writing numbers and letters.	Able to work within a team Able to express himself. has fine motor skills.	Does not experience challenges in developing peer relationships.

	watching TV			Able to use a tablet	
Saud	Listening to songs. Watching video and TV. Cars Building blocks. Riding a bicycle Computer Stories that come with a reading pen.	Prefers to use the whiteboard and marker at home to write.	Faces difficulties with writing letters and words.	Able to identify numbers 1-10 independently. Able to identify numbers 11-18 only with teacher help He able to identify number 11-18 only with the teacher's help. He could Able to work in small groups.	Strong prosocial behaviours. Able to develop friendships and start conversations. Helps his classmates. Shares food and other materials with others. Collaborates with peers and teachers. Often chooses collaborative play during outdoor play.
Ali	Video games (PlayStation) iPad Cars Building blocks and puzzles Pets	Whiteboard	Faced difficulties with numbers and letters. Needs support to identify numbers 2-10	Creative (see section 4.3.3.1)	Social- like to start conversations with other students. Often chooses competitive activities. Invited his classmates to work as a

	Stories				team. Develops peer relationships. Help others.
Norah	Stories Pretend play iPad Drawing and colouring. Puppets and sands.	Stories	She needs support with letters and numbers from 12-18.	Expresses her feelings very well. Identifies numbers from 1 to 11. Works with teams.	Caring, helpful Always provides help to her classmates. Her mother stated that she doesn't engage with other children easily, but usually she likes to provide help to the others.

6.6.1. Children's shared interests

The four children share interests in technology (iPads, video games and TV), building blocks and dramatic play. This supports Hedegaard's (2005) statement that children at this age usually share some interests and that activities can be built around these. As mentioned earlier, technology can be a double-edged sword since research suggests a link between technology and short attention span, and indeed the four cases with short attention span in this study do own technology devices and use them freely. However, from a different perspective, this interest in technology can be utilised to encourage children to engage with learning tasks and activities, harnessing their ability to stay focused on technological tasks to help them learn more effectively, and improve their performance (Daley, 2014).

Interviews both with the children and their mothers, as well as observational data, showed that second shared interest (for Khalid, Saud and Ali) was building blocks. This is a practical

unstructured activity through which children can acquire basic knowledge. Researchers have shown that free play with building blocks can improve numerical, problem solving and science skills in children (Kamii, Miyakawa and Kato 2004, cited in Sarama and Clements, 2009). According to Sawyers and Rogers (1988, cited in Lin, (2010), meanwhile, the positive influence of playing with blocks is related to the stimulation of three areas of development: cognitive, motor and social-emotional (see Table 20).

Table 20: The influence of playing with blocks on different aspects of development (Adapted from Lin, 2010).

<i>Cognitive</i>	<i>Motor</i>	<i>social-emotional</i>
<p>Language: naming the different shapes of blocks increases children’s awareness of sentence structures, linguistic rules, grammar and vocabulary.</p> <p>Children have opportunities to express their ideas through the use of language.</p> <p>Science: through the properties of different kinds of blocks, such as their sizes, shapes, weights and relationships with other blocks. Moreover, children</p>	<p>Playing with blocks requires physical manipulations that offer children opportunities to practise their fine and gross motor coordination. E.g. when children pile one block on top of another and build structures, they put blocks in exact positions in the piling process. These actions help children practice eye-hand coordination.</p>	<p>Blocks are simple and useful materials for facilitating socio-dramatic play. As children develop their imagination and creativities, they use blocks as houses, boats, shops, trains, and buildings to develop themes for their stories. Children learn to engage in the development of different ideas, play according to those ideas and thoughts, communicate and negotiate with</p>

<p>learn about space and balance.</p> <p>Mathematical: children learn concepts of length, height, width and depth through block play. E.g. children put blocks next to or on top of each other, making comparisons as to their length or width and learning the meaning of numbers. When a child begins to count blocks from 1 to 10, they come to use language and to understand that six blocks are a greater number than four blocks.</p>		<p>playmates,</p> <p>and use problem-solving strategies. Children also learn to see things from others' perspectives, to work together as a team, to take turns and share blocks,</p> <p>and to help others in block-building processes. Children develop the ability to</p> <p>organise thoughts and activities so that each person involved feels a sense of responsibility and contributes to the team.</p>
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As highlighted above, the benefits that children can acquire from playing with building blocks derive from this being an activity that meets their interest. So, parents and teachers can support children's learning and development by focusing on activities that stem from children's interests.

Sarama and Clements (2009) have suggested ways that adults can use the building block activity to support children's learning. They advise that adults observe children's play, provide guidance when needed, create a fruitful environment and provide visual resources (books, pictures) that illustrate block structures. Lin (2010) also suggested using the building block activity to improve parent-child relationships. The author argued that busy lifestyles may

decrease the opportunities for parents to engage with their children in fun activities. The four suggested steps parents can use engage with a child's play are: observing child play, valuing and supporting the child's opinions and feelings, create a fruitful discussion, showing empathy and respecting the child's personality.

During one of the interventions in the current study, Sara used some of these strategies. For example, observing children playing with building blocks, participating with them to build structures, linking their play in that centre to some academic tasks related to numbers, and encouraging them to participate actively in their learning, which led to positive results (see section 5.3.1.6).

The third interest, shared by Khalid and Saud, was riding a bicycle, which is another practical activity that children do during outdoor playtime in order to develop their gross motor skills. Cycling is a structured activity (Department for Schools and Families, 2008; National Playing Fields Association, 2000 cited in Rowhani, 2011). Studies have confirmed the positive effects of cycling, such as increased coordination and improved muscle strength (Kaljumae, Hanninen and Airaksinen, 1994, cited in Chen et al., 2012). The bicycle area can be an attractive space that motivates children to join kindergarten, as the current study revealed. For example, Sara confirmed that the bicycle area motivated Saud to join kindergarten. Sara said, 'in the beginning of the year Saud held the idea that he came to kindergarten to ride a bike and he was refusing to come in the classroom; he just came for the bicycle and did not want to join any other activity' (from a conversation with Sara). Since the cycling exercise stimulates some children's interest, teachers and parents can use it as a reward to encourage children to increase their academic performance. It can also be a good way to increase children's awareness about the importance of exercise for their health and build a relationship with sport at an early age.

The fourth interest, shared by Ali, Norah and Saud was stories. Stories are a popular teaching method in early childhood education in Saudi Arabia and are in general highly valued in Islamic culture. Storytelling can be considered a cultural traditional method for learning and entertainment in Islamic Arabic culture; stories are linked with traditional oral culture. Cultural stories are then passed down through the generations. In an earlier era, storytelling was the most popular leisure activity; it was presented by the storyteller, called the Hakawati (Chaudhary, 2014), in some countries, or Al Rawi, in others. In Saudi, people still maintains and value this method. The Ministry of Education, in cooperation with universities, has devised

a course in early childhood education programme entitled ‘Storytelling methods’, which aims to prepare students who intend to become kindergarten teachers to create stories and improve their skills in telling stories. The value of this teaching method might come from the Quran since the holy book included many stories about the conditions of past nations that provide lessons. Stories are an essential component in children's individual development (Grugeon and Garder, 2013). Both reading stories and storytelling contributes to language and literacy development (Isbell et al., 2004). For example, children learn new vocabulary and practice sounds and reflect on the stories’ characters and events, all of which encourages language growth. In addition, stories can be used as a tool to develop social skills in the child (Teglasi, 2001). The current study findings aligned with this point since Norah’s mother stated that:

Norah has a problem with getting the information directly. For example, when I want to communicate information or lessons to her, usually I do that through stories. Then she likes to repeat the story by herself and says I would like to be as good as the girl in the story. I tend to use this method because when I try to give her the lesson directly, she does not listen or give me attention, or she feels like you are not satisfied with her actions which makes her upset. For example, when I ask her to clean her bedroom she refuses to clean it up, but if I tell her story about good girl who always keeps her room neat and tidy, she then will say, mama I will be a good girl like her, and I will clean my room to become like her room.

(Mother interview, 18th February, 2018).

From a sociocultural perspective, storytelling is an example of social activities that plays a key role in children’s learning (Agbenyega, Tamakloe and Klibthong, 2017). Not only can stories help in a child’s language, literacy and social development, they can also be used to develop a child’s imagination and creativity through asking the child to make predictions about the story’s ending or imagine an alternative ending for the story. According to Vygotsky (2004), imagination is an essential function for learning and development, the child can imagine things he/she has not seen and conceptualise what they heard from the teacher’s description of things they never experienced before. The effectiveness of this method, however, depends on elements such as choosing a story that suits the child's age, events and language, preparing a suitable place to present the story, using varying degrees of vocal pitch, and providing children with a chance to reflect on the story and evaluate it. Observations during the current study

confirmed the importance of rhythm in storytelling. Field note data showed that the four children showed more attentive behaviour when the teacher changing her pitch during storytelling. So stories can be considered a method to enhance children's attention (Egan, 1986; Paley, 1993 cited in Isbell et al., 2004). Teachers and parents can work to develop strategies for voice and tone that equip them able to tell stories with varying degrees of vocal pitch that can help grab children's attention in order to make the teaching method more effective and achieve the lesson goals.

The fifth interest shared by Ali and Saud, was loving toy cars. Cars toys may closely relate to Saudi culture since cars are often the only transportation method that adults and children experience there, especially in Mecca, where there is little in the way of public transport. This cultural aspect may affect Ali and Saud's choice of toys as well as their gender, as boys playing with car toys is a universal phenomenon. Generally, playing with toys fosters learning and development (Borsteman, 1997, cited in Goldstein, 2017). It contributes to fine motor skill development, for example, by holding and pushing the toys cars and controlling their movement. It can also contribute to cognitive development skills. Through sociodramatic play, children develop their mental skills to view meanings as separate from the actual objects so, for example, children may use their imagination and creativity skills to think about toys cars as an animals or family members.

Moreover, by combining cars with other kinds of toys, such as puppets or dolls, children can utilise more words and create a range of scenarios through which to simulate experiences or apply their imagination to playing different roles. This type of play can encourage language, self-control, symbolic logic and social development (Healey and Mendelsohn, 2019). Even though studies have highlighted the positive relationship between toy play and child development, parents and teachers should bear in mind that education is not the main purpose of this play. It can be used as an opportunity to build or enhance a healthy relationship with children, or to give those children the space to express themselves and control the small world that they have created in their imagination.

Norah and Khalid were both interested in the dramatic play centre where children could play different roles, assume different characters and representing this character through language, costumes and actions. This links with Robertson's (2016) explanation that children's performances are usually informed by principles generated from their social culture. Bridge,

Melita and Roiger (2020) examine strategies that improve socio dramatic play. Their findings suggested that providing children with opportunities to express their opinions freely through dramatic play and listening to suggestions, helps teachers and parents gain a better understanding of their children and their play; so they can then enrich this environment by providing props and materials, and sufficient space and equipment for dramatic play. After that, adults can observe children's play and participate themselves to support the children's learning and development. Numerous studies have emphasised the importance of developing a well-supplied environment to enable children to benefit from dramatic play (Walling, 1977; Griffing, 1983; Woodard, 1984, cited in Lu Soo Ai, 2007).

Researchers have different opinions regarding adults' participation in children's play, however. Some see the intervention of adults as helping to enhance children's learning and development (e.g. Smilansky, 1968; Saltz and Johnson 1974; Rogow, 1981; Lu Soo Ai, 2007; Bridge, Melita and Roiger, 2020), whereas others have argued that adult intervention may disrupt children's play experience and can easily lead to adults controlling the play, which decreases the value of the activity (Pellegrini and Gaida, 1993 cited in Lu Soo Ai, 2007; Bennett, Wood and Rogers, 1997, cited in Loizou, Michaelides and Georgiou, 2019). There is an element of truth in both arguments. Consequently, adults need to be careful about the nature of their involvement. For example, direct adult involvement, in the sense of an adult telling the child what to do, may inhibit the child's learning, imagination and creativity, since the child will not have the opportunity to develop their own activity, thus decreasing the value of this experience. On the other hand, if adults observe children's play and offer indirect involvement through comments or questions that aim to extend children's play and promote their participation, that could empower children, enriching their role. This type of adult involvement was recommended by Vygotsky (1978), who stressed the importance of a more knowledgeable person's guidance in supporting and directing the child's play development to reach its full potential.

Other interests that were not shared between cases were lacing cards in the puzzle centre (see Figure 25), and pets, which only Ali was interested in. There was also sand, drawing, painting and colouring, which only Norah was interested in. Even though these interests were not shared with other children in this study, they may be shared with other children of Ali and Norah's age. First, lacing cards is a visual motor coordination task that can help children develop fine motor skills through play. In one of the interventions, Raja used Arabic letter lacing cards to

help Ali identify and write the letter and at the same time to improve his fine motor skills, since Ali had problem in grasping pencils (see section 5.3.3.4). This shows how teachers and parents can recruit a child's interest to build fine motor skills and literacy using letters or numbers with adult attendance and guidance, and how they also may share children's play in activities that they like as a way of improving their relationship with those children. The intervention results showed that Ali recorded high attentive behaviour and completed the task successfully (see Figure 25).

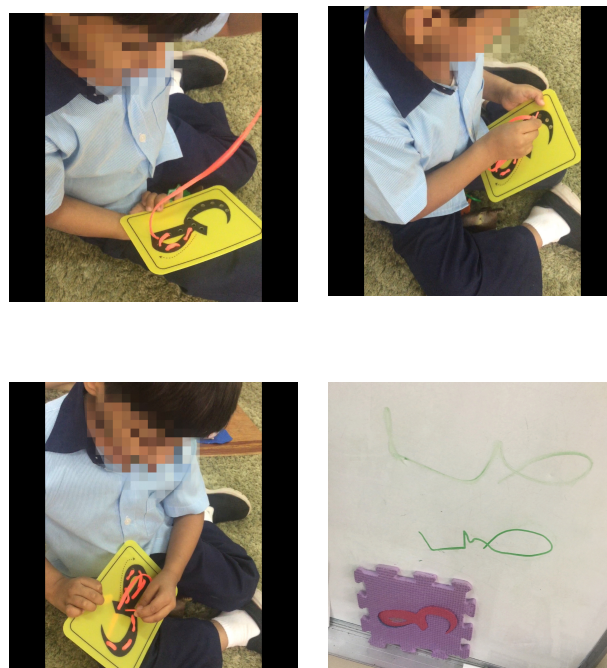


Figure 25: Ali sews the shape of the letter on a lacing cards during the intervention, and later he identifies and writes the letter successfully.

Ali's mother indicated pets as one of the things that Ali interested in. Interaction with pets plays an important role in a child's social, emotional and cognitive development (Hawkins and Williams, 2017; Purewal et al., 2017). Christian et al., (2020) conducted a longitudinal study on children aged between five and seven, finding that pet-owning children showed fewer emotional disorders and peer problems than children who did not have a pet. Moreover, pet-owning is especially associated with prosocial behaviour in only children. Svensson (2014) conducted research in Sweden involved 24 cat- or dog-owning children aged between four and five years in order to find out their opinions about their pets and how they contribute to their learning and development. The results showed that pets helped children developed empathy,

since children used emotional words to describe their feelings when their pet came to them wanting a cuddle. Pets motivate children to learn more when they are experiencing their joy, reading to them some stories; one child reported how they borrowed a book about dogs to show it to their dog. Pets support a child's self-confidence since they offer an opportunity for children to take on the role of a teacher or carer, and children proudly experienced how their pets followed their instructions and learnt. A systematic review of studies on the impact of pets on children by Purewal et al. (2017) highlighted that a behavioural study in the United States concluded that parental reports showed a positive relationship between five-year-old kindergarten children who interacted with pets and the different domains of competence, such as cognitive and physical competence and social acceptance. In regard to educational performance, a study on children aged between two and six found that pet-owning children noted the biological characteristics of animals better than other children without pets.

Other studies have discussed the negative impact of pets, since they raise the risk of Zoonoses (diseases passed from animals to humans) and allergies. Indeed, one study in Shanghai, involving 538 preschool children found that half had positive allergen sensitisation (Li et al., 2020). So, although a number of researchers have confirmed the positive relationship between pets and children's learning and development, most of these were conducted in Western or non-Arabic and Islamic cultures, which have different traditions in respect to pets. Islamic teaching encourages Muslims to refrain from trading in animals such as dogs except for the purposes of hunting or guarding. One finds few pet shops in Saudi Arabia, except for shops selling popular small pets, such as cats, birds and fish. More research is needed into the impact of pets on children's learning and development in Arab and Islamic cultures.

Other interests include Norah's stated preference for playing in the sand. This is also a great activity for children, contributing to the development of fine motor skills through tasks like building castles or digging holes in the sand using small sand toys. It also a free activity where children can choose what they want to do, setting goals for themselves, or working with others and thereby developing social skills. This helps to build children's confidence and creativity. Vygotsky (1978) believed that learning can occur in play activities through the ZPD in which a child's knowledge is enhanced to upper levels through adults or more advanced peers help. During playing in the sand, children the teacher can actively engage with children to encourage children to extend their play imagining as to mediates their dialogue. Moreover, according to Pura and Bocoş (2020), sand play offers opportunities to nourish the child's narratives. For

example, teachers can tell children stories in the sand area that can help to enriched their imaginary world through the opportunity to create a series of dialogues and asking open-ended questions.

The four children were reported to be highly engaged in sand play. Thus, even though Khalid, Saud and Ali did not mention that they were interested in sand play, their behaviour indicated that they enjoyed the activity. Indeed, studies support the important role of sand play for children. For example, Crosser (2008) stated that sand play contributed towards physical, social and cognitive development. Physically, motor skills developed through digging which involves movement of the large and small muscles Socially, social skills developed through working with others on a project, such as building a castle or digging a tunnel and sharing opinions and experience with group. Cognitively, children developed mathematical and science concepts through using sand play accessories that come in different sizes and shapes. Furthermore, sand has special value in Islamic culture since it is believed to provide positive energy and reassuring, comforting feelings, since God told us in the Quran that man is created from dust and water:

‘when your Lord said to the angels, "Indeed, I am going to create a human being from clay. So when I have proportioned him and breathed into him of My [created] soul, then fall down to him in prostration.’ (Quran surah Sad Chapter 38 Verse 71-72).

So, when our body touches sand it gives us a comfort that would not be found in touching other materials, such as glass or plastic. Since the value of interacting with sand is supported in Islamic culture, sand areas are found in most kindergartens in Saudi Arabia. Moreover, Saudi families often spend time with their children in the desert, so children play in sand and burn off their energy. As Islam started in a desert environment, the influence of this environment clearly appears in prophet Mohammed teachings, when he mentions desert’s animals, such as the camel as an example in many of his ‘Hadith’, that known as the prophet Mohammed’s sayings (Norton, 1924). The desert influences both Islam and Saudi’s characteristics as it is a tough environment. Our ancestors had to adapt to survive in this environment, hence the reason why the desert today is an integral part of our culture.

Norah stated that she was interested in drawing, painting and colouring. Free drawing is an activity that allows children to express their ideas and feelings. When children lead the drawing

activity, they can decide what to draw, revealing their ideas, feelings, creativity and imagination. Art can work as a window into children's inner world, which is useful in helping adults to gain a better understanding of them in order to build healthy relationships and provide them with the support they need. Vygotsky (1962) accepted art and drawing as mediation tools. For example, in young children who are not able to express themselves through language, drawing can provide a mediating form of social communication, understanding and critical thinking (Brooks, 2003, cited in Brooks, 2005). As Vygotsky suggested, even when children are working individually, that work is not in fact a solely individual cognitive operation but is influenced by the social context. For example, when someone reads a text alone she/he needs to use the social and cultural tools of language and the text, which are considered as sociocultural and historical artefacts. Moreover, the child's understanding of the text is also influenced by experience, which is within a sociocultural framework (Wink and Putney, 2002, cited in Brooks, 2005).

Brooks (2005), therefore, presented drawings as artefacts that reflect the child's experience and knowledge and are thus influenced by their sociocultural context. This can be illustrated by the differences in the children's free painting activity (see Figure 26). These pictures show one child has chosen to draw alphabet letters which reflects his knowledge of his second language, English. The other children draw human figures, which they represent in parts: one draws only a face and legs, and the other draws a face, arms, hands. Differences can also be seen in the amount of detail in the children's drawing. Some psychologists and researchers believe that child's drawings saying much about child's mental, social, emotional and psychological condition (Farokhi and Hashemi, 2011). In this respect, comments from analysis of a child's drawings could enhance the individual child Information record (see section 5.3.1.3).



Figure 26: differences in children' paintings during free panting activity.

Free art activities can help children in many areas of development; for example, speaking about their drawings with teachers and peers provides them with opportunities to develop language and cognitive skills. Utilising art materials, such as paintbrushes, coloured pencils and markers, helps to develop fine motor skills. Allowing children to decide what to draw and then to talk about their drawings supports their emotional development by making them feel independent and valued.

In summary, the observational and interview data showed that if adults plan educational goals around activities that children are interested in doing and relevant to their sociocultural context, it is possible to make a valuable contribution to their learning and development. It is important for teachers to not only believe in the power of the enriched environment, but also to increase their awareness and skill in planning appropriate play environments for the children (Dempsey and Frost, 1993; Van Hoorn et al., 2003). All the children's interests explored above demand careful consideration. If the task is fundamentally fun and aligns with the child's interests, then the child will be drawn to it and spend longer playing at it, which serves to increase their learning opportunities and development. This is supported in sociocultural theory, which suggests teachers should consider the child's culture and pre-experience in order to design activities that relate to children's lives (Bodrova and Leong, 2006).

6.6.2. Children's educational needs

The four children had shared needs in terms of numeracy and literacy skills and some circle time concepts and fine motor skills. The children's needs were determined by observations, direct questions and analysis of the children's portfolios. Khalid and Ali's needs centred on support to identify and write the numbers from 2 to 20, while Norah appeared to need support in just writing numbers from 12 to 18 (with numbers 1-20 being a curriculum goal). Saud did not face difficulties with numbers but with writing letters and words. Some educators argue that focusing heavily on mathematics and literacy may have an adverse effect on children's play (Hedges, 2003; Sarama and Clements, 2009). By encouraging children to develop mathematics and literacy skills through unstructured play, however, teachers and parents can plan educational tasks that are fundamentally fun and meet the child's needs at the same time, and this is one of the goals of the current research. Early mathematics and literacy do not have to be limited to traditional and direct instruction; instead, teachers should create a rich learning environment, plan challenging activities that ensure children play an active role, and provide

support as it designed in some interventions, such as number block building and Numbers from 2 to 10 iPad application (see section 5.3.1.5).

As the three teachers reported and the researcher observed, Ali and Saud both needed support to develop fine motor skills, such as in holding a pencil and scissors. The teacher can support child through correcting the way he is grasping the tool, as Sara did with Ali (section 5.4.3.6). Moreover, studies suggested that fine motor skills can be developed through play with clay and art activities, such as painting, drawing and colouring (Garner and Bergen, 2006).

The third need that several of the children shared was they found it difficult to identify some of the circle time concepts after the event (see section 5.2.3.1). The observation data showed that the children were not able to list some of concepts that they have already learned during circle time for example, they were not able to list some of water sources after a circle time entitled “water sources” even though they have attended this lesson in traditional instruction which was one of its learning goals is that “after the circle time the child will be able to list some of water sources” (data from lesson plan template), which indicates that they need more support in this area in order to help child achieve learning goals (see section 5.3). The intervention provided to children in this example is water sources game (see section 5.3.1.6) and Water sources colouring (see section 5.3.4.5).

Ultimately, looking through children needs, they tend to relate to activities that are taught through direct instruction in circle time, whether for the whole class or half the class. These are activities that are led by the teacher and where children do not play an active role. From here I worked with the teachers to develop an intervention where children can play an active role in their learning and then writing the study in way that could be used by teachers and parents to support their teaching instruction, by policymakers to update the kindergarten programme to ensure that each child in the classroom is provided with the support that they require to enable them to perform at their optimum level.

6.6.3. Children’s abilities across cases

This section focuses on comparing across the theme elements of the Individualised instruction intervention. Regarding children’s abilities as one of the elements, the four children were reported by observation data to have normal gross motor skills, clear language and the ability to express feelings; normal social behaviour, and the ability to use technology devices such as

iPads and smart phones. Saud showed the ability to identify numbers 1-10 independently, and 11-18 with the teacher's help. Norah could identify numbers from 1 to 11 independently. Ali was able to create his own ways of using things and of playing.

6.6.4. Children's social interaction

No particular social difficulties were observed at school or at home in any of the four children. Khalid was described as a shy child by Mariam and Raja, but the observation data did not tend to support their claims. During observations Khalid showed abilities to develop peer relationships, speaking freely with peers and new visitors. Interestingly, another claim that did not align with the observation data was from Norah's mother, who stated that Norah tended not to engage with other children easily. In the observations, Norah appeared engaged with peers and new visitors, for example:

When the dentist visited her classroom during centre time Norah was playing and listening to the dentist who was speaking with me, Norah stopped playing and came to us to ask the dentist, "Excuse me, are you Egyptian?" The dentist then laughed and said "Yes, I am Egyptian." Norah told her "Yes, I know that you speak like an Egyptian", before starting to speak Egyptian Arabic herself.

(Field note data).

Arabic has many dialects, and the Saudi dialect differs from the Egyptian one. When Norah recognised that the dentist was not Saudi, she came to tell her that and engaged her in a short conversation. Moreover, during morning activity, when children from different classes gathered in the indoor playground, Norah often spoke and played with children from different classes.

Saud did not respond to some questions that I asked him, and he kept silent during the interview. During the school day, however, he showed strong prosocial behaviours; thus his failure to responding to my questions might not be related to any social interaction deficit. In Saud's case the observation evidence is stronger than interview since observation data showed that he showed strong prosocial behaviours every day when he was interacting with other children in their natural setting. Moreover, on other occasions he answered my questions and engaged with me and the conversation ran smoothly. Generally, the four children showed

appropriate positive social interactions and teachers did not need to intervene to support peer relationships or teamwork.

All the above elements, such as the child's interests, family culture, needs, abilities and social interaction were reflected in the designed task (see section 5.3), which resulted in positive impacts on children's attention behaviour and learning. Effects on children's attention and concentration on task, enjoyment level of working on task, and academic achievement, will be discussed in the next section.

6.7. Children's responses to the intervention across cases

6.7.1. Attention behaviour

The results of the intervention showed that Khalid, Saud, Ali and Norah were working on tasks with full concentration. If their attention behaviour is compared between the previous conventional/typical school activities and the interventions, there was clearly less inattentive behaviour in the latter. Out of seventeen interventions provided to the four children only two attitudes that were considered to be 'inattentive behaviour' were recorded. These were when Khalid became less attentive in the middle of one task (laughing, he disturbed his classmate who was working in the next corner) and when Norah spoke about an irrelevant topic like going to the shopping mall with her family, but both were able to return to the task at hand. Overall, the children spent longer concentrating on their tasks in the intervention than in traditional teaching. Based on these results, it can be concluded that using small-group individualised instruction improved children's attention and concentration on tasks in these cases (see section 5.3).

6.7.2. Level of enjoyment

When recording children's feedback about the interventions, all four children stated that they enjoyed the activities and would like to do them again. Observation data also showed that the children were motivated and appeared to enjoy the activities.

6.7.3. Learning outcomes

The intervention results showed that children were able to complete tasks in the first time with group and in the second time independently. This suggests that using small group

individualised instruction increased academic achievement, at least in respect to the researcher's focus on short term achievements. 'High-quality instructional support can aid in closing the gap in academic achievement between at-risk children and children without common risk indicators' (Hamre and Pianta, 2005, cited in Pakarinen et al., 2011, p.48).

6.8. Problems in implementing small-group individualised instruction.

A number of challenges were found when implementing the interventions. The teachers identified two: classroom size and time.

Classroom size: Sara discussed that there were thirty children in the classroom which made implementing this type of instruction difficult. She believed that using this type of teaching needed a high level of focus on each child. She suggested that the Ministry of Education would need to provide sufficient teachers if small-group individualised instruction were to be implemented for those children who needed extra support. This type of teaching, however, does not require the children to be separated from their surroundings, rather it encourages peers and teachers to work together to provide some children with the support they need.

Time: Raja stated that guided interaction for each child was time-consuming and resource intensive because it required interaction on a one-to-one or small group basis. She did not think she would be able to manage such intervention alongside all the duties assigned to her during the day. Raja's point can be discussed with policymakers in Saudi Arabia to see if it would be possible to reduce the burden on teachers to give them the opportunity to focus on each child. Providing teachers with motivation, such as giving them thanks and praising them, or offering simple rewards to appreciate their efforts and creativity, might also encourage them to devote more effort to implementing novel measures to benefit students.

Observational data, meanwhile, revealed some challenges, such as classroom management and a lack of small-group individualised instruction resources, as well as a lack of teacher experience of this type of teaching and family involvement.

Classroom management: children were crowded around new tasks or materials during the intervention, which required more effort from the teacher to manage the classroom compared to traditional teaching activities.

Lack of resources and experience: as explained in (section 4.2.1) the teachers are used to following clear steps in designing the activities using the Ministry of Education's teacher's books. In contrast, there is a lack of resources for implementing the individualised small-group instruction. In order to implement such instruction, teachers need to be creative and independent in designing the activities based on child's needs, abilities and interests. This teaching instruction was not even introduced to the participating teachers before this study, so I was aware of teachers treating me as an expert in this type of teaching instruction. Teachers need to be trained to identify a child's ZPD for each educational activity and to find out how to design activities that help children engage the ZPD to promote a smooth and enjoyable learning experience (Chaiklin,2003).

The intervention in this study provided an opportunity to use different forms of assessment. For instance, analysing children's portfolios and asking direct questions provided an opportunity to measure the child's actual level of what she/he was able to achieve independently. Observation enabled the researcher and teacher to measure what she/he could do with help. This allowed me and the teachers to design activities that encouraged children to work in their ZPD (see section 5.3). Another form of collecting information about a child's needs, abilities and interests used for intervention was interviewing children and their mothers. This is a helpful method of collecting information about each child and using the information to help design the activities.

The last challenge that the researcher observed was that individualised small group instruction needs a certain level of involvement from the child's family, especially in respect to the preparation and implementation of activities. That means the child's family's cooperation is important for this type of teaching, and, since not all families may cooperate with teachers, this may be considered an obstacle in the way of implementation. The children's mothers who were participants in this study, however, showed real enthusiasm to be involved in the study and provided me with information needed about their children and gave me their contact details for further information. Based on this study experience, this suggests mothers' involvement would not be major challenge when implementing small-group individualised instruction.

6.9. Chapter summary

This chapter discussed the findings through a cross case analysis using the themes identified from data and theory-related material. This built on the findings from the individual children

in order to compare the children's attention span before and during the intervention. Firstly, three groups of factors were analysed that seemed to have a negative impact on children's attention and learning across cases, from the participant's view. These were hypermetropia, sleeping problems, boredom, home factor and exposure to technology. Then the analysis highlighted the similarities and differences in the children's responses to the current teaching instruction, on the one hand, and the intervention of small group individualised instruction, on the other. Overall the findings suggest that the intervention increased the four children's concentration; the children exhibited enjoyment toward the intervention activities and they were able to complete tasks independently and successfully. The analysis used the following themes: 1. current teaching instruction and its relevance to children's learning and attention span; 2. determine children's attentive and inattentive behaviour; 3. factors affecting children's attention span and learning; 4. the elements of individualised instruction, 5. socio-cultural learning and small-group instruction, and how individualised and small-group instruction affected participant children's attention span and learning. Finally, the chapter discussed challenges of implementing individualised small group instruction which centred around classroom size, time, classroom management, a lack of small-group individualised instruction resources and lack of experience.

7. Conclusion

The study has explored how the implementation of small group individualised instruction can affect kindergarten children's learning by improving attention span. The study's findings suggest that effective implementation of this type of teaching requires a combined effort by both parents and school. Specifically, parents need to collaborate with school in order to support and track their children's learning and development. Teachers in other respects need sufficient training and support to become confident in identifying children's individual needs and in establishing effective collaborative learning in small groups so that each child can reach their learning potential. This chapter concludes the study by summarising and discussing the answer to the research question and illustrating the implications for teacher education, policy makers and future research. It also discusses the contributions of this research to knowledge, methodology and early childhood education in Saudi Arabia, as well as its limitations and actions to be taken in light of the research findings.

7.1. Answering the research question

The research question I posed was: To what extent does individualised and small group instruction affect the attention span and learning of mainstream kindergarten students (5-6 years) in a Saudi Arabian context? This was answered through action research, partly informed by elements of ethnographic methodology study, conducted in a single kindergarten classroom in Mecca. The research took place in five phases: firstly, finding and identifying the cases; secondly, interviewing teachers about how current teaching practices affect the attention behaviour of the children; thirdly, interviewing five children and their mothers; fourthly, assessing the cases and then the intervention. This was guided by Lev Vygotsky's sociocultural theory, specifically, ZPD, learning through play and the presence of a more knowledgeable person (see section 3.4) and applied to four children. Thematic analysis was used in order to organise data generated from observations, interviews with children, teachers and mothers. Student portfolios were also analysed under six themes: 1. determining children's attentive and inattentive behaviour, 2. current teaching instruction and its relevance to children's learning and attention behaviour, 3. factors affecting child's attentive behaviour and learning, 4. individualised instruction elements, 5. socio-cultural learning and, 6. how individualised and small group instruction affected children's attention span and learning. These themes were derived from theory and from the data (see section 4.7.1 and 4.7.2). The findings from the first phases were used to develop the intervention. The approach to the intervention focused on

numeracy and literacy skills plus some circle time concepts and fine motor skills which were generated from the formal curriculum / took account of the child's need, abilities and interests.

The findings suggest that using small-group individualised instruction benefited the learning of kindergarten children as follows. Firstly, it improved children's attention and concentration on school tasks. Secondly, children were able to complete tasks within groups and then independently. Thirdly, they appeared to enjoy working on the intervention's tasks more than the tasks in their conventional teaching.

Several other findings emerged from the study. The first was that the teacher's increased involvement in individual children's learning, enhanced children's attention span and achievement, thus supporting Vygotsky's idea about the importance of social interaction in children's learning. These findings also suggest that instruction and activity that target the individual needs of the child and enable them to work in their ZPD (Vygotsky, 1978) improved child's attention span and learning outcomes. Secondly, the qualitative data collected across the cases revealed that health, home and interests have negative effects on children's attention including malnutrition, sleeping problems, hypermetropia, teeth and gum problems, an unstable home environment, lack of privacy and a quiet place to study, inadequate care, feeling bored and a lack of interest in participating in particular activities. This suggests the need for further research on the effect of these factors on children's attention span. Thirdly, in the context of Vygotsky's contention that play and concrete experience are an important source of learning (Vygotsky, 1967), the findings revealed that children were more active and attentive during practical and play-based activities than traditional ones and that this enhanced their attention span and engagement in the learning process. Fourthly and finally, the child assessment system was unclear and not considered by the teachers to be a fundamental element of the official curriculum self-learning curriculum. The research found that using different formative assessment methods during interventions such as observations, direct questions and analysis of children's portfolios helped teachers to tailor instruction to the child's needs and progress, and this made the teaching and learning process more effective and contributed to increased academic achievement. Clearly, these findings have implications for the teacher education, policy makers and future research as will be discussed in the following sections.

7.2. Implications for teacher education

This study suggests that, firstly, whilst the individualised small group instruction is a western approach, it has been found to support collaboration and social interaction in the context of a kindergarten in Mecca. These are both essential components of Saudi and Islamic culture. The findings suggest that this western approach can be developed and modified in order to be more appropriate for Saudi classroom. For example, the teachers have made some modifications in the individual child information record such as reduced the number of columns (see section 5.3.1.3) in Gronlund's (2016) record. Second, teacher educators need to develop deep understanding of the concept of individualisation which is not limited to setting appropriate learning goals for individual child, but include adjusting the teaching method and the learning environment and utilising various assessment methods that can be seen as indicators of learning. Third, in order to implement individualised instruction, the Saudi's universities need to prepare kindergarten teachers to be a researcher, that is to gather, analyse and use data which will enable them to write the individual child's information record (see section 5.3), and be creative to create interventions that will meet each child's individual needs. Lastly, the teacher needs to develop the way in which they work in partnership with parents.

7.3. Implications for policy makers

The existing policy identified the self-learning curriculum as the official curriculum in Saudi Arabia's public kindergartens; it urges the teachers to provide children with activities that promote independent learning. The findings of this study suggest some recommendations for education policy in Saudi Arabia so that the self-learning curriculum might be more effectively implemented. There is a demand for improved teaching and assessment methods that take children's prior knowledge and experiences into account and thus provide a foundation to address individual needs and provide appropriate instruction and support. The observation data showed that the teachers used whole class instruction in the morning circle, number or letter circle, and the last circle, where teachers usually led the activity. The discussion method was attempted in circle time, but with just two teachers leading discussion with thirty children at the same time, not all the children were able to participate. The intervention data showed that implementing the small-group can provide children with more opportunities to participate in discussion. Therefore, it can be said that using small-group instruction instead of the whole

class instruction in circle time can provide children with better opportunities to engage in the discussion.

The observation and interview data also showed that the current teaching curriculum has no clear assessment system, but Vision 2030 shows the government's desire to develop teaching method that focuses on learners, and, as such it presents an opportunity. As this kind of learner focus would require assessment as an essential part of the teaching process, this study piloted different types of assessment, including observation, analysis of children's work, direct questions, discussion, and the involvement of parents as partners in children's assessment and learning. The findings indicate that families can provide deep information regarding their children's learning. Encouraging schools to work collaboratively with families to collect deeper knowledge about the child will help teachers to adapt teaching to each child's identified needs and abilities. Based on the findings of the current study, this could improve children's academic performance and attention span.

This study recommends providing teachers with training to enhance their ability to assess children accurately and to translate these assessment results into effective teaching processes. The implementation of small group individualised instruction requires teachers who are well-trained in child learning and development theories, in identifying individual differences, and in small group dynamics. In addition, policy makers should seek to give teachers more authority to modify their classroom environment and teaching commensurate with the needs of the children in their classroom.

7.4. Implications for future research

This study is the first to explore the impact of small group individualised instruction on children's learning and attention span in the context of SA. There is a need for future studies on the relationship between small group individualised instruction and other domains, such as creativity, academic achievements and confidence. As the focus was only on children aged 5 to 6 years, future research should also focus on different ages/grade levels and educational settings.

Although ZPD is a central concept in Vygotsky's sociocultural theory, there is lack of literature examining the practical delivery of Vygotsky's theoretical propositions. ZPD is also a concept about development and learning, not about teaching although it has implications for teaching.

In this study the following strategies proved useful to help teachers identify the child's ZPD: observations, direct questions and analysis of children's portfolios. Nevertheless, further research is needed to find ways to help teachers identify the child's ZPD. In addition, work needs to be done to determine how to use Vygotsky's ideas, particularly the ZPD concept, to enhance the teaching and learning process by matching the teaching instruction to the child's zone so that teachers are better able to provide children with tasks that are slightly challenging for them but achievable with some assistance. In this study the intervention had some success in achieving this, for example, with Raja's assistance Ali was able to identify and write the letter (ص).

This study has demonstrated that small group individualised instruction can lengthen children's attention span and increase children's academic achievements in the short-term. The attention span is one of the factors that effects learning, since students should be attentive to, engaged in, or stay on, task (Stasch, 2014). Further research might usefully explore how this teaching instruction can affect children's academic achievement in the long term.

7.5. Contribution to early childhood education in Saudi

This is the first study that used small group individualised instruction in a Saudi kindergarten classroom. Since individualised instruction is only mentioned and defined in Western literature, this study contributes to Arabic and Saudi literature by defining this type of teaching, while also contributing to both Western and Arabic literature by demonstrating the practical implementation of individualised instruction in the classroom. Hopefully, the findings of this study will provide teachers with an understanding of the potential positive impact of small group individualised instruction in supporting children's learning and development and reducing gaps in outcomes between children. This may encourage kindergarten teachers to use this type of instruction instead of the traditional instruction. Lastly the study provides tools to measure the attention span for preschool-age children in a Saudi context that other researchers will be able to develop and use in the future.

7.6. Contribution to knowledge

This is ground-breaking research in a Saudi Arabian context where there this is the first study in this area that provides the opportunity to investigate the impact of individualised and small

group instruction on the attention span of mainstream children in the regular classroom. Whilst attempts have been made to research and improve the attention spans of children with ADD and ADHD, there is less research about attention span and instruction for neurotypical children. This study has attempted to address this gap given the differences between the attention patterns of children who have such challenges compared to neurotypical children. Since attention span is an important predictor of children's learning and future success (McClelland et al., 2013), improving it should bring benefits to children. Furthermore, this study developed a tool to measure the attention span of preschool-age children that is tailored to Saudi culture. To the best of my knowledge, from my search of the Saudi literature, no tools have previously been developed to measure the attention span of preschool-age children. This tool can be further developed through review and discussion by the greatest possible number of Saudi kindergarten teachers and professors in the field of early childhood education, also by its use in regular practice.

7.7. Contribution to methodology

There is little research that combines an ethnographic case study with action intervention. In this study my role was not that of a typical ethnographer who watches, listens and records information. Whilst there were important elements of this approach in the first phase of the study the intervention was a key part of the methodology. Working with the class teacher, a new individualised instruction approach was developed alongside planning and implementing the activities. I then observed and recorded the intervention in practice and discussed the children's reaction and learning with the children and teacher. The combination of an ethnographic case study (Fusch, Fusch and Ness, 2017; Thomas, 2014 and Riain, 2009) with an intervention (Argyris, 1985) enabled me to explore the impact of the intervention on children's attention span and learning.

Furthermore, the methodology was sensitive to a cultural context where the participants had never taken part in ethnographic research. I undertook participatory research in that I worked in partnership with teachers on the interventions which was a challenging mission due to power relations. As the teachers were unused to having visitors in their classroom, I spent a large amount of time and effort building trust with the teachers and children. The participatory approach, however, was helpful in terms of showing that I was not a threat, or judgemental.

Also, it allowed the voices of the key participants - the teachers, the mothers, and the children- to be heard, and acted upon.

7.8. Limitations

The study's strengths include the use triangulation for method and perspective. Method triangulation enabled me to collect data from many sources and viewpoint triangulation to collect and compare the views and actions of multiple participants, those of teachers, children, their mothers, and my own.

As with all studies, however, this study also had some limitations, specifically its small scale, the lack of secondary sources available, and the ability to observe only short-term effects. These are discussed in turn below, beginning with its scale.

Small scale: Since there were only a small number of participants, findings cannot be generalised to a larger population. Findings may, however, be transferable to other kindergartens in Saudi as the study was conducted in one of public kindergartens which is typical for Saudi Arabia, and provides thick description of the study design, context and participants. For example, the results may be relevant to a Saudi kindergarten teacher who is struggling with children's learning and attention problems in the classroom.

Lack of secondary sources: One of the main limitations of this study is that I did not find any secondary sources on the practice or research of individualised instruction in Arabic contexts. As a result, I was the only source for the teachers to consult in respect to the use of this type of teaching alongside the material I translated for them to review and use from English language sources.

Short-term effects: Only the short-term effects of individualised small group instruction on children's learning were able to be observed over a period of sixteen weeks. Nevertheless, it is supposed that these short-term effects could lead to long-term ones beyond the singular skills developed (e.g. children's recognition of their greater achievements can improve their self-confidence). Many scholars have argued that self-confidence is an essential factor supporting children's performance and achievement (Eccles and Roeser, 2009; Ladson-Billings, 2009; Nieto, 2002 cited in Darling-Hammond et al., 2020).

In order to address these limitations, an alternative methodology could be used. For example, a large-scale study with a random controlled experiment (and matched for ability at the start), taught entirely separately and with outcomes assessed formally at the end, could provide us with significant findings about the impact of small group individualised instruction on children's learning and attention span.

7.9. Actions to be taken

Based on the findings of this study, a number of specific actions should be taken, by various interested parties, to support the development of individualised small group instruction within kindergartens in Saudi Arabia. These are listed below.

1. Introduce individual small group instruction in Arabic literature. As findings report the lack of secondary sources on the practice or research of individualised instruction in Arabic contexts, I will write Arabic handbooks that introduce individualised small group instruction to kindergarten teachers and their educators. These handbooks will be written in a simple, accessible language to assist teachers in understanding the instruction technique so that it can be implemented by the largest possible number of teachers and parents. With permission, I will include examples and ideas for individualised instruction and incorporate the views and reflections on the experience of the teachers in this study, as such inclusions may have an influence on how the handbook is received.
2. Establish public libraries for children in every city in Saudi Arabia. Research indicates that a lack of suitable facilities for children's activities in Saudi may lead to increased screen time for children, which has been found to negatively affects children's attention (Barnes et al, 2007; Yoo et al., 2004). This will be the starting point of my next project, which will also be based on the 'Storytelling methods' course that I am teaching in the early childhood education programme. My students and I will produce children's books to support the project. I will seek help from my colleagues and the Ministry of Education to provide us with a small place to use as a children's library. Then, the early childhood education departments from all Saudi Arabia's universities will be invited to donate children's books and toys to supply the libraries in every city.

3. Encourage volunteering and social responsibility among all spectrums of society. As a teacher educator myself, I will start with undergraduate students, who will be encouraged to offer clubs and classes for children. For example, undergraduate students in Art Departments in Saudi Arabian universities can provide children's art classes as a community service.

4. Finally, steps need to be taken by policy makers and schools to encourage family involvement in children's learning and development. The findings of this research emphasise the importance of the home-school connection. Parents need to take part in some aspects of their children's learning (e.g. in assessing their needs, abilities and interests), so that schools can be better informed and able in turn to identify the specific support each child needs. In addition, parents should be encouraged to discuss their children's health and psychology issues with schools to ensure that these are fully taken account of and that children are appropriately supported.

Finally

Ali: ‘Teacher Mariam come here see what I have done.’

Khalid: ‘I enjoyed using building block to create numbers. I would like to do it every day.’

Saud ‘It was fun.’

Norah: [Colouring the sources with a smile on her face and then identifying each source to the teacher, before declaring...] ‘I love colouring.’

The positive impact of this research on these four children is clear. Providing children with enjoyable learning experiences, encouraging children to play an active role in their learning and improving children achievement are things that educators should support in the kindergarten classroom.

The journey of this research has affected me in many ways as a teacher educator and university lecturer. Visiting the kindergarten on every school day provided me with insight into the teaching and learning process, the teacher’s role, and children’s time in school. All the data and ideas that I have collected have made me think that I went to the kindergarten to answer one question, but I left with more questions about the early childhood education challenges and future development of early childhood education. As a researcher, I am now more aware of the importance of working in partnership with teachers, students and families to develop our education system. I am also more conscious of my responsibility to represent voices that need to be heard – those of the often unheard- those of teachers, mothers, and children.

Islamic culture has played a significant role in shaping the education system in Saudi Arabia. This conservative culture - that shapes our attitudes, values, beliefs, and behaviour - has impacts on teaching and learning. Take the teacher-student relationship, for example. Teachers are usually at the centre of activity while students play a less active role. Under its education reform programme, the Saudi government desires to develop teaching methods to re-focus attention on learners. The exploratory findings of this study suggest that a change to the teaching method in Saudi classrooms is possible through working in partnership with teachers and parents. At the outset, teachers were willing to test the new approach and could see the value of individualised small group instruction, though they had some reservations about how it would work in practice. For example, one teacher, Sara, voiced the worry that ‘individualised small

group instruction could be applied to a classroom with a low number of students, but as we have thirty children in the classroom implementing this type of instruction could be difficult'. Yet this point was managed through encouraging more advanced children to help their classmates who needed more support.

Regardless of our cultural differences, a Russian thinker, American educators, British supervisors, a Saudi researcher, children and their kindergarten teachers, this research is proof that, as humans, we can always connect to produce knowledge. Perhaps this knowledge can bring welcome change to the education system and classroom practice, and a sense of joy in achievement for the next generation of children with short attention span.

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Appendices

Appendix 1: Initial plan for the data collection

This appendix presents the researcher questions with the related data collection procedures, listed in chronological order. This is only an initial plan, however, due to involve human participation in the research issues such postponement and sickness may be may be raised lead to modifying the plan.

Data the researcher is looking for	Week	Methods	Purpose
Do teachers accept to be a part of the research?	Week 1	Interview with nominated teachers	Describe the steps involved in the research, listen to their suggestions, and respond to any queries.
What types of teaching instruction do teachers use currently in the classroom?	Week 1	Field notes (write full description of the teacher's teaching instruction and children's behaviours, performance and attentiveness.	Write an overview of the teaching techniques and methods, activities, resources and the classroom environment.
Is there any significant data on children's behaviours, performance and attentiveness in the classroom that can be captured?			
Identify a sample of participants who meet the criteria of the research.	Week 2	Observation children will be selected based on inclusion criteria	To gauge the attention of children

		developed by the researcher (checklist).	In order to choose those with a short attention span who will be the selected sample.
<p>Do parents of the selected children accept to involve their children in the research?</p> <p>Is there factor that you think affects your child's attention?</p>	Week 3	interview will be conducted with the parents of children who are to be nominated as participants.	<p>To inform parents of the nature of the research and the possible benefits to be accrued to their children.</p> <p>To identify any factor that might affect the child's attention.</p>
<p>Do the children in the selected sample accept to be a part of the research?</p>	Week 3	<p>Telling story. the researcher will be represented as a cartoon character and in a way that can enable children to understand the research information and respond to it</p> <p>pilot interviews one of each group of</p>	<p>To obtain informed consent from the children to be involved in the research.</p> <p>To simulate the content of the original consent form for the project and to get age-appropriate agreement on being part of the project.</p> <p>To refine and revise the interview questions.</p>

Is there any points of the interview questions that need to be clarified?	Week 3	participants: teacher, child parent, and child, will be randomly chosen to conduct pilot interviews	
What are the child's academic strengths and weaknesses?	Week 4	portfolio analysis. analyzing a sample of the child's work and a record of his/her development and previous assessment.	To explore the child's academic background and gather valuable information about the child's level.
What is the child's perspective about their own work?	Week 5	interview children will be encouraged to provide feedback about their own work. They will be allowed to describe it, express their feeling and give opinions about it.	To obtain information about the child's learning abilities. To set challenging but achievable goals that occur in the child's zone of proximal development
What do the teacher and researcher need in order to set individualized teaching activity plans?	Week 6	Interview with teachers. observation observe children in the classroom.	To plan lessons and set activities that match children's interests, needs and abilities.
How can teachers and the researcher develop the resources to be used for individualized instruction?	Week 7	Data analysis	To select resources that support the learning needs of individual child.
How do individualized and small group instruction affect the	Week 8-9-10-11	Observation observe the participants' learning behaviours while the teacher	To record the impact of individualized and small group instruction

attention span of the children?		<p>implements the individual learning plans and children work as a group.</p> <p>The same rating scale (inclusion criteria) used in the previous stage will be used.</p>	<p>To compare between the results of the rating scales.</p> <p>To find evidence to support the research hypothesis that individualized and small group instruction helps to improve children's attention.</p>
What are parents' views in relation to their children's attention? After receiving individualized instruction?	Week 11	interviews will be conducted in the middle of the data collection process	<p>To determine whether there are notable changes in children's attention.</p> <p>To describe their experiences with the research, identify any challenges.</p>
What are teachers' views about my interpretations of the classroom observations and teaching instruction?	Week 12	interviews will be conducted in the middle of the data collection process	<p>To explore their views on my interpretations of the classroom observations and their teaching instruction.</p> <p>To correct any misconceptions</p> <p>I may have made during the observation.</p>
What are children's views on the individualized teaching activities?	Week 13	Interview and informal chats children will be interviewed as a group and	To express their feelings towards individualized teaching activities.

		individually. Researchers need to create a natural context for the interview and use a friendly method such as drawing, playing games, or telling stories.	To describe their work during the research period.
What are teachers' comment on my initial findings?	Week 14	Interview with teachers	To enable them to express their feelings about the initial findings. To listen to participants' view about the pros and cons of the research.
What are parents' comment on my initial findings?	Week 14	Interview with parents	To share my initial findings. To listen to participants' views about the research's pros and cons.
What are the children's final statement about the research?	Week 15	informal chatting	To find out in what way the research experience affected them.

**Appendix 2: Tool developed to measure the attention span for preschool-age children
adapted from Conner’s Teacher Rating Scale-Revised**

The tool lists school behaviours that commonly indicate inattention school. This was inspired by Conner’s Teacher Rating Scale-Revised and by comments from kindergarten teachers whom I have met during my employment as a lecturer in early childhood education. The tool then asks how often each problem occurs within a specific period of time. Here, very often means more than three times; often means two or three times; Occasionally means in some situations it happened once. Never means the problem was never observed. At the end of the tool there is space for the researcher, teachers, parents, and child to make comments about the problems. This section was completed by interviewing children, their mothers and teachers to collect information about children’s attention and learning from people who have observed them for period of time, while also giving children the opportunity to express their point of views about their attentive behaviour, learning, and the school activities. The tool was reviewed by fourteen Saudi kindergarten teachers and five professors and lecturer in the field of early childhood education.

instructions to calculate the results:

The results shown in the tool are the average scores over three separate applications during the period between the third and fifth weeks of data collection period when the researcher used it to observe the children’s attention during circle time and corners time. Due to time constraints the comment space at the end of the tool used only once.

Note: if you record different behaviour each time, you use the tool more than three times to find out how often each problem occurs. The children average descriptors over three separate applications also should record often and very often at least in five attention problems out of the nine to ensure that the child frequently showing the same problems.

The child does not persist at a task until successful; moves from an unfinished task to another quickly.	Very often	Often	Occasionally	Never
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Fails to give attention to details or makes careless mistakes in schoolwork.	Very often	Often	Occasionally	Never
Fails to return to a task after an interruption, unless prompted to do so.	Very often	Often	Occasionally	Never
The child is easily distracted by external stimulation.	Very often	Often	Occasionally	Never
Shows lacks interest in schoolwork.	Very often	Often	Occasionally	Never
Does not seem to listen when spoken to directly.	Very often	Often	Occasionally	Never
Refuses to comply with an adult's requests or rules.	Very often	Often	Occasionally	Never
Has difficulty to engaging in a task.	Very often	Often	Occasionally	Never
Disturbs other children.	Very often	Often	Occasionally	Never
Talking about a topic that irrelevant to the task.	Very often	Often	Occasionally	Never

Researcher general comments:

Comments about the child body language:

Techer's comments:

Parent's comments:

Child's comments:

Appendix 3: Interview schedule for teachers

PHASE 1

1. What type of teaching instruction you tend to use?
2. Do you consider the Individual differences between children? How?
3. Do you use special teaching instruction with children who need assistance (improve performance, improve engagement in school tasks)?
4. What type of attention problems you have noticed in children?
5. How can you deal with such attention problems?
6. Could you nominate children who having limited attention span?
7. Why did you nominate those children?
8. Do you have any question about the individualized and small group instruction?
9. What type of challenge may we face to apply this teaching instruction?
10. Do you have any suggestions to modify this instruction to make it more suitable to the current educational environment?
11. Do you have the freedom to change you teaching instruction?
12. Would the ministry of education appreciate your effort to develop new teaching instruction?

PHASE 2

1. Are there any external factors that impact your teaching?
2. What do you think about our current education policy? Do you think some changes should be applied on our current education policy?
3. How would like policy to change?
4. I would share Khaled's video (when he didn't recognize number) with the teacher and ask her if she knows about children level? How she finds out that children had received the information or not?
5. How children make progresses?
6. What teacher has done to help children progress? Any example? Example of success? why that's happen? what make it happen?
7. What is your goal from teaching? passing the information? at least 80% of children learn? If you would like 100% of them to learn what is your plan to make sure they have learnt?
8. Regards types of teaching strategies teacher tend to use? Discuss why the participant's teachers have provided three different answer (teaching through play, independent learning strategy, questioning strategy)? What's the strategy that they use it in circle time activity?
9. Did you use individualized or small group instruction this term?
10. Are there any children faced the same attention problem or learning difficulties this term? How you deal with those children?
11. What is your opinion about learning theories as Piaget and Vygotsky.

Appendix 4: Teachers permission

Teacher Permission

Dear Teacher,

I am exploring how individualised and small group instruction can benefit the learning of kindergarten students (5-6 years) in relation to the attention span. Collecting the data in your classroom is part of a research project I have undertaken with the faculty of humanities and social sciences at University of Bath. I am planning to observe the school activities for one academic term and this period may be extended for one academic year if I need to collect more information.

Three research tools will be used during the data collection period (observation, interviews with teachers, children and their mothers, and portfolio analysis). Also, it is worth mentioning that children activities will be audio and video recorded in case of need, after obtaining the parent's permission and the children's consent.

During the procedures the researcher should ensure that the data collected will be used anonymously in order to protect the participants' identity. The data also may be used for publication in journals and conferences.

All participants have the right to withdraw from the research at any time. If you have enquiries or questions please contact me using my contact addresses below:

Researcher Name: Manal Marzouq H Alharbi

Contact number: [REDACTED]

Email address: mmha22@bath.ac.uk

This section to be completed by the teacher:

Please write your name:

Signature:.....

Appendix 5: parent permission

Parent permission

Dear parent,

I am a PhD student who exploring how individualised and small group instruction can benefit the learning of kindergarten students (5-6 years) in relation to the attention span. I have got the approval from the Ministry of Education to apply the study. Collecting the data in your child's classroom is a part of a research project I have undertaken with the faculty of humanities and social sciences at University of Bath. I am planning to observe the school activities for one academic term and this period may be extended for one academic year if I need to collect more information.

Three research tools will be used during the data collection period (observation, interviews with teachers, children and their mothers, and portfolio analysis). Also, it is worth mentioning that children activities will be audio and video recorded in case of need. The researcher will keep the child's faces hidden using faces hidden applications after obtaining your permission and the children's informal assent.

During the procedures the researcher should ensure that the data collected will be used anonymously in order to protect the participants' identity. The data also may be used for publication in journals and conferences.

All participants have the right to withdraw from the research at any time.

Note: The aim of the study is developing the child's attention which is important for the children's learning now and on the future. Your permission would be considered as support for children's learning if the intervention results confirm the effectiveness of the individualised and small group instruction in lengthening kindergarteners' attention span.

If you have enquiries or questions please contact me using my contact addresses below:

Researcher Name: Manal Marzouq H Alharbi

Contact number: [REDACTED]

Email address: mmha22@bath.ac.uk

This section to be completed by the parent:

I am the parent ofChild's name..... I agree that my child can participate in this study

Signature:.....

Appendix 6: The Saudi Arabian cultural bureau in London Approval

ROYAL EMBASSY OF SAUDI ARABIA
CULTURAL BUREAU
LONDON

سفارة المملكة العربية السعودية
الملحقية الثقافية
لندن

التاريخ: 1438/09/05 هـ

إفادة

رقم الملف: [REDACTED]

تفيد الملحقية الثقافية بسفارة المملكة العربية السعودية في لندن بأن /
منال مرزوق حمدي الحريسي (سجل مدني رقم: [REDACTED]) مبتعث من قبل
جامعة المجمعة لدراسة الدكتوراه بجامعة Bath اعتباراً من 1437/03/30 هـ الموافق
2016/01/10 م حتى 1441/02/11 هـ الموافق 2019/10/10 م .

وقد أعطيت لها هذه الإفادة بناءً على طلبها لتقديمها لمن يهمة الأمر دون أدنى مسؤولية على الملحقية.
وتقبلوا فائق التحيات،،،

الملحق الثقافي
بسفارة المملكة العربية السعودية في لندن
د. عبدالعزيز بن علي المقوشي

رقم: [REDACTED] التاريخ: [REDACTED] الموافق: [REDACTED] المرفقات: [REDACTED]

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www.uksacb.org

Appendix 7: Individual Child Information Record (Gronlund, 2016)

Individual Child Information Record				
Child: _____ Date: _____				
Culture	Life Experiences	Family	Learning Style	Developmental Strengths
Interests	Emerging Developmental Areas	Approaches to Learning and Responses to Challenges	Emotional Makeup	Physical Needs and Health Issues

Appendix 8: Researcher as a cartoon character telling a research story

