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Parent Perceptions of Early Intervention for Young Children with Autism Spectrum Disorders in South Korea

by

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Dedication

This thesis is dedicated to my husband, Young-Jae, who was with me throughout the entire process even though he did not know.

Abstract

Using an online survey, this study investigated when South Korean parents of children with autism spectrum disorder (ASD) recognize their child's first symptoms of ASD, receive a diagnosis and begin intervention, as well as parents' perceptions and needs for early intervention. One hundred and sixteen parents completed the online survey. Findings revealed that South Korean parents have a high level of recognition of the need for identification and early intervention. On average, parents recognized their child's symptoms of ASD at a median age of 29 months; received diagnosis at 43.3 months; and began intervention at 39.7 months. In contrast to Western reports, 25.9% parents received intervention prior to diagnosis. Implications for South Korea in regard to services for young children with ASD are presented.

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Chapter 1. Introduction

It is not an overstatement to say that the biggest change in the field of developmental disabilities in the last 25 years has been the emergence of autism spectrum disorder (ASD) as the most common disabling condition for children. ASD was considered a low-prevalence disorder only two decades ago. Numerous studies now demonstrate that there has been an astonishing growth in the diagnoses of ASD around the world. For example, the prevalence rates of ASD were only 0.7 per 10,000 to around 2 per 10,000 from the 1960s to the mid-1980s (Zahner & Pauls, 1987). In 2007, the Centers for Disease Control and Prevention (CDC, 2012) published research that 1 in 150 children aged 8 years residing in the United States were identified as having an ASD. In 2009, they reported that approximately 1% or one child in every 110 American 8-year-olds had ASD. Reports in 2012 indicate that 1 in 88 children had an ASD (CDC, 2012). These rapid increases in ASD prevalence have cooccurred with changes in criteria for diagnosis, greater public awareness, and increases in parental age, although a precise explanation of the increase is still unknown (Liu, King, & Bearman, 2010).

There are many individuals in South Korea who are also coping with ASD, although the exact prevalence is unknown due to lack of the nationwide population research and discordant use of diagnosis terminology in South Korea (Autism Society of Korea, 2011). Available data provide indications that the increase in ASD is consistent with Western findings. For example, according to the data from Korea Employment Agency for the Disabled (2011), there was 162.7% increase in the number of individuals with disability for the decade between in 2000 and 2010 (i.e., 958,196 and 2,517,312, respectively). Additionally, there has also been an increase in the number of students with special needs registering with local authorities, 48,931 in 1994 to 75,187 in 2009. Among the special needs students registered in 2009, 4,647(6.2%) were described as having ASD (Korean National Institute for Special Education, 2011). By the end of 2010, the number of individuals with ASD who were registered at the local government level was 14,888, representing a ten-fold increase during the past 10 years (KNISE, 2011).

A recent study on autism prevalence in South Korea reported a remarkable result that 2.6 percent of the children aged 7 to 12 in the Ilsan District of Korea showed symptoms of ASD (Kim, 2012). This is equivalent to 1 in 38 children and is more than twice the estimated prevalence in the developing world and much higher than South Korean government generated estimates. While the findings may be an over estimate, the stunning results lead one to question how many children in South Korea actually have ASD but no diagnosis. The number of registered students with ASD might be far less than the real number of students with ASD because of parents' unwillingness to register their children with disabilities at an early age, confused and mixed use of definitions for ASD, and a lack of clarity among the general population about the school registration processes (Park, 2002).

Early recognition of ASD (De Giacomo & Fombonne, 1998; Osterling & Dawson, 1994) and beginning intervention early is emphasized in many research reports from Western countries (Lovaas, 1987; McEachin,Smith & Lovaas, 1993;

National Research Council, 2001; Rogers, 1996). There is a growing body of evidence that beginning intervention early makes a big difference in reducing the costs and in its probable success (Giannoni & Kass, 2010; Granpeesheh, Dixon, Tarbox, Kaplan, & Wilke, 2009; Makrygianni & Reed, 2010; Matson, Wilkins, & Gonzalez, 2008; National Research Council, 2001; Zachor & Ben Itzchak, 2010;).

In Western countries, attention has also been directed to find the core factors that make early intervention programs successful for children with ASD. Common recommendations across several critical elements are as follows: (a) the earliest possible start to treatment; (b) high-treatment intensity (20-30h per week); (c) ongoing, systematic assessment that leads to intervention choices; (d) strategies to promote generalization of learned skills; (e) structured environments with predictable routines; (f) high levels of staff education and training; (g) active, sustained engagement of the child; (h) individualized treatment programs designed to meet a child’s needs; (i) specific curriculum contents with a focus on communication, social/play skills, cognitive, self-help, and behavioral issues; and (j) high-parent involvement (Dawson & Osterling, 1997; Dunlap, 1999; Hutchins, 1994; National Research Council, 2001; Rogers, 1996; Stahmer, 2007).

Statement of the Problem

Although special education in South Korea has made great strides in both the amount and quality of research since the enactment of Special Education Promotion Act in 1977, relatively little attention has been paid to either identification or early intervention for young children with ASD.

Grinker and his colleagues explored diverse communities in ASD research in South Korea (and other places in the world) and reported that ASD is underdiagnosed or generally not reported in clinical or educational records because the disorder is so highly stigmatized. Moreover, their findings showed that there is low availability of services for children with ASD in South Korea (Grinker et al., 2012).

Thus, there is much controversy and unknowns about ASD identification and intervention in South Korea. Presently, there is only one study examining the time at which South Korean parents recognize the signs of ASD (Yoon, 2006). Yoon examined the time when parents first noticed the signs of ASD. He found that 30% of parents recognized the symptoms of ASD within 12 months, 34% noticed between 13 to 24 months, and 23% recognized between 25 to 36 months. Although this research did not provide the average age of first recognition, it showed that 65% of Korean parents recognized the symptoms of ASD within 2 years after birth and 96.6% before 4 years (Yoon, 2006).

Because parents are key to early identification and to the effectiveness of early intervention, there is a real need for a clear, up-to-date review of parents' perceptions of diagnosis and early intervention for young children with ASD, as well as a better understanding regarding when children with ASD actually receive diagnosis and intervention in South Korea.

Purpose of the Study

The purpose of this research is to explore the perceptions of parents of young children with ASD in South Korea and their understanding of the need for early intervention and other related services for their children. Specifically, this descriptive research study has a threefold purpose: a) to investigate the time discrepancy between first recognition, diagnosis and intervention; b) to examine what parents define as appropriate early intervention in terms of its onset, intensity and components; and c) to determine parents' perceptions of the need for early intervention programs and related services for young children with ASD and their families in South Korea.

Definition of Terms

Early intervention services. Services designed to meet the developmental needs of infants and toddlers with disabilities in one or more of these developmental areas: physical, cognitive, communication, social/emotional, and adaptive. These services encompass a wide range of options and include family training, counseling, and home visits; special instruction; speech language pathology and audiology services; occupational and physical services; psychological services; service coordination; behavioral therapy; medical services; early identification; screening; and assessment; health services; social work services; vision services; assistive technology services; and transportation and related costs that enable children and families to participate in services. (Hanson & Bruder, 2001, p. 48-49)

Autism spectrum disorder (ASD). The Diagnostic and Statistical Manual of Mental Disorders, (American Psychiatric Association, 2000) is currently used by psychiatrists and psychologists in North America to diagnose autism. The three main features include deficits in three domains; social, communication, and restricted and repetitive behaviors. Autism is defined as a life-long disability and an onset of symptoms must be present before the age of 36 months. In DSM-IV-TR, autism is described as a ‘Pervasive Developmental Disorder.’ The DSM-V, expected to be published in May 2013 will rename the umbrella category for autism as ‘Autism Spectrum Disorders (ASD)’. According to the proposed criteria in DSM-V, ASD refers to four major disorders that include: (a) autistic disorder (autism), (b) Asperger’s disorder, (c) childhood disintegrative disorder (CDD), and (d) pervasive developmental disorder not otherwise specified (PDD-NOS). Individuals with ASD display a wide range of functional levels: from very severe disability to very mild forms of disability, and most of them have limited ability to establish friendships, lack of eye contact, inability to initiate or maintain conversations, intolerance of changes, and inflexible adherences to specific, non-functional routines. Due to the nature of this disability, children with ASD exhibit significant challenges that affect their own lives and their family. Since children with ASD have unique and multiple needs, they require intensive support from both school and home. The term Autism Spectrum Disorder (ASD) is used throughout this thesis based on the new criteria proposed in the DSM-V. In this paper ASD includes (a) autistic disorder, (b) Asperger’s disorder, and (c) pervasive developmental disorder not otherwise specified (PDD-NOS).

Chapter 2. Literature Review

> Since 1938, there have come to our attention a number of children whose condition differs so markedly and uniquely from anything reported so far, that each case merits-and, I hope, will eventually receive-a detailed consideration of its fascinating peculiarities. (Kanner, 1943, pp. 217)

When describing their characteristics as ‘fascinating peculiarities’, Kanner depicted children with Autism as those who exhibit (a) serious failure to develop relationships with others before 30 months of their age, (b) problems in development of normal language, (c) ritualistic and obsessional behaviors ("insistence on sameness"), and (d) potential for normal intelligence (Kanner, 1943; Lovaas, 1987). What we have come to understand about children with ASD is that their behavior and the level of symptom severity varies dramatically from one child to the next. The proposed name of umbrella category for autism called ‘Autism Spectrum Disorder’ well presents the features of its’ heterogenic characteristics.

Due to the complex nature of ASD, those diagnosed require a specialized approach to treatment. A number of treatments have been developed, each with varying levels of evidence of effectiveness. Whatever the types of treatments, there has been a strong agreement that early identification and intervention is crucial to maximizing a child’s potential and quality of life regardless of types of intervention (CDC, 2009).

This literature was reviewed to provide a summary of current understanding about the importance of early identification and early intervention for young children with ASD, generally, and current status of practice in regard to ASD identification and intervention in South Korea. The focus of the review is as follows: (a) the research that supports the area for early identification for young children with ASD, (b) a brief review of the research that support the importance of early intervention for children with ASD, (c) importance of parents' perception and involvement, and (d) the current research and practice of early identification and intervention for young children with ASD in South Korea.

First Recognition of ASD

Currently there is evidence that ASD can be recognized early, but this has not always been the case (Osterling & Dawson, 1994). Historically, it has been difficult to reliably detect signs of ASD before age of three because of a lack of awareness about the presentation of ASD in young children among early childhood professionals and a lack of appropriate screening instruments for young children with ASD. Until recently, many professionals did not have specific training in ASD and were unaware of the early signs of autism (Smith & Chung,1994). Many parents and teachers had misconceptions about the cognitive, developmental, and emotional aspects of autism (Stone & Rosenbaum, 1988) and confused the early signs of ASD with other problems such as intellectual disabilities and language delays. As such, prior to present day ASD awareness campaigns, most children with ASD were not diagnosed until close to four years of age (Siegel, Pliner, Eschler, & Elliott, 1988), although the unique behaviors have been noticed before one years of age in young children with ASD (Baranek, 1999; Ornitz, Guthrie, & Farley, 1977).

There have been many advances in research focused on the developmental precursors of communication, language and social development in their first two years of life. Several researchers have insisted that symptoms of ASD in young children can be reliably diagnosed by an experienced clinician in children under or at 2 years of their age (Gillberg, 1990; Lord, 1995; Stone & Hogan, 1993; Stone, Hoffman, Lewis & Ousley, 1994) and can be identified by 18 months when symptoms are severe (Baird et al., 2000; Baron-Cohen et al., 1996). Using retrospective studies of home videotapes, Baranek (1999) suggested that it is possible to identify symptoms of autism in children under or at 12 months of age.

Ozonoff and her colleagues insist that children with ASD generally do not show symptoms of ASD at six months of age but that a plateauing or loss of social skills is evident after six months and before they reach their first birthday. In a study that compared the social behaviors of 25 infants with ASD and 25 typically developing infants, it was concluded that the two groups showed no difference in social behavior at 6 months of age but by 12 months the majority of children with ASD failed to gain new social skills or had lost previously acquired ones (Ozonoff et al, 2010).

Wimpory, Hobson, Williams and Nash (2000) found that parents of children with ASD noted several features that were markedly deficient in their children during the first two years of life. The symptoms were poor eye contact and poor coordination of eye gaze with vocalization or gesture, no pointing to or showing of objects, less babbling, no reciprocity in vocalizing or imitation, and an inability to follow another’s focus of attention through eye gaze or gesture.

Saint-Georges and her colleagues (2011) argued that autistic behaviors are present before 18 months in interactive patterns between parents and infants. Parents reported that they experience these unusual interactive patterns such as a lack of interactive initiative and responsiveness of their baby long before diagnoses are made. Other research has concluded that more than 30% of parents notice the early signs of ASD before 12 months and 80% recognize the problem by 24 months (De Giacomo & Fombonne, 1998). In summary, there is a consensus in the research that when symptoms of ASD are present with their children it can be identified within their first year of life.

The signs of ASD. Despite researchers' efforts to find early signs of ASD, there are no reliable biological makers for ASD, however much has been learned about early symptoms of ASD (Zwaigenbaum et al., 2009). In 1987, Baron-Cohen demonstrated that children with ASD consistently fail in joint attention, nonverbal and preverbal communication, social reciprocity, affective understanding and imitation (Baron-Cohen, 1987). According to American Psychological Association (APA, 2000), the first symptoms of ASD fall into four categories: (a) socialization, (b) sensory functioning, (c) language, and (d) cognitive functioning.

Socialization. Young children with ASD may have a flat facial expression and lack of responses to excitement in their environment, or they may over respond. Other socialization features of ASD include: resistance or discomfort when being held or touched, lacking response to hugs, isolated play in which the child is content with solitary activity rather than interacting with others, preferring interaction with object or parts of objects rather than with humans, and atypical object interactions (Baron-Cohen et al., 1996; Goin & Myers, 2006)

Sensory functioning. Young children with ASD frequently have atypical sensory responses with visual, auditory, tactile, olfactory, or taste (Goin & Myers, 2006). For instance, some children with ASD are easily bothered by bright light or particular visual patterns. Some might respond to soft sounds as if they were extremely loud. These atypical sensory preferences may also be connected to stereotypical self-stimulation (APA, 2000). They may rock, twirl objects, flap their hands, gaze at the ceiling, lights, or mirrors, or engage in pica.

Language. Language delay or absence of language is one of the most noticeable signs of ASD. Recent studies generally report that approximately one quarter of children with ASD remain non-verbal (Luyster, Kadlec, Carter, & Tager-Flusberg, 2008). Although their receptive language is often thought to be better developed than expressive language, many of these children not only lack conventional language but are also severely limited in their ability to use communication systems, such as sign language or augmentative devices (Bailey et al. 1996; Bosseler & Massaro 2003; Seal & Bonvillian 1997). For example, they might show delays in babbling, unusual prosody or tone of voice, and echolalia (Scheuermann & Webber, 2002).

Cognitive functioning. Approximately 75% of children with ASD have cognitive problems based on measures of intelligence (Bowler, 2006). They tend to acquire new skills slowly and do not transfer skills to other settings (Landa & Garrett-Mayer, 2006). Their cognitive problems tend to have a negative effect on not only independent functioning but also their language development. Research (Luyster et al., 2008) found that both receptive and expressive language were significantly correlated with a range of general and social cognitive variables and motor skills, and that the best concurrent predictors for both receptive and expressive language were gesture use and non-verbal cognitive ability. The finding that non-verbal cognitive ability is strongly predicted both receptive and expressive language abilities is consistent with previous findings (Charman et al. 2003; Charman et al. 2005., Lord et al. 1989; Thurm et al. 2007).

Average age of first recognition. A recent North American study revealed that the average age of recognition in the group with autism was 14.7 months and was comparable to that reported in the PDD-NOS group (mean=14.9 months, SD=5.6). Parents' concerns regarding delay in language development and social interaction were the most frequent in both diagnostic groups (Chawarska et al, 2007**).** In South Korea, Yoon reports that while some parents recognize the symptoms of ASD by 12 months, 96.6% of parents recognize the symptoms of ASD within 4 years after birth in South Korea.

Diagnosis of ASD

Difficulties in ASD diagnosis. Although there have been great advances in ability to identify early symptoms of ASD, diagnosis of young children with ASD younger than the age of two is still challenging (Zwaigenbaum et al., 2009). The reasons for difficulties in assessment and diagnosis can be briefly summarized as follows: (a) absence of reliable medical diagnostic test to screen for ASD (b) the problem of autism itself- uncertainty and complexity of development-difference between individuals, (c) the problem of similarity among other disabilities such as intellectual disability (d) the lack of expertise (e) the lack of evident research for early screening for young children.

First, unfortunately, there is no accurate and precise medical test to identify children with autism. Although there are several ASD screening tools, the screening tools do not identify all children with ASD. Thus, assessment and diagnosis for young children with ASD is based on observation of behaviors by parents, teachers, or specialists. The DSM criteria includes the term '*qualitative'* to describe the impairments, defining a range of impairments rather than the absolute presence or absence of a particular behavior. The screening tools typically have a low level of reliability because they rely on observation of behaviors by parents or non specialists who are unschooled in the subtle signs and symptoms of ASD. Recently, home videos and direct observations of at risk infants have been used as sources of information to determine early symptom patterns of the ASD child; however, as a potential screening tool there is an undeniable limitation that videotapes cannot be standardized (Matson, 2007). Also, Ozonoff and her colleagues contend that effective screening by parents remains poor because the signs or symptoms of ASD go unnoticed by most parents, despite her finding that the majority of children with ASD show a gradual loss of specific social skills, particularly between 6 and 18months of age (Ozonoff et al., 2010). Another study found a significant difference between parental estimates and professionals' assessment of children's cognitive abilities (Geiger, Smith, & Creaghead, 2002).

The second problem in the assessment and diagnosis of autism is the developmental difference between and within individuals on the autism spectrum. By definition, individuals with ASD have symptoms ranging from mild to severe so it can be challenging to detect ASD in young children with mild symptoms as there are concerns about labeling or incorrectly diagnosing a young child. Some children with ASD, those without intellectual or language problem, such as Aspergers' syndrome, may not be identified at a young age and instead receive a diagnosis at a later age when their symptoms become more severe. Moreover, the formal diagnostic criteria are based upon deviations in language, cognitive, social and behavioral skills that may not be present in very young children. For instance, it would be hard to judge developmental deviation in peer relationships in children of 12 months, an age when these skills are not expected to have developed.

Third, it may be difficult to differentiate ASD from other atypical patterns of development at an early age since many disorders fall under the realm of ASD. Autistic conditions are characterized by many of the same atypical behaviors. More than half of individuals with ASD also have intellectual problems. DSM-IV-TR estimated that approximately 75% of individuals with ASD had intellectual disabilities (APA, 2000) and other research showed that 69.2% of children with ASD met the criteria for intellectual disabilities (Goin-Kochel, Peters, & Treadwell-Deering, 2008). Although children with ASD shows fewer responses to name, fewer glances to others, lower eye contact quality, and quantity less positive facial expression and fewer inter-subjective behaviors than the children with intellectual disabilities, differentiation between signs of ASD from that of intellectual disability is possible after the second year (Palomo, Belinchon, & Ozonoff, 2006; Saint-Georges, Cassel, Cohen, Chetouani, Laznik et al., 2010).

Fourth, there is lack of qualified experts for screening of young children with ASD. Since many disorders fall under the ASD umbrella, qualified physicians, physicians, psychologists, and other experts, must make a diagnosis (Goin & Myers, 2006). However, a survey of pediatricians illustrated that few pediatricians use appropriate means to screen for child developmental problems, and most of them reported themselves that they were inadequately trained and not familiar with the screening tools for ASD (Howlin & Moorf, 1997). Howlin and Moorf discovered that most early screening in reality did not occur prior to age two years and often was not conducted until age six years in clinical practice. According to recent findings, only eight percent of pediatricians screen for ASD (Dosreis, Weiner, Johnson, & Newschaffer, 2006).

Finally, there is still lack of evidence about the reliability and stability of ASD diagnosis for young children under two years of age. Matson, Rieske, and Tureck (2011) insist that the period of 18-24 months has much better empirical evidence for the first diagnosis of ASD than the period before 12 months. Even though numerous studies report the possibility of an ASD diagnosis at age two years, it is generally reliable and stable only for the school-age years.

Reported age of diagnosis. There are several reports that average age of autism diagnosis from North American is approximately 5 years of age. Shattuck et al. (2009) reported that the average age of autism diagnosis was 68.4 months, which is three to four years after diagnosis is possible.

Mandell and colleagues (2010) also revealed that the average diagnosis age was 64.9 months. Their study found that children with ASD do not receive a diagnosis, until they are of school age. On average, in the United States, there is also concern that a 13-month gap between the time a child is first evaluated due to concerns about development and the subsequent time of diagnosis of ASD (Landa &GarrettMayer, 2006).

Importance of Early Intervention

There has been a growing body of evidence that intervention needs to begin early for children with ASD in order to have a significant and positive impact on their future functioning and independence. In 1987 and 1993, Lovaas and colleagues published two ground breaking articles describing the “recovery” of almost 50% of a group of young children with autism, who were treated intensively with applied behavioral analysis for two years (Lovaas, 1987; McEachin, Smith, & Lovaas, 1993). These articles suggested an entirely new way of thinking about autism: as a disorder marked by considerable plasticity, for which there was the hope of recovery given appropriate intervention. The articles have had a tremendous impact on public and private service agencies that provide intervention for all children with disabilities, resulting in the development of specialized intervention programs for children with autism that differ markedly for those of children with other developmental disorders.

After Lovaas' research, many studies on early intervention for young children with ASD have been conducted and a range of comprehensive early intervention systems for infants and toddlers with autism and their families have been developed and implemented. Much research has accumulated documenting the significant improvements in many areas of development for children with ASD who received early intervention services during the preschool years (Rogers, 1996; Rogers, 1998). In a recent review of early intervention, Rogers and Vismara (2008) concluded that early intervention programs are indeed beneficial for children with ASD. These researchers conducted a search of the literature for all published studies on early intervention for children with ASD published from 1998 to 2006. The results indicated that early intervention improves developmental functioning and decreases maladaptive behaviors and symptom severity. More recent work using well-designed randomized clinical trials continues to provide support for the benefits of early intervention for children with ASD (Dawson et al. 2010; Howlin, Magiati, & Charman, 2009).

Based on the developmental models suggesting the importance of early experience and the greater malleability of early development, a system of early intervention services and supports for young children with ASD and their families has become firmly established in the United States and in most western countries today.

Numerous types of treatment. Due to the unique needs of children with ASD, numerous specialized treatments have been developed, each with varying levels of evidence of effectiveness. Some examples include auditory training, discrete trial training, vitamin therapy, anti-yeast therapy, facilitated communication, music therapy, occupational therapy, physical therapy, and sensory integration. Despite the widespread evidence for the importance of early intervention for young children with ASD, families and even professionals may be overwhelmed by the numerous types of treatments and interventions for their child.

A study showed that children with ASD were currently receiving between four and six different types of treatment and had tried between seven and nine (Goin-Kochel, Myers, & Mackintosh, 2006). In a similar study, researchers discovered that the children with ASD had tried an average of 6.2 different treatments and were currently using an average of 3.6 (Mandell et al., 2005). Smith and Antolovich (2000) discovered that the most frequently used treatments were speech/language therapy (85 %), megadoses of vitamin B6 with magnesium (61%), Sensory Integration Therapy (56%), and elimination diets (%).

In recent years, Green and her colleagues (2006a) used an internet survey to reveal that in a sample of 552 parents of children with ASD, 108 different treatments were in use or had been tried. According to the results of survey, parents reported that they were using seven different types of treatments on average. Speech therapy was the most frequently used followed by visual schedules, sensory integration and applied behavior analysis. Many parents reported interventions for their children that lack empirical support, including medications, special diets, or vitamin supplements (Green, Pituch, Itchon, Choi, O'Reilly, & Sigafoos, 2006b).

Boyd and his colleagues (2010) made two classifications of practice in the field of early intervention for children with ASD as follows; (a) focused intervention practices and (b) Comprehensive Treatment Model (CTMs). Focused intervention practices are specific teaching procedures that practitioners or parents use to promote children's learning and development or decrease challenging behaviors. These include behavioral intervention strategies, positive behavior support, naturalistic intervention, parent-implemented intervention, picture exchange communication system, pivotal response training, structured work systems, visual supports. These treatments have been applied to specific developmental concerns such as challenging behavior or delayed language development. In contrast, Comprehensive Treatment Models (CTMs) differ from focused intervention in scope, intensity and complexity. They are conceptually organized and involve multi component practices that have been integrated in a comprehensive manner to promote positive general outcomes for children with ASD.

Best practice recommendations for early intervention. Several early intervention components are recommended by researchers and professionals (Hurth, Shaw, Izeman, Whaley, & Rogers, 1999; Iovannone, Dunlap, Huber, & Kincaid, 2003; NRC, 2001).

In 2003, Iovannone and his colleagues reviewed a report on effective practice programs for children with ASD from 1992 to 2001 and revealed core components of early intervention for students of all ages with ASD. These core elements include; (a) individualized supports and services for children and families, (b) systematic instruction, (c) comprehensive and/or structured environments, (d) specialized curriculum content, (e) a functional approach to problem behaviors, and (f) family involvement.

In addition, the National Research Council (NRC, 2001) presented general consensus regarding features of effective programs for young children with ASD. The following characteristics are critical and recommended as part of effective programs; (a) entry into intervention programs as soon as an ASD diagnosis is considered; (b) Active engagement in intensive instructional programming for a minimum of a full school day, 5 days (at least 25 hours) a week, with a full year of programming; (c) planned teaching opportunities around brief periods of time (15-20 minute intervals for younger children) with one to one adult and small group instruction to meet individualized needs; (d) Inclusion of a family component, including parent training; (e) Low student/teacher ratio (no more than 2 young children with ASD per adult in the classroom); and (f) Ongoing program evaluation and assessment of the child’s progress to insure that program is meeting the child’s individualized need (NRC, 2001).

The NRC review focused on the guideline of early entry into early intervention programs. Whatever the types of intervention, early onset is crucial. Early childhood, from birth to age 5, is a time of life during which significant transformation take place. The new born infant, equipped the basic reflexes, develops into an active curious child capable of walking, talking, and pretending. Furthermore, their vocabulary increases rapidly, and they acquire the ability to remember experiences, sustain attention, count, and recognize letters. Through interactions with adults and peers, young children develop self-concepts and self-esteem, improve emotional self-regulation, and form their first friendships (Brooks-Gunn et al., 2003). In short, the early years are important because they are the period during which young children acquire the basic skills that serve as the foundation for later learning. According to Westermann and colleagues (2007), brain development is shaped not only by the interaction between the child's genes and his or her environment, but also by the way in which the child's behavior influences that environment he or she experiences (Westermann et al., 2007). As NRC suggested in 2001, early intervention is important because early symptoms of ASD may reflect and contribute to "abnormal trajectories of brain development (Mundy & Crowson, 1997). Thus, the NRC committee did not recommend entry into intervention only after a diagnosis is confirmed but as soon as it is considered.

There is a growing body of evidence that early intervention for young children with ASD appears more effective than later intervention (Harris & Handleman, 2000; Itzchak & Zachor, 2011; Makrygianni & Reed, 2010; Rogers & Vismara, 2008). Makrygianni and Reed (2010) insisted that the child's age at intake is the factor that has an impact on the effectiveness of the program. According to their research, the younger the children are at intake, the greater the impact of the behavioral early intervention programs on their language abilities; on the other hand, when the children at the start the program were relatively older, the effect of the program was only moderate (Makrygianni & Reed, 2010).

Emphasizing both biological and environmental factors, Itzchak and Zachor (2011) suggested that younger child's age at start of intervention predicted greater cognitive gains with intervention. Their study revealed that after one year of intervention children improved significantly in their verbal ability and their autism severity was reduced.

A recent survey of families from North America, Europe, Australia, and New Zealand (Bowker, D'Angelo, Hicks, & Wells, 2011) showed that 76.7% parents of children with ASD reported that they had sought out some form of treatment for their child with ASD at some point in their life. However, it is noticeable that approximately a quarter of the children with ASD (23%) had never received any type of treatment for their disorder. There was a difference in geographic location in that they showed that treatment was more often used for children from North America than other countries. According to their study, empirical evidence was not the primary source to parents when they choose treatments for their children with ASD. Although ABA was the most empirically supported treatment in current use according to the findings (NYSDH-EI, 1999), 63% of children were not using ABA treatments. There might be a number of factors that influence parents in their decisions when they select treatments for their children with ASD, such as belief in the underlying cause of the disorder, parenting style, lifestyle and access to services and treatments, the impact of media, and testimonials from other families (Levy & Hyman, 2005). Bowker and his colleagues argued that the parents' perceptions of treatment that works for their child are more likely to be influenced by what they perceive as meaningful change in their child's functioning rather than empirical evidence that is presented in the literature.

Importance of Parents' Involvement and Perception

> The family seems to be the most effective and economical system for fostering and sustaining the child's development. Without family involvement, intervention is likely to be unsuccessful, and what few effects are achieved are likely to disappear once the intervention is discontinued. (Bronfenbrenner, 1974)

Parents' involvement. There has been a strong agreement among professionals that parents' involvement and support has been crucial in child development since it was proposed by Bronfenbrenner (1974). Describing five interaction systems that constitute the world of child, he promoted the role of the primary caretaker as the most significant environmental factor for development. Generally, there has been substantial research and practice supporting family involvement, and a growing body of intervention evaluations demonstrate that family involvement can be strengthened with positive results for young children and their school readiness (Smith, 1995; Webster-Stratton, Reid, & Hammond, 2004).

The current report for the World Health Organization's Commission on the Social Determinants of Health (Irwin, Siddiqi, & Hertzman, 2010) emphasized the family environment as the primary source for children's experiences and contact with the larger community. A home environment that facilitates social interaction, sensory stimulation, language development and physical activity has a positive effect on healthy development and learning for young children (Beach & Friendly, 2007).

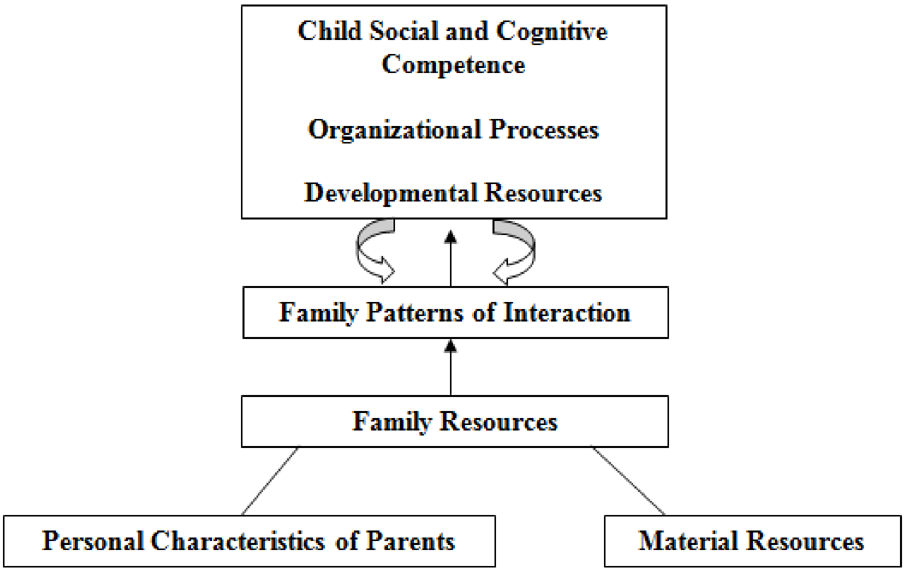

*Figure 1.*The developmental systems approach framework illustrating the role of family resources as the foundation for the 3 family patterns of interaction. Reprinted from *Why early intervention works: A systems perspective*, by Guralnick, M. J. 2011, Infants & Young Children, 24(1), 6-28. Copyright 2011 by Wolters Kluwer Health and Lippincott Williams & Wilkins. Adapted with permission.

Guralnick (2011) argued that family patterns of interaction and family resources influence the social and intellectual competence of young children. Three general types of family patterns of interaction are closely associated with child developmental outcomes; (a) parent-child transactions, (b) family-orchestrated child experiences, and (c) health and safety of the child. It is also essential to consider the level of family resources as fundamental factors of child development (Figure 1). He presented that the personal characteristics of parents and material resources are essential to optimal social and cognitive competence of young children such as parents' attitudes toward their child, their preparedness to rear child, financial resources. Clearly, it goes without saying that parents' perceptions are directly linked to their involvement in their child's education and outcomes.

Parents' perception. The perception of parents has a positive relationship with their child's future outcome and also the first standard of their child's success. Especially if a child has disabilities, the perception of parents on their child's future outcome is an important issue (Diamond & LeFurgy, 1992; Ivey, 2004). Diamond and LeFurgy (1992) argue that a mother's perceptions and expectation about their child's future development have an effect on actual outcome of child development. Mutua and Dimittrov (2001) insist that it is important to investigate and understand how parents perceive their child's disabilities in order to develop appropriate educational services. Moreover, they said that the attitudes and perceptions of service providers are also influenced by understanding of parents' perceptions. Wigfield and his colleagues (1997) reported that parents' perceptions are more imperative to the development of their children in the academic areas than are teachers' perceptions. Harter (1999) notes that early childhood (from birth to age 5) is the time when parents' belief about their children's abilities is shaped and when children's own academic self-concepts begin to form.

Parents' role in child development. Parents' perception and involvement in early intervention for young children with disabilities has been increasingly focused on for two decades (Campbell, 1991; Kohn, 1990). Parents have multiple roles in ensuring their children's future. First, parents play a critical role in early identification and diagnosis. In most cases, parents are the first person to recognize the developmental problem of their child. The accuracy of their reports can directly affect the validity of the diagnosis. Goldberg, Thorsen, Osann and Spence (2008) have also reported that parents are reliable reporters of development and regression in regard to language through their study comparing video tapes to parental reports. Not only are parents reliable sources for language milestones, but they also accurately report milestones of crawling, sitting, and walking (Bodnarchuk & Eaton, 2004). As noted earlier, early entry into intervention programs is essential to make early intervention work. Since the experiences in the early years shape the architecture of the brain and set the developmental trajectories, it is important for parents to identify needs as early as possible in order to minimize the risk of disabilities.

Second, parents are a usual source of information as well as primary decision maker for their child's early intervention program. Their choice of educational services could be a critical and valuable variable in finding the most appropriate early intervention program for their child. Parent's involvement as a decision maker in children's development has been recognized by research (Guralnick, 2011), and is currently well recognized in the Individuals with Disability Education Act (IDEA), amended in 2004, as well. Making evidence-based choices in regard to their child's individual needs, make them not only a primary stake holder but key to obtaining appropriate early intervention for their young child with ASD.

Third, parents develop a collaborative partnership with service providers and need to be closely involved in the early intervention programs. Parents are a child's first teacher and they play an important role in their child's learning and development. Shonkoff and Phillips (2000) reported that parental sensitivity, responsiveness, and consistency are associated with positive child outcomes. Children who receive responsive and consistent care early in life develop secure attachments to their parents or caregiver, which helps with their growth and learning. It is important for a child to be supported by responsive parenting, a style characterized by affection, warmth and being responsive to a young child's signals, needs, and interests (Landry, 2008). There are also many empirical supports that parents who support their children with significant disabilities produce positive child outcomes (Hunt, Soto, Maier, Liboiron, & Bae, 2004).

Due to the features of ASD, young children with ASD especially need a consistent and supportive environment to make optimal educational progress. For instance, children with ASD have problems in generalizing an acquired skill in one setting to another place or time. To generalize learned skills, parents of children with ASD need to be more closely involved in the educational process than do parents of children with other developmental disorders (NRC, 2001). By learning techniques for teaching adaptive skills and managing the behavior of their child with ASD, parents could maximize their child's learning and improves the quality of family life.

Difficulties of parents dealing with ASD. Parents of children with ASD are confronted with feelings of sadness, anger, disappointment, or other complex emotions at the initial discovery that their child has a significant developmental problem. The majority of families cope effectively with this situation, but some may face substantial stress as they raise their child with ASD. Heyman (2002) interviewed 32 parents regarding their experience of their children’s disability and found that most family members expressed negative reactions when they were informed of their child’s diagnosis. Parents perceived a sense of confusion, dismay, and misunderstanding regarding the diagnosis, treatment, and prognosis (Lovett & Haring, 2003).

Lee (1994) listed the stress factors experienced by parents in regard to the behaviors of their children with ASD. The first stress factor is helplessness due to uncontrollable behaviors. Second is embarrassment due to deviant behaviors such as acting out in public. A third factor is anxiety about the child’s safety due to dangerous behaviors and the child’s misperceptions of the environment. Fourth, parents experience unhappiness due to lack of communication with their child. A fifth factor is isolation from family or neighbors because of the child’s deviant behaviors. Sixth is guilt because of other people’s criticisms and misunderstanding regarding parenting practices. Seventh is situational crisis due to child challenging behaviours or self-harming actions. Finally, parents feel pressure or conflict regarding leaving or abandoning the child (Lee, 1994).

Generally, mothers have a tendency to report more severe stress than fathers, often describing issues related to time demands and personal sacrifice (Konstantareas, Homatidis, & Plowright, 1992). Rodrigue and his colleagues insist that mothers of children with ASD reported more stress in their lives than do mothers of children with other disabilities (Rodrigue, Morgan, & Geffken, 1990).

Another challenge for parents of children with ASD is the low interactivity between parents and their children in comparison to typically developing children. Young children with ASD have difficulties in initiating social interaction with their parents and this becomes apparent after the child's first birthday (Saint-Georges et al., 2011). In terms of interactive patterns, parents whose child has ASD feel the lack of interactive initiative and responsiveness of their children and try to increasingly supply soliciting behaviors in contrast to other parents whose child has intellectual disabilities or typical development.

ASD Research and Practice in South Korea

South Korea is located to the east of Mainland China and to the west of Japan and it is approximately 1,000km (621miles) long and 216km (134miles) wide at its narrowest point. The population in South Korea is about 49.8 million as of December 2009. There was a dramatic expansion of education since Korea became independent from Japan in 1945. Korea's social infrastructure, including school facilities were devastated because of Japanese colonialism and the Korean War and the GNP per capita was only $79. However, Korean's GNP stood at $10,000 as of 2000 which is twelfth largest in the world (Kim, 2002). South Korea has often been cited as a successful case of economic development. Kim (2002) believes that the zeal for education was the primary source of the rapid economic growth that the nation has achieved during the past six decades. During 1945 to 1970, Korean government tried to establish a national education system; as a result, primary education was made compulsory in 1953 and illiteracy was virtually eliminated. Today, South Korea boasts one of the highest literacy rates in the 34 countries of Organisation for Economic Co-operation and Development (OECD).

Table 1

The number of individuals with disabilities in South Korea (December 2010)

	1999	2000	2003	2007	2010
Physical	502,647	606,422	813,916	1,114,094	1,337,722
Brain Lesions	-	33,126	117,514	214,751	261,746
Visual	46,957	90,997	152,857	216,881	249,259
Hearing	67,890	87,387	139,325	218,206	277,610
Intellectual	80,019	86,793	112,043	142,589	161,249
ASD	-	1,514*	5,717	11,874	14,888
Mental	-	23,559	46,883	81,961	95,821
Kidney	-	23,427	34,884	47,509	57,142
Heart	-	4,971	10,409	14,352	12,864
Respiratory	-	-	7,039	14,289	15,551
Hepatopathy	-	-	3,108	6,329	7,920
Facial	-	-	673	2,149	2,696
Intestinal/Urinary	-	-	6,585	11,184	13,072
Epilepsy	-	-	3,262	8,721	9,772
Total	697,513	958,196	1,454,215	2,104,889	2,517,312

Note. Autism has been officially categorized as a disability since 2000. Adapted from *A national-wide survey on special education,* 2011, Seoungnam-si, Gyeonggi-do: Korea Employment Agency for the Disabled. Copyright 2011 by the KEAD.Adapted with permission.

The number of individuals with disabilities has been increasing for the past several decades. As of 2010 the number of disabilities who were registered at local government was 2,517,312 (Table 1). This represents a 162.7% increase in 10 years. The rapid increase in the number of individuals with disabilities has co-occurred with improvements in the number and quality of special education resources in South (Park, 2002). In response to the awareness of disabilities and with the growth in modernization and globalization, the Korean government has tried to improve the welfare for individuals with disabilities based on notions of human rights (Kim & Ross, 2008).

However, there is still strong discrimination and exclusion of individuals with disabilities. For example, the Korean Institute for Health and Social Affairs reported that 86.7% of individuals with disabilities in South Korea believed that they were subject to either discrimination or human rights abuses (KIHASA, 2005).

Grinker said that the situation in South Korea could be compared to where the United States was 20 years ago in terms of autism awareness. His anthropological qualitative study reported that ASD is so stigmatized in South Korea that a number of children with ASD are not diagnosed and not reported in educational setting (Grinker et al., 2012).

In reality, the recent study from Yale University School of Medicine revealed that 2.6 of the children aged 7 to 12 showed the symptoms of ASD (Kim et al., 2012). On the other hand, a national-wide survey on special education conducted in South Korea reported only .007% of the population was individuals with ASD (Korea Employment Agency for the Disabled, 2011). This rate is also well below the incidence statistics for individuals with ASD compared to western nations (i.e., UK and US). The number of individuals with ASD who are registering at the local government level is 14,888 in 2010 (KEAD, 2011). This low level of enrolling means that many children with ASD in general education classroom may not have been diagnosed or misdiagnosed.

Current state of special education. Special education originated about 70 years later in South Korea than in the United States (Seo & Oakland, 1991). Although special education in South Korea was initiated at the end of the 19th century by an American missionary and physician, Roetta Sherwood Hall, it grew slowly because Korea was occupied by Japan between 1920 and 1945 and later there was the Korean War from 1950 to 1953. After that, despite Korean government's endeavors, including starting the 'Five Year Special Education Plan' in 1967, the reform was not completed because of the national economic situation. The 1970s saw a significant turning point in the field of special education in South Korea, that was more aligned with global trends. It was the 'Act for the Promotion of Special Education for the Handicapped' that was launched in 1977, modeled after the 1975 U.S. Public Law 94-142. This act mandated free public education for children with disabilities and secured related services for them. With the amendment of this law in 1994, 'The Korea National Institute for Special Education (KNISE)' was established to improve the quality of special education in 1994. At this time, there were only 6 universities with Departments of Special Education in South Korea. There were 106 special schools and 3,400 special classrooms in regular schools serving a total enrollment of 48,931 children with disabilities, who were taught by 6,672 special education teachers in 1994. In 2008, with the establishment of the 'Special Education Act for Individuals with Disabilities and Others', the Korean government continues to improve the quality of the special education system.

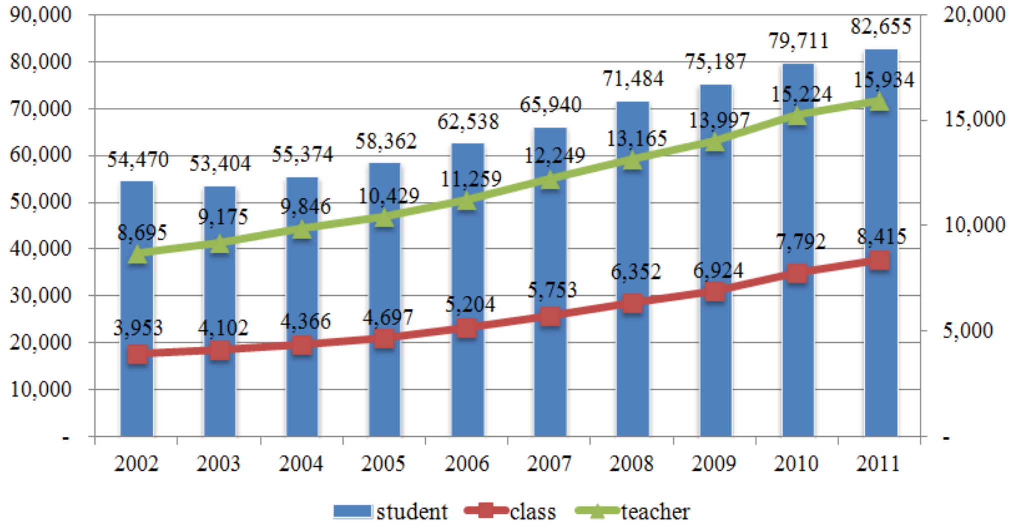

Figure 2. The trends of quantitative increase in special education. Adapted from *Special Education White Paper*, 2011. Ansan-si, Gyeonggi-do: Korea National Institute for Special Education. Copyright 2011 by the KNISE. Adapted with permission.

Note. Student means the number of student who are registering in local authorities as a student who need special education and currently attending in special school, special classroom or regular classroom.

According to the most recent annual report from KNISE (2011), it is clear that there has been an astonishing interest and quantitative expansion in the field of special education over the past 20 years. There were 82,655 students with disabilities taught by 15,934 special education teachers in 8,415 classrooms including special schools; special classrooms in regular schools in 2011 (Figure2). The number of student without disabilities was 7,646,178 and the ratio was 1.1 percent. The number of teachers has also increased every year and, in 2011, the ratio between teacher and student is 1:5.2 in South Korea, while it was 1:7.1 during 2007 to 2008 in US according to the Public Elementary/Secondary School Universe Survey (National Center for Education Statistics, 2012). There are currently 37 universities that prepare special educators in the Nation. This increasing trend is predicted to continue due to enlargement of education for children with disabilities (KNISE, 2011).

Belatedly, autism was first introduced to Korea in 1980s. However, similar to other special education services, there have been major improvements in this field in last 10 years. An autism academy was first inaugurated in 1994. The Association for individuals with ASD referred to as the Autism Society of Korea (ASK) was officially recognized by Ministry for Health and Welfare and Family Affairs in December 2006. As the first leading autism organization in South Korea, ASK tries to improve the quality of lives for individuals with ASD and to offer various social networks. They also try to eliminate social prejudice as well as alleviate the social status of individuals with ASD through regular seminars and researches.

Early intervention for ASD. In 1994 in South Korea, a legal foundation for the early identification of children with disabilities was established entitled the 'Special Education Promotion Law'. This law insists upon the discovery of developmental disorders during the early stages of kindergarten. However, the 'Special Education Promotion Law' provided no details regarding process or procedures and very few children benefited. Thus in 2007, 'Special Education Promotion Law' was revised to 'Special Education Act for Individuals with Disabilities and Others'. When the law was revised, it indicated that for a child younger than 3 with any disorder in 11 categories could receive free-mandatory education. This law stipulated that main agent of assessment and early intervention for infants and toddlers with disabilities in public education system is the ‘special education support center’. It also states that infants and toddlers with disabilities should be placed and receive early intervention in local special education support centers or preschool classes in special schools (KNISE, 2009). Despite the fact that Korean government has begun to be aware of the importance of education for disabled children, an early intervention service system has not been established, as well there is a lack of public centers and expertise providing early intervention for young children with disabilities including ASD.

Lack of public institutions for early intervention. KNISE (2009) carried out a national-wide survey of parents of children with disabilities in local special education support centers, preschool classes in special schools and daycare centers in order to develop aneffective early intervention system for infants and toddlers with disabilities. The results revealed that although the mandate of early intervention for children with disabilities is required by law the places where they are going to be placed are not ready. In 2009, there were 187 local special education support centers, 22 preschool classes in special school, and 33,499 day care centers in South Korea. However, only 59 of 187 special educational support centers were able to provide early intervention for young children with disabilities. Moreover, there were only 58 special education teachers in 59 special education support center, which means approximately one teacher exists in each local center. This is because the local special education centers had just started to provide early program for young children with disabilities in 2008. In addition, it turned out that 38.1% infants with disabilities received less than five hours intervention per week and 34.3% of them received between six and ten hours per week. These few centers and special schools could not cope with children needing services, confirming that there is a big gap between the law and reality.

Although there are many day care centers in South Korea, in 2008, 97.2% day care centers were for generally developing young children, on the other hand, only 938 (2.8%) of 33,499 day care center could take care of young children with disabilities. It is hard to consider day care center as the place providing early intervention for infants with disabilities because the day care centers have focused more on nursery rather than early intervention. KNISE reported that they did not have consistent curriculum for early intervention and lacked qualified special education teachers. It turned out that only 12.9% teachers in day care centers had certification as a special education teacher for young children with disabilities.

Table 2

Number of infants with disabilities who received early intervention

	1-12 months	13-24 months	25-36 months	Total
2008	9	18	58	85
2009	26	109	182	317

Note. Adapted from *Special Education White Paper*, 2011. Ansan-si, Gyeonggi-do: Korea National Institute for Special Education. Copyright 2011 by the KNISE. Adapted with permission.

Further, considering the number of infants with disabilities, there are few who receive early intervention services. Table 2 illustrates that the situation is slowly improving. It can be seen that only 85 infants with disabilities received services in 2008, this number increased to 317 children in 2009. Although the number of infants who received early intervention in special schools and public centers has tripled in two years, it is still a small percentage of the total population of children with disabilities identified prior to school age or the number of students with disabilities attending preschools or elementary school. (Table 3).

Table 3
Number of preschooler and elementary student with disabilities

Year	2003	2004	2005	2006	2007	2008	2009
Number of preschooler	1,932	2,677	3,057	3,243	3,125	3,236	3,591
Number of elementary	30,838	3,0329	31,064	32,263	32,752	33,974	34,035

Note. Adapted from *Special Education White Paper*, 2011. Ansan-si, Gyeonggi-do: Korea National Institute for Special Education. Copyright 2011 by the KNISE. Adapted with permission.

In addition, the results of the survey showed that only certain disabilities were reporting use of services at the special education support centres. Unfortunately, among 105 young infants with disabilities who participated in the survey in local special education support centers, there were no young infants diagnosed with ASD and only 17 young children (16.2%) diagnosed with developmental delay (Table 4). The study reports the following disabilities: 44 (41.9%) physical, 23(21.9%) intellectual, 21 (20.0%) hearing and visual impairment.

Table 4
Number of infants with disabilities by types of diagnosis

Diagnosis	Visual Hearing	Intellectual disorders	Physical disorders	Autism	Developmental delay	Total
N (%)	21 (20.0)	23 (21.9)	44 (41.9)	0 (0.0)	17 (16.2)	105 (100.0)

Note. Adapted from *Special Education White Paper*, 2011. Ansan-si, Gyeonggi-do: Korea National Institute for Special Education. Copyright 2011 by the KNISE. Adapted with permission.

To sum up, a huge gap between the law and reality exists in the field of early intervention service for young children with disabilities including ASD.

There is a lack of public institutions, expertise providing early intervention service and systematic and individualized curriculum.

Lack of research on ASD. Although South Korea currently has 19 special education journals, 38 universities having department of special education, and KNISE conducting national studies on special education, research on issues important to special education and specifically on autism is lacking. According to KNISE, 276 studies on special education were published between 1994 and 2009, which means average 17.25 studies on special education were conducted by KNISE per year. However, only 4(1.3%) studies were about autism, especially there was no study on autism during 2003 to 2007 (KNISE, 2011).

In the KNISE screening of the 19 South Korean special education journals between 1994 and December 2010, they revealed the following: before 2000, there were only 57 studies on autism but in 2000~2005, there were 167 studies and after 2005, there were 225 studies but only 10% were about autism and a study regarding early intervention for an autistic child was scarce.

According to the Special education white paper, KNISE analyzed 306 doctoral dissertations from 8 universities between 1994 and 2009 and also reported that only 10% out of 306 doctoral dissertations in special education field were about autism.

Despite of this lack of research on early intervention for children with ASD compared with Western-cultural nations, several Korean researchers have highlighted the importance of early intervention over the past 15 years.

EARLY INTERVENTION FOR ASD IN SOUTH KOREA

Since 1994, S. H. Lee (2002) at the Department of Special Education in Ewha Graduate School has insisted on necessity of early intervention program for young children with ASD; in addition, she has analyzed the components of early intervention programs which have already been implemented in other countries. After analyzing seven model programs; Douglas Developmental Center, LEAP, May Institute, Princeton Child Development Institute, TEACCH, Young Autism Project, and Walden Early Childhood Programs. S. H. Lee (2002) described six common elements among early intervention programs which include: early start, structured and high intensity of the program, specific curriculum and educational strategies, family involvement, inclusion and transition provisions, and quality personnel preparation. H. O. Park (2008) also examined the early intervention literature from other nations focusing on the model programs, practical and specific intervention methods, and recommended practices. Kang (2008) also explored the early intervention service delivery system of the United States which has been implemented in Kansas since the 1980s and discussed possible future directions. Kang argued that South Korea needs to take on development of an early intervention service delivery system. Kang discussed (a) eligibility for service, (b) clear definition of early intervention and related services, (c) follow-up management system, (d) collaborative system, (e) family involvement, and (f) autonomy from central government (Kang, 2008). These few studies on early intervention have mainly focused on exploring the future direction of early intervention for children with autism in South Korea through analysis of the cases of other countries where early intervention service delivery system have long been established and implemented.

Recently, J. W. Lee and his colleagues (2008) examined and analyzed the present conditions of education for young children in South Korea with ASD aged 3 to 5. The results showed that assessment and evaluations for young children with ASD relied solely on psychiatrists' diagnosis. Most teachers insisted that those diagnoses from a medical point view do not provide useful educational implications for effective early intervention. A survey of teachers in charge of young children with ASD revealed that comprehensive assessment and evaluations in educational setting are necessary in South Korea (Lee, Kim, Choi, Lee, & Seo, 2008).

There is little research on parents' perceptions of services or conditions for children with ASD in South Korea. H. S. Park and her colleagues (2010) investigated the expectation of parents whose child has ASD in regard to their child's future outcomes. The findings showed most parents recognized the importance of independence for their child in the future, but parents were skeptical of its likelihood. Also, there was a significant gap among the fathers and mothers in perceptions of child characteristics and the importance and likelihood of positive future outcomes. This research did not focus on the parents' perceptions and need of early intervention for young children with ASD.

As indicated by this review, research on early intervention for young children with ASD in South Korea is still in an early stage, as the brevity of the bibliography attests and there is currently no theoretical framework in South Korea when it comes to early intervention programs for young children with ASD.

This deficiency is attributed, in part, to insufficient research funds and limited numbers of special education professionals (Lee et al., 2008). Lacking its own research base, special education tends to rely on information obtained from other nations. Currently, in South Korea, we have a mandate for early intervention, yet a very unclear understanding of why these services are not established and whether parents and families have an awareness of the importance of early identification and intervention for young children with ASD. Grinker and colleagues (2012) reported that no epidemiologic study of autism had ever been conducted in South Korea. Also, it is uncertain when children with ASD are diagnosed or whether young children with ASD in South Korea receive early intervention. No research has been conducted to investigate the time discrepancy between first symptoms, diagnosis, and intervention in South Korea. Therefore, there is a need to study parents' perceptions on early intervention in South Korea where extremely limited literature and resources exists.

Summary

Research indicates that ASD can be identified at an early age and early intervention with participation of families contributes to positive outcomes. With this in mind, understanding the needs and perceptions of parents of children with ASD in South Korea is important for at least three reasons. First, the number of children with ASD is increasing and the need of education is increasing. Since ASD became an independent diagnostic category in 2002 in South Korea, there has been increased social interest in the phenomena of autism. It is very important at this time to understand the needs and perceptions of parents of children with ASD in order to facilitate early identification and early education.

Second, it is important to investigate when parents of young children with ASD first notice the signs of autism in their child, when they seek out diagnosis and when they begin to receive early intervention. This understanding will help to understand whether there are gaps in knowledge for parents and where supports are needed to facilitate beginning intervention earlier. Curiously, despite the rise in the number of students with ASD in South Korea, very little research has investigated the status of early intervention for young children with ASD to date.

Third, parents' perceptions are the most powerful factors that influence the direction of interventions for their children. Among families' socio-cultural background/characteristics, parents' beliefs or understanding of the disabilities of their children seem to be the most important factor that directly influences their interactions with professionals and their decisions regarding services provided to their children with disabilities (Diken, 2006). Thus, it is important to understand how parent characteristics such as socio-economic status, geographic location (i.e., rural or urban) may influence South Korean parents' beliefs regarding early intervention for young children with ASD in order to provide better service supports for families of young children with ASD.

Hypothesis

Recent North American national and regional surveys of parents reveal that there may be differences in symptom recognition and diagnosis across racial and ethnic groups (UCLA, 2006). Matson et al. (2011; 2012) stated that there are subtle differences in presentation of ASD across ethnic groups and cultures, although autism presents with a consistent set of core symptoms. Words and phrases may be similar, but not identical based on language and culture. In addition, according to some research, it has been implied that many South Korean parents whose children have disabilities have a tendency to avoid diagnosis of disabilities because of prevailing negative attitudes and pejorative terminology (Kim & Kang, 2003).

Thus, it was hypothesized that there would be a significant time discrepancy between parents' identification of first signs of ASD and diagnosis. Moreover, because very few young children with ASD are registering in public institutions, it is also hypothesized that there will be a significant delay in diagnosis and beginning early intervention for young children with ASD. It is anticipated that parents might recognize the symptoms of ASD relatively early, but diagnosis and intervention will occur much later. Consistent with a previous study (Fountain, King, & Bearman, 2011), it is anticipated that there will be a persistent gap in the age of diagnosis between parents with high and low socioeconomic status.

Also, it is hypothesized that parents will have different point of view on an effective early intervention programs in terms of its onset, intensity, components and their needs. Consistent with a previous report (Se & Charnley, 2010), it is anticipated that there will be a dissonance between the introduction of key elements for effective early intervention based on western values and the daily reality of life for Korean families with young children with ASD.

Research Questions

1. Is there a discrepancy between the time that first symptoms of ASD are noticed, diagnosis, and beginning intervention?

   (a) Does the age of the child when parents notice the first signs of ASD, receive a diagnosis, and start intervention differ based on parents' socioeconomic status or geographical location (i.e., urban/non-urban)?

   (b) Does discrepancy between the time of parental notice of first signs of ASD, diagnosis, and intervention differ across children's characteristics of perceived level of severity and types of diagnosis?
2. What do parents perceive as the important components of early intervention for children with ASD in South Korea?

   (a) Do parents' perceptions of the important components of early intervention for children with ASD differ across parents' characteristics of socioeconomic status or geographical location (i.e., urban/non-urban)?

   (b) Do parents' perceptions of the important components of early intervention for children with ASD differ across children's characteristics of perceived level of severity and types of diagnosis?
3. What do parents report that they need in regard to early intervention services for children with ASD in South Korea?

(a) Do parents’ needs in regard early intervention services for children with ASD differ across parents’ characteristics of socioeconomic status or geographical location (i.e., rural/ non-urban)?

(b) Do parents’ needs in regard early intervention services for children with ASD differ across children’s characteristics of perceived level of severity and types of diagnosis?

Chapter 3. Methodology

In this chapter, participants, instrumentation, procedures of data collection and data analysis are described. All procedures were reviewed and approved by The University of Alberta Research Ethics Board.

Participants

Both mothers and fathers of children with ASD aged 1 to 10 years in South Korea were recruited to participate in the study. Parents of children with Autistic Disorder, Asperger's Disorder, and Pervasive Development Disorder, Not Otherwise Specified were eligible to participate to the survey. Children with comorbid diagnoses were not excluded as long as the children had one of the ASD diagnoses listed above.

The participants for this study were recruited throughout the country including both rural and urban districts in South Korea. The following regions in South Korea were included: Seoul, Gyeonggi-do, Gangwon-do, Chungchong-do, Jeolla-do, Gyeongsan-do, Jeju-do (Appendix A). Out of consideration to the population density, Seoul and Gyeonggi-do were considered urban areas and the other areas were defined as non-urban areas. Participants were recruited through 24 online community websites (Appendix B) where parents and their families dealing with ASD share their experiences and useful information on the Internet as a member of websites. It is acknowledged that soliciting participation using the internet presents challenges regarding sampling control and reliability of the results (Riva, Teruzzi, & Annoli, 2003). However, despite these potential limitations, internet surveys have been used in autism research to collect valuable and informative information from difficult to reach populations (e.g., Green, Pitoch, Itchin, Choi, O'Reilly, & Sigafoos, 2006; Hess, Morrier, Heflin, & Ivey, 2008). Thus, in recognition of the potential bias of sampling only those families who have internet access but given that access parents of children with ASD is challenging in South Korea due to few organizational supports for this population, internet sampling was determined as the most viable method for the current study. The approximate response rate was 16.7%. Of the 186 participants who accessed the questionnaire, there was close to complete data for 116 participants. Only those with complete data were used in the present analyses.

Instrumentation

An online survey was developed by the researchers based on the National Research Council's recommendations (2001). The consent letter and questionnaire responses were managed using Research Electronic Data Capture (REDCap; Harris et al., 2009) secure electronic data capture housed at the University of Alberta. The survey was comprised of three questionnaires : (a) Demographics Questionnaire (DQ), (b) Parents' Experience Questionnaire (PEQ) and (c) Parents' Perceptions and Needs Questionnaire (PPNQ).

Prior to posting the cover letter and questionnaires on REDCap, a pilot survey was reviewed by three special education teachers and parents who had experiences with children with ASD in South Korea. Based on the reviewers' comments and suggestion, the survey was modified and produced. Since not all parents in this study were able to understand English, it was translated into Korean. A Korean version of the survey was developed by the researcher and a bilingual translator. First, the English version of questionnaires and cover letter were translated into Korean by the researcher. Second, the English version of questionnaires and cover letters were also translated into English by a bilingual translator from the Ewha Research Institute for Translation Studies (ERITS). Finally, the researcher back translated the questionnaire and compared the versions for accuracy of concept equivalence. The survey was designed to be completed in approximately 15 -20 minutes.

Cover letter. The cover letter was posted as the first page of the REDCap survey to inform parents about the purpose of this research, brief information about the researchers, the importance of their participation, assurance of voluntary participation and assurance of confidence (Appendix C).

Demographics questionnaire (DQ). A13-item demographic questionnaire (Appendix D) followed the cover letter. Seven items were used to acquire parents' characteristics and six items were used to determine child's characteristics. Demographic questionnaire was developed to collect the information about both parents' characteristics as follows: (a) parents' gender, (b) parents' age, (c) relationship with child, (d) number of children, (e) parent education levels (i.e., under high-school, undergraduate, graduate), (f) monthly income, and (g) geographical location of residence (i.e., urban, non-urban) and child's characteristics as follows: (a) child's gender, (b) child's age, (c) diagnosis (i.e., Autistic disorder, Asperger's disorder, PDD-NOS), (d) severity (i.e., mild, moderate, severe), (e) number of interventions received, and (f) type of school attending (i.e., preschool, private institution).

Parents' experiences questionnaire (PEQ). A 10-item questionnaire (Appendix E) was developed based on (a) National Research Council's recommendations (2001), (b) the experience of the investigators in working with young children with ASD and their families, and (c) discussions with parents whose children have ASD. The first purpose of this questionnaire is to investigate the time between first recognition, diagnosis and intervention. Parents were asked to provide their child's age (a) when they first recognized the signs of ASD, (b) when their child got a diagnosis, and (c) when their child first received any type of intervention. Parents were provided with checkboxes of age ranges (i.e., 0-6months, 7-12months) instead a request that they provide exact age, since it was speculated that most parents would not be able to remember the exact age when they first noticed, received diagnosis, and intervention. Thus, categorical variable were used in terms of ages.

Parents' perceptions and needs questionnaire (PPNQ). A 18-item questionnaire (Appendix F) was developed based on (a) a comprehensive review of literature and researchers' working experiences with young children with ASD and their families and (b) National Research Council's recommendations (2001). It examined parents' perception of appropriate early intervention and its components. Fourteen items were used to investigate parents' perception: (a) best age to start early investigation, (b) ideal amount of family involvement, (c) needed intensity, (d) opinion on inclusive education, (e) need for qualified teachers, and (f) need for systematic curriculum. The second purpose investigates - parents' perceived needs for early intervention programs and related services for their children with ASD and families (e.g., need of local centers, one to one services, information, parental training, and financial support). A 5-point likert scale was used to rate each question posed on these topic (i.e., 5=strongly agree, 4=agree, 3=neutral, 2=disagree, and 1= strongly Disagree). An example of one question was ‘the intervention would be effective if it is implemented more than 25 hours per week’.

Procedure of Data Collection

The study was conducted in four steps: (a) translation and pilot study, (b) searching online communities, (c) posting flyer on websites, and (d) directly e-mailing to participants. The data were collected during four weeks from January 24, 2012 to February 21, 2012 after posting flyers advertising the study (Appendix G) on websites that parents with children with disabilities frequent in South Korea. The flyer included the purpose of the research, importance of their participation, participation incentives, and how to participate in online survey.

A great number of online communities that are focused on a variety issues and interests are forming everyday and it is called as ‘online café’ in South Korea because people meet and share their experiences and useful information as they did in cafe. Most of online communities were operating on ‘Naver’ and’ Daum’, which is nation’s biggest portal websites in South Korea. Thus, two portal web sites, ‘Naver’ and’ Daum’ were used for research tool in this study. There were 24 online communities suitable for this survey. Among 24 websites, 10 were for parents dealing with ASD and 14 were for parents and families dealing with any types of disabilities including ASD. (Appendix B). All data were collected from online community where parents dealing with ASD share their ideas and experiences as a member of website.

The participants responded to the flyer accessed a hyperlink to the REDCap. If the participants clicked the link on flyer, online cover letter and questionnaires were automatically opened up. All participation were provided with 5$ of mobile gift certification as a participation incentive if they completed the survey.

The researcher used two ways of posting advertisement and sending a flyer via e-mail to the parents in online communities. Twenty-three online communities were accessed. However, one online community did not allow posting types of flyer on their website. Majority of members joined the several online communities at the same time. Only 80 parents clicked the advertisement posted. On the other hand, it was more effective to recruit participants via sending an e-mail. Thus, the researcher selected participants randomly and sent an e-mail flyer to 1,080 parents of online communities. Also, the researcher sent the administrators of communities an e-mail to ask to encourage parents’ participation.

Chapter 4. Results

Procedure of Data Analysis

All of the data were analyzed using the Statistical Package for the Social Science (SPSS 20.0 for Windows). The data were coded in numerical value before entering into the SPSS database.

Preliminary analysis. Prior to analysis, all questionnaire data were examined for accuracy of data entry and missing values. Of the 186 participants who accessed the questionnaire, there was close to complete data for 129 participants. Of the 129 participants, 13 participants did not reveal their child's diagnosis and were excluded from the analyses. Thus, 116 participant's data were coded into SPSS for analysis.

Data analysis plan. Descriptive statistics were used to tabulate parents' demographic data (i.e., education level, income, and region) and children's demographic data (i.e.,diagnosis, severity). Data for number of siblings, number of interventions received, types of school attendance were not included in the present analysis.

Since ages were given as categorical variable, the age data are presented descriptively by categorical order (i.e., 0-6months=1, 7-12months=2) but for analysis were coded by using median age into SPSS (i.e., 0-6months =3.5, 7-12months= 9.5)

Descriptive statistics and analyses of variance were used to examine the discrepancy between the time that first symptoms of ASD are noticed, diagnosis, and beginning intervention. T-tests and repeated measures analysis of variance

(ANOVA) were used to examine how the mean age of first concern, diagnosis, and intervention differed across parents' characteristics (i.e., education level, income, and region) and child characteristics (i.e., age, diagnosis, severity).

To analyze parents perception and needs of early intervention for their child, T-test and analysis of variance (ANOVA) were used to examine how their perception and needs differ across parents' characteristics (i.e., education level, income, and region) and child characteristics (i.e., diagnosis, severity). To examine parents' perception on intensity and satisfaction of early intervention, frequencies and percentage were reported.

Reliability Analysis

The internal consistency of PPNQ questions was calculated using Cronbach's alpha. Overall, the reliability coefficient of PPNQ was .936. The subtests of Parent Perception was .917 and Parents Need was .840. This indicated moderate to high reliability of this instrument.

Demographic Information

Parent demographics. A demographic description of parents participating in this study was reported in Table 5. The variables included parents gender, age, educational level, income, and region. Mothers of individuals with ASD comprised 75.9% (n= 88) and fathers comprised 24.1 % (n=28) of the survey respondents. With regard to the age of participants, 3.4% (n=4) of parents were younger than 30 years; 82.8% (n=96) were in the 30-50 years range, and 13.8% (n=16) were older than 50 years. The educational level of parents consisted of, 26.7% (n=31) with less than or a high-school degree; 63.8% (n=74) had undergraduate degree; and 9.5% (n=11) had graduate degree.

Regarding the region, 56.9% (n=66) participants were living in Seoul; 22.4% (n=26) participants were living in Gyeonggido; 7.8% (n=9) were living in Gyeongsangdo; 6.0% (n=7) were living in Chungchongdo; 3.4% (n=4) were living in Gangwondo; and 2.6% (n=3) were living in Jeollado; and 0.9% (n=1) were living in Jejudo. Seoul and Gyeonggi-do were considered as an urban area, and the others were considered as a non-urban area. Thus, it turned out that majority of participants (79.3%) were urban, and all others combined, 20.7% were non-urban.

Regarding parents' monthly incomes[1], 29.3% (n=34) parents reported their monthly incomes between 2,000,000~2,999,999won; 26.7% (n=31) parents had incomes between 3,000,000 ~3,999,999won; 17.2% (n=20) parents earned less than 2,000,000won; 14.7% (n=17) parents earned more than 5,000,000won; and 12.1% (n=14) parents had incomes between 4,000,000~4,999,999won.

According to the criteria from East Asia Institute (EAI, 2012), families who earn less than 2,000,000 won are considered lower income earners; those who earn between 2,000,000 ~ 4,999,999 are considered middle income earners; and those who earn more than 5,000,000 are considered upper income earners (Note: (1,000,000won = $849). In the present study, 29.3 % (n = 34) of parents reported monthly incomes of between 2,000,000~2,999,999 won; 26.7% (n=31)

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[1] 1,000,000won = $849

had incomes between 3,000,000 ~3,999,999won; 17.2% (n=20) earned less than 2,000,000won; 14.7% (n=17) earned more than 5,000,000won; and 12.1% (n=14) parents had incomes between 4,000,000~4,999,999won.

Table 5
Demographic information of parents and child variables

Parents Demographics		n	%	Childs Demographics		n	%
Gender	Male	28	24.1	Gender	Male	90	77.6
	Female	88	75.9		Female	*26*	*22.4*
Age	Less than 30	4	3.4	Age	Younger than 5	24	20.7
	30-50	96	82.8		5-10	22	19.0
	Older than 50	16	13.8		Older than 10	70	60.3
Income	Lower	20	17.2	Severity	Mild	46	39.7
	Middle	79	68.1		Moderate	45	38.8
	Upper	17	14.7		Severe	25	21.6
Education	Under high	31	26.7	Diagnosis	Autistic Disorder	70	60.3
	Undergraduate	74	63.8		Aspergers Disorder	4	3.4
	Graduate	11	9.5		PDD-NOS	38	32.8
Region	Urban	92	79.3		Not Yet Diagnosis	4	3.4
	Non-Urban	24	20.7				

Child demographics. A demographic description of children in this study was also reported in Table 5. The variables included child gender, child age, severity, and types of diagnosis. Table 5 reveals that the majority of children with ASD were male. Of 116 children, 77.6% (n=90) were males and 22.4% (n= 26) were females. Classified by age, 20.7% (n= 24) children with ASD were younger than 5 years, 19% (n=22) were age ranged between 5 to 10 years, whereas 60.3% (n=70) children with ASD were older than 10 years. Approximately 60.3% (n=70) of these children were diagnosed as having Autism Disorder (AD group), 32.8% (n=38) were diagnosed as having PDD-NOS, whereas a minority of children (3.4%, n=4) were diagnosed as Asperger's Disorder (AS group) and 3.4% (n=4) were not yet diagnosed (NYD group). Considering the severity of disorder, 39.7% (n=46) parents reported that their children's symptom of ASD were mild, 38.8%

(n=45) were moderate, and only 21.6% (n= 25) were severe. Overall, the sample represents the gender distribution typically found in autism, with 1 female for every 3 males. The children's age ranged from under 12 months to over 10 years of age.

Table 6

Median months, F-test, and Significant of A1, A2, A3 across parents' and child's characteristics

Characteristics		A1			A2			A3		
	N	Mdn	F	*Sig*	Mdn	F	*Sig*	Mdn	F	*Sig*
Parents Gender										
Male	28	29.1	.919	.340	44.5	.158	.692	42.0	.105	.747
Female	88	29.0			42.8			38.9		
Educational level										
Under high	31	29.5	.017	.983	41.6	.382	.684	39.7	1.209	.302
Undergraduate	74	28.9			44.6			40.9		
Graduate	11	28.3			38.9			31.5		
Income										
Lower	20	23.1	1.057	.351	40.2	.246	.782	38.9	.044	.957
Middle	79	29.9			43.6			39.7		
Upper	17	31.7			45.3			40.7		
Region										
Urban	66	28.6	.004	.949	42.0	1.914	.169	40.3	.121	.729
Non-urban	50	29.5			44.9			38.9		
Child										
Child Gender										
Male	90	27.4	4.896	.029*	40.8	9.407	.003*	39.2	.536	.465
Female	26	34.6			51.5			41.4		
Child Age										
Younger 5	24	21.2	2.417	.094	27.7	6.663	.002*	28.7	5.909	.004*
5-10	22	33.2			49.6			40.4		
Older 10	70	30.3			46.0			43.3		
Diagnosis										
AD	70	26.1	1.428	.238	41.4	.720	.489	38.4	.590	.623
AS	4	40.2			51.5			49.2		
PDD-NOS	38	33.2			45.8			41.4		
NYD	4	27.5			-			36.5		
Severity										
Mile	46	33.3	2.260	.109	46.3	.604	.548	42.1	.597	.552
Moderate	45	28.1			41.6			38.4		
Severe	25	22.8			41.0			37.8		

Note. A1=Median months of 1st signs, A2=Median months of diagnosis, A3=Median months of intervention onset (p<.05*, p<.01**)

ASD Identification and Intervention Timelines

In order to identify the timeline between parents' recognition of first signs of ASD, diagnosis and intervention, (a) each median month across parents and child variables were computed and are presented in Table 6; (b) median month and age range across three groups of parents who received diagnosis and intervention at the same time, diagnosis first, and intervention first were analyzed and shown in Table 8.

Parents reported that they recognized first signs of ASD (A1) at a median age of 29.0 months (2.4 years); median age of diagnosis received (A2) was 43.3 months (3.6 years); and median age of intervention received (A3) was 39.7 months (3.3 years). Surprisingly, parents reported that the median age of intervention was 3.6 months earlier than median age of diagnosis.

Findings were slightly different in regard to the type of diagnosis. On average, parents of children with autism disorder (AD) noticed that their child had a problem in development around 2 years of age, let their child receive intervention around 3.2 years of age, and visited a psychiatrist to get the diagnosis around 3.4 years of age (Table 6).

On average, parents of children with PDD-NOS noticed that their child had a problem in development a bit later (around 2. 7 years of age); visit psychiatrists to get the diagnosis at an average age of 45.8 months (3.8years); and let their child receive intervention at an average age of 41.4.months (3.4years).

Parents of children with Asperger's disorder (AS) noticed that their child has problem in development at an average age of 40.2months (3.3years); let their child receive intervention at an average age of 51.5months (4.2years); and visit psychiatrists to get the diagnosis at an average age of 49.25 months (4.1years).

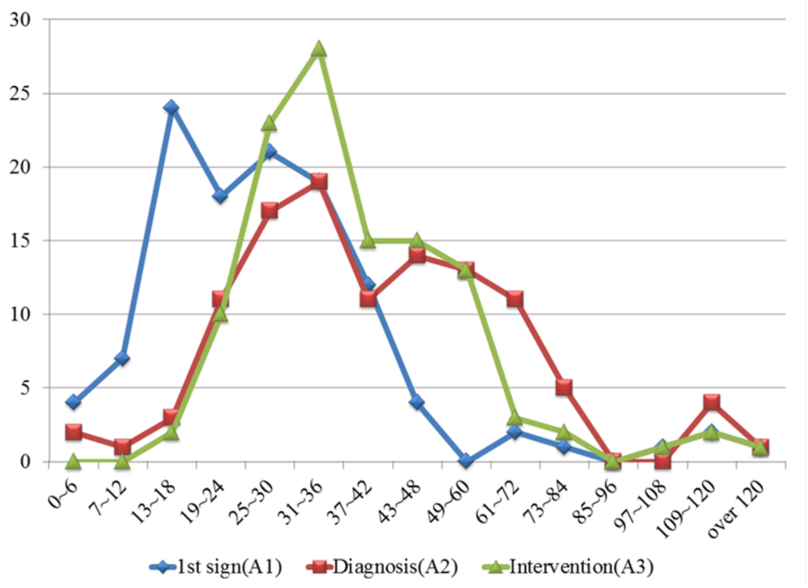

Figure 3. The distribution tendency of 1st sign, diagnosis, and intervention age in months range

Table 7

Number of response, percentile, and cumulative percentile of 1st sign, diagnosis, and intervention by months range

Months range	A1			A2			A3		
	n	%	Cumulative %	n	%	Cumulative %	n	%	Cumulative %
0-6	4	3.4	3.4	2	1.7	1.8	0	0	0
7-12	7	6.0	9.5	1	0.9	2.7	0	0	0
13-18	24	20.7	30.2	3	2.6	5.4	2	1.7	1.7
19-24	18	15.5	45.7	11	9.5	15.2	10	8.6	10.4
25-30	21	18.1	63.8	17	14.7	30.4	23	19.8	30.4
31-36	19	16.4	80.2	19	16.4	47.3	28	24.1	54.8
37-42	12	10.3	90.5	11	9.5	57.1	15	12.9	67.8
43-48	4	3.4	94.0	14	12.1	69.6	15	12.9	80.9
49-60	0	0	94.0	13	11.2	81.3	13	11.2	92.2
61-72	2	1.7	95.7	11	9.5	91.1	3	2.6	94.8
73-84	1	0.9	96.6	5	4.3	95.5	2	1.7	96.5
85-96	0	0	96.6	0	0	95.5	0	0	96.5
97-108	1	0.9	97.4	0	0	95.5	1	0.9	97.4
109-120	2	1.7	99.1	4	3.4	99.1	2	1.7	99.1
over120	1	0.9	100	1	0.9	100	1	0.9	100

A1= Age of 1st sign of ASD noticed, A2=Age of diagnosis, A3=Age of intervention

Parents of children who had not been diagnosed (NYD) noticed that their child has problem in development at an average age of 27.5months (2.2years); however, they visit psychiatrists to get the diagnosis at an average age of 36.5months (3.0years).

Table7 presented the number of response, percentile, and cumulative percentile of 1st sign, diagnosis, and intervention by months range.

The result showed that 80.2% Korean parents recognized the signs of ASD within 3years. However, only 9.5% recognized the signs of ASD within 1st year after birth, 36.2% recognized between 1 to 2 years, 34.5% recognized between 2 to 3 years. Comparing to age range between diagnosis and intervention, 80.9% parents received intervention before 4 years of age, on the other hand, 69.6% parents received diagnosis before 4 years of age. Figure 3 also indicated that there is a tendency that more parents receive intervention than diagnosis.

To find the reason that the average age of intervention seemed to start earlier than the mean age of diagnosis, the parents were divided into three groups as the priorities between diagnosis and intervention (see Table 8).

Thirty parents (25.9%) reported that their child received intervention prior to receiving a formal diagnosis. Thus, it cannot be concluded that Korean parents of children with ASD usually receive intervention prior to diagnosis. The timeline of diagnosis and identification across three groups of parents are presented in Table 8.

Table 8

Median months and age range across three groups of parents who received diagnosis and intervention at the same time, diagnosis first, and intervention first

	N	A1	A2	A3	A2-A1	A3-A2	A3-A1
Diagnosis = Intervention (A3-A2 = 0)	50 (43.1%)	33 (2.7-3)	40 (3.1-3.6)	40. (3.1-3.6)	8	0	8
Diagnosis ⇒ Intervention (A3-A2 > 0)	31 (26.7%)	24 (1.7-2)	32 (2.7-3)	45 (3.7-4)	9	13	22
Intervention ⇒Diagnosis (A3-A2 <0)	30 (25.9%)	26 (2.1-2.6)	57 (4.1-5)	33 (2.7-3)	31	24	7

A1= Age of 1st sign of ASD noticed
A2=Age of diagnosis
A3=Age of intervention
A2-A1=Time discrepancy between 1st sign of ASD noticed and diagnosis
A3-A2= Time discrepancy between diagnosis and intervention
A3-A1= Time discrepancy between 1st sign of ASD noticed and intervention

For the 31 parents (26.7%) who reported that they received their child received a diagnosis prior to receiving intervention, it took around one and a half years to get intervention after the parents noticed the symptoms of ASD.

For 50 parents (43.1%), diagnosis and intervention occurred very close together. It took about 8 months to get diagnosis and intervention after parents noticed the symptoms of ASD.

Parent and Child Characteristics and Associations with Identification and Intervention Timelines

T-test and Analysis of variance (ANOVA) were conducted to determine the differences of parents and child demographics on time of first symptoms, diagnosis, and intervention measured from the PEQ. Parents' demographics (i.e., educational level, monthly income, and region) and child demographics (i.e., types of diagnosis, and severity) were used as independent variables. The results indicated that there was no difference across variables. Thus, additional analyses explored whether certain child characteristics were associated with identification and intervention timelines. According to additional analysis, child's gender was associated with time of first symptom, diagnosis, and intervention (Table 6).

Child' gender. T-test was used to analyze because there were only two groups for child's gender. The findings from T-test revealed that time of first symptom recognized (F= 4.897, *p*= .029) and time of receiving diagnosis (F= .536, *p*= .003) were significantly different for boys and girls but not for the onset of intervention (F= .536, *p*=.465) (Table 6). Parents of boys recognized the symptoms of ASD earlier than parents of girls and received the diagnosis significantly earlier.

Parents Perceived Important Components of Intervention

Parents' perceptions of the important components of early intervention for young children with ASD as measured using the PPNQ are presented in Table 9. The 116 parents overwhelmingly indicated that all six components were important.

Table 9

Mean and Standard Deviations of Parents' perception of the core components for successful early intervention

Components	Mean	SD
Early start before 3 age	4.37	.77
Intensity of more than 25 hours	3.82	1.04
Opinion on inclusive education	4.39	.67
Qualified teachers	4.40	.62
Systematic curriculum	4.42	.72
Parents' involvement	4.57	.63

In terms of ideal hours for early intervention, only 25.9% (n= 30) parents perceived that more than 26hours per week would be effective, while 52.6% (n=61) parents perceived that less than 10 hours per week is appropriate.

Most Korean parents in this study recognized the importance of early onset for early intervention. The results shows that 92.2% (n= 107) parents reported that early intervention for young children with ASD should occur before at age of three.

Differences in Parents Perceptions of Early Intervention

To determine the differences between several demographic variables on parents perceptions toward six core components for successful early intervention, several ANOVA and T-test were conducted (Table 10- 14, see Appendix H; only significant tables are included in the body of the paper). Demographic variables used as independent variables were parents' educational level, region, monthly income, diagnosis, and severity.

Table 11

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across region

Region	Urban	Non-urban		
	M (SD)	M (SD)	F	*Sig*
Early start before 3 age	4.46 (.67)	4.25 (.89)	5.186	.025*
Intensity of more than 25 hours	3.98 (.97)	3.61 (1.11)	3.597	.060
Opinion on inclusive education	4.52 (.56)	4.22 (.76)	5.161	.025*
Qualified teachers	4.49 (.55)	4.29 (.69)	2.279	.134
Systematic curriculum	4.52 (.64)	4.30 (.82)	2.957	.088
Parents' involvement	4.66 (.53)	4.46 (.73)	7.564	.007**

Three variables including region, child's age and diagnosis were found to have significant impact on parents' perceptions on early intervention for young children with ASD and are reported in the subsequent sections.

Region. T-test was conducted to determine whether there are significant differences for parents' perceptions of six core components of early intervention for young children with ASD by urban or non-urban location. The ideal age for starting intervention (F=5.186, *p*=.025); opinion on inclusive education (F=5.161, *p*=.025); and parents' participation (F=7.564, *p*=.007) varied by region. Parents who were living in urban areas felt that early onset of intervention (M=4.46, SD=.67), inclusive education (M=4.52, SD=.56) and parents' participation (M=4.66, SD=4.46) was more important than parents living in other areas (Table 11).

Table 13

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across diagnosis

Child diagnosis	AD	AS	PDD-NOS	NYD		
	M (SD)	M (SD)	M (SD)	M (SD)	F	*Sig*
Early start before 3 age	4.36 (.77)	3.50 (1.03)	4.48 (.72)	4.41 (.68)	1.991	.119
Intensity of more than 25 hours	4.36 (.77)	3.50 (1.03)	4.48 (.72)	4.41 (.68)	.542	.654
Opinion on inclusive education	4.36 (.60)	3.37 (1.25)	4.51 (.66)	4.75 (.50)	4.179	.008**
Qualified teachers	4.36 (.60)	3.37 (1.25)	4.51 (.66)	4.75 (.50)	6.161	.001**
Systematic curriculum	4.33 (.72)	3.50 (1.29)	4.64 (.58)	5.00 (.00)	4.984	.003**
Parents' involvement	4.54 (.60)	3.75 (1.50)	4.73 (.44)	4.50 (1.00)	3.349	.022*

Note. AD=Autism Disorders, AS= Asperger's disorders, PDD-NOS=Pervasive Developmental Disorders Not Specified. NYD=Not Yet Diagnosis

Diagnosis. The types of diagnosis (i.e., AD, AS, PDD-NOS, and NYD) were found to be significantly different on parents' perceptions on six components of early intervention (Table 13). Significant differences were found in four components as follow: Opinion on inclusive education (F=4.179, *p*=.008); Qualified teachers (F=6.161, *p*=.001); systematic curriculum (F=4.984, *p*=.003); parents' participation (F=3.349, *p*=.022).

A Tukey post hoc testing was conducted to examine differences of parents' perception between four groups. The results indicated that parents whose child with Asperger's Disorders (M=3.37, SD=1.25) had significantly lower rates on opinion of inclusive education than Autism disorders (M=4.36, SD=.60), PDD=NOS (M=4.51, SD=.66), or NYD (M= 4.75, SD=.50).

Regarding on importance of qualified teacher for successful early intervention, parents whose child with Asperger's disorders had lower perceptions (M=3.37, SD=1.25) than Autism disorder (M= 4.36, SD=.60) and PDD-NOS (M=4.51, SD=.66). There was also difference on opinion toward inclusive education between parents groups whose child had PDD-NOS and Autism disorders.

There were also significant differences in parents' perception on systematic curriculum. Parents of children with Asperger's disorders had significantly lower rates regarding the importance of systematic curriculum (M=3.50, SD=1.29) than AD group (M=4.33, SD=.72) and NYD group (M=5.00, SD=.00).

In terms of parents participation, Asperger's disorders group had significantly lower perception (M=3.75, SD=1.50) than PDD-NOS group (M=4.50, SD=1.00).

Parents Reported Needs

Parents' needs of early intervention for their child with ASD were measured using the PPNQ. To identify parents' needs of early intervention for young children with ASD, mean and standard deviations were computed based upon a Likert scale of 1 to 5 (i.e., 5=Strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree) and are presented in Table 15. The data showed that the 116 Korean parents of children with ASD in this study reported high level of needs in all areas.

Table 15

The Mean and Standard Deviations of Parents' needs for early intervention for children with ASD

Components	Mean	SD
Need of local centers	4.71	.54
Need of parents' training	4.52	.69
Need of information	4.59	.57
Need of one to one service	4.61	.57
Need of financial support	4.76	.50

Table 15 showed that the highest score of need reported by parents was for financial support followed by the need for local centers. The need of parent training had the lowest mean.

To determine the differences between several demographic variables on parents' needs of early intervention and related services for young children with ASD, several ANOVA and T-test were conducted (Table 16-20).

Demographic variables used as independent variables were parents' educational level, region, monthly income, child's gender, diagnosis, and severity.

ANOVA illustrated that monthly income, region and types of diagnosis had significant differences on parents' need of early intervention and other related services (p<.05).

Monthly income. As shown in Table 17, there was a significant difference in parents' early intervention needs by monthly income (F=3.360, p=.038). A Tukey post hoc testing indicated that low income earners had more information needs than middle income earners.

Table 17

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across monthly income

Monthly income	Low income	Middle income	High income		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.95 (.22)	4.64 (.59)	4.76 (.43)	2.690	.072
Need of parent training	4.75 (.41)	4.43 (.77)	4.67 (.46)	2.120	.125
Need of Information	4.8 (.36)	4.5 (.61)	4.7 (.46)	3.360	.038*
Need of one to one service	4.75 (.44)	4.58 (9.61)	4.58 (.50)	.649	.525
Need of financial support	4.95 (.22)	4.71 (.55)	4.76 (.43)	1.766	.176

Region. There were significant differences between urban and non-urban areas in the need for local centers (F=7.858, p=.006), information (F=8.153, p=.005), and one to one service (F=4.744, p=.031). Parents living in urban areas had more needs than parents living in non-urban areas (Table 18).

Table 18

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across region

Region	Urban	Non-urban		
	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.77 (.42)	4.64 (.66)	7.858	.006*
Need of parent training	4.56 (.63)	4.47 (.77)	1.955	.165
Need of Information	4.66 (.47)	4.50 (.67)	8.153	.005*
Need of one to one service	4.68 (.50)	4.53 (.64)	4.744	.031*
Need of financial support	4.80 (.40)	4.71 (.61)	3.915	.050

Diagnosis. The finding from the ANOVA indicated that there were significant differences in parents' needs of early intervention for young children with ASD across the types of diagnosis (i.e., Autism disorders, Asperger's disorders, PDD-NOS, Not yet diagnosed). Table 19 exhibited that significant differences were found in all areas as follow; need of local center (F=9.572, p=.000), need of parent training (F=3.562, p=.017), need of information (F=8.027, p=.000), need of one to one service (F=3.665, p=.015), need of financial support (F=6.867, p=.000).

A Tukey post hoc testing was conducted to investigate differences in five needs by types of diagnosis. The results revealed that parents whose child with Asperger's disorders reported relatively low needs of score in all areas. Parents' of children with Asperger's disorders (M=3.50, SD=1.29) had significantly lower needs of local center than groups of Autism disorders (M=4,70, SD=0.49), PDD-NOS (M=4.84, SD=0.36), NYD(M=5,00, SD=0.00).

Table 19

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across types of diagnosis

Types of diagnosis	AD	AS	PDD-NOS	NYD		
	M (SD)	M (SD)	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.70	3.50	4.84	5.00	9.572	.000**
	(.49)	(1.29)	(.36)	(.00)	9.572	.000
Need of parent training	4.44	3.75	4.72	4.87	3.562	.017*
	(.72)	(1.50)	(.46)	(.25)	3.562	.017
Need of Information	4.54	3.50	4.76	5.00	8.027	.000**
	(.52)	(1.29)	(.43)	(.00)	8.027	.000
Need of one to one service	4.61	3.75	4.70	4.75	3.665	.015*
	(.49)	(1.50)	(.51)	(.50)	3.665	.015
Need of financial support	4.77	3.75	4.83	5.00	6.867	.000**
	(.42)	(1.50)	(.37)	(.00)	6.867	.000

Regarding on need of parents training, parents of children with Asperger's disorders (M=3.75, SD=1.50) reported significant lower need than parents whose children had PDD-NOS (M=472, SD=0.46). Also, parents of children with Asperger's disorders (M=3.50, SD=1.29) had significantly lower needs of information than parents whose children had Autism disorders (M=4.54, SD=0.52), PDD-NOS (M=4.76, SD=0.43), NYD (M=5.00, SD=0.00). Parents whose children had Asperger's disorders (M=3.75, SD=1.50) reported significantly lower mean scores of the need in one to one services than parents whose children had Autism disorders (M=4.61, SD=0.49) and PDD-NOS (M=4.70, SD=0.51). Last, parents group of Asperger's disorders (M=3.75, SD=1.50) had significantly lower score in need of financial support than group of Autism disorders (M=4.77, SD=0.42), PDD-NOS (M=4.83, SD=0.37), NYD (M=5.00, SD=.000).

Chapter 5. Discussion

There has been a rise of empirical research that supports the importance of early intervention for young children with ASD in western-cultural nations but few have attempted to address the current status of diagnosis and early intervention for children with ASD in South Korea. Proceeding from what has been said in recent studies (Harris & Handleman, 2000; Itzchak & Zachor, 2011; Makrygianni & Reed, 2010; Rogers & Vismara, 2008), early identification and intervention is crucial to realize best outcomes. This study attempted to look at the critical aspects of early intervention perceived and needed by South Korea parents of children with ASD and the timeline of when first symptoms were recognized, diagnosis given, and onset of early intervention. It was hypothesized that there might be a delay in diagnosis and beginning early intervention for young children with ASD in South Korea. However, counter to the hypothesis, findings from the present study demonstrated that Korean children with ASD received a diagnosis and intervention slightly earlier than is reported in many nations. In addition, Korean parents of children with ASD have perceive a high level of needs related to early intervention. Analyses of parents' responses to the survey items revealed several interesting issues related to early intervention for young children with ASD in South Korea and are presented in this chapter.

Summary of Findings

In regard to the first question, findings of the survey revealed that South Korean parents recognized the symptoms of ASD somewhat later than parents in Western countries (De Giacomo & Fombonne, 1998); on the other hand, they received diagnoses and intervention earlier than these nations (Mandell, 2010, Shattuck, 2009). On average, they recognized the symptoms of ASD at a median age of 29 months (2.4years); received diagnosis at a median age of 43.3 months (3.6years); and begun early intervention at a median age of 39.7 months (3.3 years). Interestingly, the results of this study revealed that parents of boys recognized the symptoms of ASD and received diagnosis earlier than parents of girls.

Concerning the second question, the findings of present study indicated that South Korean parents recognized the importance of parents' involvement, systematic curriculum, qualified teachers, and the inclusive education on early intervention for young children with ASD. Moreover, they also believed that early intervention should be started before the age of three. However, relative to their other ratings, parents gave low scores to the importance of early intervention intensity of more than 25 hours per week. The results of this study did identify regional differences. Parents who were living in urban areas felt that early onset of intervention, inclusive education, and parent involvement in interventions was more important than parents who were living in non-urban areas. There were no differences based on socioeconomic status, severity of ASD. Additional analyses which were not planned a priori were done. According to the types of diagnosis, there were significant differences in parents' perceptions on four components of early intervention including opinion on inclusive education, qualified teachers, systematic curriculum, and parents' involvement.

The third question explored parents' needs for early intervention. Most parents exhibited a high level of need in all areas including the need for financial support, the need of local centers, the need of one to one services, the need of information, and the need for parents training. Noticeably, parents who were living in urban areas and low income earners expressed greater need for these dimensions of early intervention services. Parents whose children had PDD-NOS also expressed greater needs.

Parents' enthusiasm toward early intervention

Shattuck et al (2009) reported that the average age of autism diagnosis was 68.4 months, which is three to four years after diagnosis is possible. In addition, with finding that the average diagnosis age was 64.9 months, Mandell insists that most children with ASD tend not to receive a diagnosis until they are of school age (Mandell et al., 2010). The results of the present study revealed that South Korean children with ASD, on average, received a diagnosis at an age of 43.4 months (3.6 years) which is 20 months earlier than those children with ASD in the United States. More surprisingly, the majority of the South Korean children with ASD in this study had experienced early intervention programming or had begun to receive early intervention at an age of 39.7 months (3.3 years), on average. Contrary to the hypothesis that Korean children with ASD would not receive diagnosis and early intervention at an early stage because of prevailing negative attitudes and pejorative terminology about disability among South Koreans (Kim & Kang, 2003), and lack of centers providing early intervention, parents reported that this was not the case.

The findings of the present study also indicate that Korean parents well recognize the importance of early intervention for children with ASD. The majority of Korean parents agree that intervention should start before 3 years. Also, most Korean parents perceived the importance of parents' involvement. This finding might be explained with the fact that Korean parents have a strong enthusiasm toward their child's early education, which may override the perceived impression (Grinker et al., 2012) that Korean parents have a negative perception of disabilities.

Parents rely on private education

Parents in South Korea are, generally, highly enthusiastic for their children's early education. The early education of South Korea, according to Woo (2004), began with a different background from those of the Western countries and the US. In the case of the Western countries, such early intervention, was implemented to educate abandoned children to enhance development. In the case of South Korea, however, such intervention focused on providing better education for children to transfer to higher social class as the economy developed rapidly since 1970s. That is to say, the education system focused on fostering learning speed, talent and intelligence but not harmonizing children into the society as their parents were eager and competing to provide their children with better education. According to Woo (2004), "the Korean parent's excessive obsession for early education although perceived by some as positive has had a negative impact, as well" (translated from Korean, p.202). She noted that it has resulted in a lot of side effects including ineffective education, forfeited status of formal education and monetary burden.

An annual report from KNISE (2011) showed that only a few young children with disabilities including ASD were receiving early intervention in special education centers and special education schools. However, the present study showed that most of the children with ASD in this study (i.e., 92.2%) had experienced early intervention programming before age of five. This begs the question, where are these children receiving early intervention? Given that the official government funded early intervention reports few children with ASD receiving services (KNISE, 2010), it can be only concluded that that most South Korean parents of children with ASD visit private institutions to receive early intervention for their child rather than national centers.

This assumption concurs with other research that confirms the unique tendency in early infant education in South Korea to be dependent on private education (Woo, 2004). Such a phenomenon implies that early education is being commercialized by enterprises and private education is the main target of a market economy but not the government. Woo (2004) reported that the costs for private education are estimated at 8.5tril Won. Further, South Korea, among OCED nations, ranked first for spending costs on private education with 3% of GDP (Gross Domestic Product) in 2003 according to the results of Korean government's analysis on educational indicators of OECD based on the data above. In contrast, the effectiveness of investing in the early education remains in the lower ranks (20th among 23 nations). Thus, despite the amount spent, the

OECD rating raises the question of the quality of early education in South Korea (Woo, 2004).

In order to understand this ranking, the history of early education in South Korea is important to examine. The South Koreans started to show interest in early education around 1980s. Such education was initially used as a mechanism to let children enter high-qualified private elementary schools hence it was perceived as aristocratic or extravagant education for children from the upper class. Since the late 1980s, however, private/extra education, which is performed in an institute or home, was popularized when the Early Childhood Promotion Education Act was established and this led to commercialization and excessive enthusiasm for early education (Woo, 2004).

If private-focused education is in fashion not only in early education of South Korea but also the early intervention for children with ASD, there needs to be additional studies on the types, mechanism of the intervention, quality of teachers, form of private educational facility and the costs. One of the reasons for approaching private institutions for early ASD intervention, of course, may be the lack of a national-level early intervention system, public facilities and professionals for children with ASD. Investigation into the national early education programs, especially those that address special education needs, in regard to their preparation to provide services for children with ASD is also warranted.

A unique phenomenon in Korean parents' decisions

Another set of findings of the present study was that some of the South Koreans in this study reported pursuing intervention for their child with ASD before receiving a diagnosis. Indeed, 26.7% parents received the diagnosis first and then sought out intervention, while a similar proportion (25.9%) received intervention before they obtained a formal diagnosis for their child. The remaining 50% of the parents reported receiving the diagnosis and commencing intervention at the same time. Overall, whether parents sought out diagnosis or intervention first, they received one of them within approximately 8 months of noticing the symptoms of ASD. For parents who received the diagnosis first, it took 13.25 months between diagnosis and intervention. On the other hand, it took 24.10 months between intervention and diagnosis for parents who decided to obtain intervention first.

Further, the results revealed that there was also a time delay within the group of parents who received intervention first. On average, it took only 7 months for those parents to visit an interventionist after they suspected their child had ASD; however, it took 24.1 months for them to get a diagnosis after intervention.

One can speculate why parents might choose to seek out intervention prior to diagnosis. First, it might be due to the cultural perception on disabilities. Since there is still strong discrimination and exclusion of individuals with disabilities in Korea, parents may have a tendency to avoid getting a diagnosis, as the disability label might be stigmatizing to them. The parents, who have children with disabilities, are known to have high levels of stress as a consequence of their children's symptoms and additional caregiving needs (Lee, 1994). As Guralnick (2011) insists, personal characteristics of parents and family patterns of interaction influence the positive social and cognitive competence of their children. Thus, parents' level of stress and attitudes toward their child and early intervention services all contribute to outcomes regarding child development. In this light, additional studies regarding how these factors within the South Korean context affect development and growth of the young children with ASD is needed.

Second, this unique phenomenon of seeking intervention prior to diagnosis might come from the lack of unitary intervention systems at the national level. Currently, the diagnosis and interventions of South Korea for children with ASD are not interconnected. That is to say, receiving diagnosis does not mean the children obtain additional information or the extra benefits of intervention from the diagnostician who is typically employed by a health service (i.e., hospital). Accordingly, it is the children's parents' role to select an intervention facility.

Another finding from the present research indicated that parents had a high level of need in terms of information, local centers that provide early intervention specific to ASD, and parent training support. Thus, even though Korean parents recognized the importance of early intervention, it did not mean that they knew what they have to do for their child. For instance, parents living in urban areas reported higher level of awareness than those in non-urban areas. However, they also expressed greater need for early intervention services than those living in non-urban areas. Appropriate information needs to be provided from the initial stage of treatment and the parents should be introduced to relevant facilities that can accommodate appropriate intervention.

Time Discrepancies in Gender

The results of additional analysis also revealed interesting finding that child's gender was associated with first symptom detection, diagnosis, and intervention (Table 6). Parents who were older than 50 years reported that their child with ASD began Parents of boys reported recognizing the symptoms of ASD 7.25 months earlier, on average, than the parents of girls. Furthermore, parents of boys received the diagnosis 10.67 months earlier, on average, than parents of girls. Taking into account the sentiment and culture of South Korea, boys are generally seen as active while girls are calm and neat. Further, boys are encouraged to be manly and girls are to be womanly. Thus, in the case of girls, the findings from this study alert us to concerns that some girls with ASD may be overlooked in contrast to earlier identification of boys.

Parents' high level of perceptions and needs

The survey results revealed that Korean parents of children with ASD had high levels of awareness of best practice in early intervention that were consistent with the recommendations from National Research Council (2001).

First, entry into intervention programs should begin as soon as an ASD diagnosis is made. It is interesting that 92.2% Korean parents reported that early intervention for young children with ASD should be start before the age of three. The results showed that on average parents "strongly agreed" with the questions that 'early intervention for young children with ASD should be implemented as soon as possible' and 'early intervention before the age of three' would have a positive effect on their child's development. This implies that most parents are well aware of the importance of early intervention.

Second, parents showed a high level of need for one to one services and "strongly agreed" that 'early intervention programs should focus on my child's individual needs rather than typical developmental stage'. In addition, parents "strongly agreed" that systematic curriculum and appropriate materials are important factors for an effective early intervention' and 'the effectiveness of intervention depends on teachers' ability'.

Third, inclusion of a family component that includes parent training is important. The results showed that Korean parents perceived that their involvement is crucial for successful early intervention. They marked "strongly agree" on the issues that 'I need to receive parent training during the early intervention for my child'. In addition, parents "agreed" that 'inclusive environment and education is necessary in early intervention program' and 'opportunities to play with typically developing peers should be given during the intervention'.

On the other hand, parents in Korea were not in agreement about the amount of hours in engagement in intensive program. According to NRC (2001), it is recommended that active engagement in intensive instructional programming for a minimum of a full school day, 5 days (at least 25 hours) a week, with a full year of programming. However, parents in this study marked "Neutral" on the question that 'the intervention would be effective if it was implemented more than

25 hours per week'. The results showed that 52.6% parents believed that less than 10 hours per week is appropriate.

Thus, it can be summarized that Korean parents of children with ASD in this study exhibited high level of awareness in all areas of agreed upon best practices in early intervention except intensity of more than 25 hours per week.

Limitations and Future Directions

Some limitations exist regarding the design of the study. First, the sample in this study may have underrepresented some groups because it was self-selected and obtained through an online survey. This bias was difficult to prevent as once an online survey is launched, it is difficult for the researcher to control its distribution (Bourque & Fielder, 2003). According to the City Portal (2011), total population of South Korea was 50 billion and the proportion of Seoul and Kyunggido, where considered as urban was approximately 22billion (44%) and the other area was 28billion (56%) In contrast, the population of urban in this study was 80% and non-urban was only 20%. Thus, it can be said that the sample of this study was not representative of the Korean population. Additionally, relatively small samples of some parents groups were obtained. For example, the sample was unequal in several categories including types of diagnosis and child's age.

Another potential limitation related to online survey data collections is that parents who are not able to access the survey may have restricted participation since the survey required the respondents to have Internet access (Hewson, Yule, Laurent, & Vogel, 2003). Furthermore, there is the chance that parents could have been reported on same child, however, it is unlikely because respondents were requested to send their phone number to get the mobile certification and 200 unique numbers were provided with certificates One can therefore infer but not guarantee that respondents were reporting on different children. Although online surveys have these limitations, they also have some advantages. For instance, administration of the survey was inexpensive and time-saving. Moreover, we were able to target a specific group and obtain a large number of respondents from around the nation.

There was a surprisingly large response of parents of children older than 10 years. This presents another limitation in that there is a possibility that these parents may not be able to remember their child's development exactly and dates of notice of first signs, diagnosis and intervention may have been subject to more error.

An additional limitation of the present study was that we did not enquire as to the types of interventions acquired or utilized by parents of children with ASD in South Korea. Since this researcher did not expect that most children with ASD in South Korea would be receiving early intervention, the questionnaire did not focus on what types of intervention they were receiving. Although the findings from the present research revealed that most South Korean children with ASD in the study had experiences with early intervention services, it is suggested that future studies should consider acquiring more specific information on what types of early intervention are implemented in South Korea.

Furthermore, more information is needed regarding the provision of early intervention by private institutions including daycare centers, private preschools, community welfare centers, private hospital schools and private centers. According to the national wide research (KNISE, 2011), there are only a few centers offering early intervention programs for young children with ASD, and very few young children with ASD were participating in early intervention programs. However, the present study reveals that most children with ASD had experienced early intervention in some form. Thus, it is important to investigate where the children with ASD received intervention in South Korea and what types and quality of intervention are provided.

Research in the field of early intervention for young children with ASD is still relatively limited in South Korea. Future research should also consider acquiring a more diverse sample. Also, more research on perceptions of educators and administrators should also be conducted.

Implications for Practice

The findings indicate that South Korean parents have a high level of perception of the many needs in regard to early intervention for young children with ASD may be valuable for policy makers, administrators, educators and program developers. Despite the high level of understanding of the importance of early intervention, Korean parents still reported that they strongly need financial support in order to provide their child early intervention services. According to Ganz (2007), autism in the Unites States costs society $35 billion a year to provide lifetime care to those individuals diagnosed. Per person diagnosed, the cost of having autism is $3.2 million. In South Korea, we have no idea how much it would be cost to support an individual with ASD.

South Korean parents also reported that they strongly need local centers, one to one service, and parent training program for early intervention services in their community. Thus, there are many factors that if addressed will effect the quality of early intervention service program for young children with ASD in South Korea.

In particular, some parents are seeking intervention before they have received diagnosis. We need to know more about why they do this and whether the services result in more positive outcomes for their children with ASD. The tendency to seek intervention before diagnosis may imply that they are seeking to resolve their child's developmental issues without a full understanding of the condition and therefore be seeking out inappropriate intervention. It is speculated that they are seeking private early intervention; we also need to know more about the quality of these services in order to best serve our children with ASD in South Korea.

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Appendices A: Cover letter and Informed consent

Dear Parent,

I am a graduate student at University of Alberta in Canada taking my Master's degree. I am sponsored by the Korean Government to complete my degree in special education in Canada.

The first goal of this online study is to find out whether there is a time difference between when children are diagnosed with autism spectrum disorder and when first intervention starts. The second goal of this study is to look at parents' understanding and needs about early intervention for young children with autism in South Korea. The third goal is to find out about parent beliefs and practices about child rearing and talking to their children. To address these goals, I am asking you to complete questionnaires on each of these topics.

There is no benefit for you in filling out the questionnaires. However, the information from this study may help improve early services for children with autism in the future. Once the study is complete, I am happy to share the results with you.

To participate in the study, parents must have a child who has been diagnosed with autism or one of the autism spectrum disorders (e.g., Pervasive Developmental Disorder, Aspergers). Your responses to the questionnaires will remain completely private and confidential. The enclosed questionnaire does not request identifiable information. If you have any questions or concerns about how this study is being conducted or your rights as a study participant, you may contact the University of Alberta's Research Ethics Office at 1- 780-492-2615. This office has no affiliation with the study investigators.

Please note that participation in this research project is entirely voluntary. The decision to participate is completely up to you. If you choose not to participate, simply close this web page. If you are willing to participate in this study, please continue to the online survey. The questions will take about 10- 15 minutes to complete. Please read the instructions for each section of questions and choose a statement that best describes your experience.

If you would like any more information please feel free to contact us via the email addresses or phone numbers below.

Principal Investigator

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Academic Supervisor Dr. Veronica Smith / vs2@ualberta.ca / 1- 780-492-7425

Thank you for your kind cooperation.

Appendices B: Demographic Questionnaire (DQ)

Please read the questions and check your and your child information.

1.1 Your gender
☐Male ☐Female

1.2 Your age in categories
☐Less than 20 ☐20-30 ☐31-40 ☐41-50 ☐51-60 ☐more than 60

1.3 Relationship to your child
☐Mother ☐Father ☐Grandmother or Grandfather ☐Others

1.4 How many children in your household including your child with autism?
☐One ☐Two ☐Three ☐Four ☐More than 5

1.5 What educational level have you completed?
☐Below high school or high school
☐College degree
☐Bachelor degree
☐Master degree
☐Doctoral degree
☐Others

1.6 How much is your approximate family income per month?
☐Less than 2,000,000 won
☐Between 2,000,000 and 2,999,999 won
☐Between 3,000,000 and 3,999,999 won
☐Between 4,000,000 and 4,999,999 won
☐More than 5,000,000 won

1.7 Which area are you living ?
☐Seoul
☐Gyeonggi-do
☐Gangwon-do
☐Chungchong-do
☐Jeolla-do
☐Gyeongsang-do
☐Jeju-do
☐Others

1.8 What is your child's gender
☐Male ☐Female

1.9 How old is your child now?
☐0 ~ 0.6 year
☐0.7 ~ 1 year
☐1.1 ~ 1.6 year
☐1.7 ~ 2 year
☐2.1 ~ 2.6 year
☐2.7 ~ 3 year
☐3.1 ~ 3.6 year
☐3.7 ~ 4 year
☐4.1 ~ 5 year
☐5.1~ 6 year
☐6.1~ 7 year
☐7.1~ 8 year
☐8.1~ 9 year
☐9.1~10 year
☐older than 10.1 year

1.10 Your child diagnosed as
☐Autistic Disorder
☐Asperger's Disorder
☐PDD-NOS
☐My child does not yet have a diagnosis, but I believe my child has one of the above Autism Spectrum Disorders.
☐Others

1.11 Your child's severity of disability is
☐Mild ☐Moderate ☐Severe

1.12 How many times have your child ever had intervention services before?
☐More than 20 ☐10~19 ☐5 ~ 9 ☐1 ~ 4 ☐0

1.13 If your child is attending a school, please indicate kind of attending.
☐Preschool
☐Private Institution
☐Special schools
☐Special education classroom in regular schools
☐Inclusive classrooms
☐Hospital schools
☐Others

Appendices C: Parents' Experience Questionnaire (PEQ)

Please read and check your opinion for each question.

2.1 How old was your child when your first suspected that his/her development was not normal?

☐0 ~ 0.6 year
☐0.7 ~ 1 year
☐1.1 ~ 1.6 year
☐1.7 ~ 2 year
☐2.1 ~ 2.6 year
☐2.7 ~ 3 year
☐3.1 ~ 3.6 year
☐3.7 ~ 4 year
☐4.1 ~ 5 year
☐5.1~ 6 year
☐6.1~ 7 year
☐7.1~ 8 year
☐8.1~ 9 year
☐9.1~10 year
☐older than 10.1 year

2.2 At what age did your child get diagnosis with Autism Spectrum disorder?

☐0 ~ 0.6 year
☐0.7 ~ 1 year
☐1.1 ~ 1.6 year
☐1.7 ~ 2 year
☐2.1 ~ 2.6 year
☐2.7 ~ 3 year
☐3.1 ~ 3.6 year
☐3.7 ~ 4 year
☐4.1 ~ 5 year
☐5.1~ 6 year
☐6.1~ 7 year
☐7.1~ 8 year
☐8.1~ 9 year
☐9.1~10 year
☐older than 10.1 year

2.3 At what age did your child attend any kinds of intervention program?

☐0 ~ 0.6 year
☐0.7 ~ 1 year
☐1.1 ~ 1.6 year
☐1.7 ~ 2 year
☐2.1 ~ 2.6 year
☐2.7 ~ 3 year
☐3.1 ~ 3.6 year
☐3.7 ~ 4 year
☐4.1 ~ 5 year
☐5.1~ 6 year
☐6.1~ 7 year
☐7.1~ 8 year
☐8.1~ 9 year
☐9.1~10 year
☐older than 10.1 year

2.4 What age do you think the best for beginning early intervention?

☐0 ~ 0.6 year
☐0.7 ~ 1 year
☐1.1 ~ 1.6 year
☐1.7 ~ 2 year
☐2.1 ~ 2.6 year
☐2.7 ~ 3 year
☐3.1 ~ 3.6 year
☐3.7 ~ 4 year
☐4.1 ~ 5 year
☐5.1~ 6 year
☐6.1~ 7 year
☐7.1~ 8 year
☐8.1~ 9 year
☐9.1~10 year
☐older than 10.1 year

2.5 If your child did not receive early intervention before the age of 3, what was the reason for that?

☐Late diagnosis
☐Lack of information
☐Lack of service providers
☐Lack of financial support
☐Lack of trust about professionals
☐Had EI already or planning to get EI

2.6 If your child receive intervention program, how many hours per week does/did your child spend in intervention program?

☐More than 26 hours/week
☐20~25 hours/week
☐16~20 hours/week
☐10~15 hours/week
☐7~9 hours/week
☐4~6 hours/week
☐1~3 hours/week
☐0 hours/week

2.7 Do you think how many hours per week is reasonable for early intervention for young children with autism spectrum disorders?

☐More than 26 hours/week
☐20~25 hours/week
☐16~20 hours/week
☐10~15 hours/week
☐7~9 hours/week
☐4~6 hours/week
☐1~3 hours/week
☐0 hours/week

2.8 If your child receive intervention program, did you satisfied with the intervention program?

☐The intervention was very effective for my child's development
☐I am not sure whether the intervention was effective or not
☐The intervention was not effective for my child
☐The intervention had a negative effect on my child's development

2.9 If your child receive/d intervention program, what do/did you expect from early intervention programs?

☐Communication skills
☐Decrease behavioral problems
☐Language development
☐Increased social interaction with peers
☐Toilet training
☐Eating training
☐Others

2.10 Do you think which factor is the most important to make early intervention works ?

☐Early entry into early intervention programs
☐Intensive engagement (more than 3 hours intervention per day)
☐Individualized supports and services for students and families
☐Specialized curriculum content
☐Well trained staffs
☐Family involvement
☐Inclusive environment
☐Others

Appendices D: Parents' Perceptions and Needs Questionnaire (PPNQ)

Please read the questions and check your opinion for each statement that best describes your experience.

3.1 Early intervention for young children with ASD should be implemented as soon as possible.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.2 Early intervention before the age of 3 would be positive effect on my child development.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.3 Early diagnosis is crucial because it makes my child with ASD get early intervention earlier.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.4 I also need to receive parents' training during the early intervention for my child.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.5 I also need to know what the early intervention is and how to deal with my child.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.6 Positive relationship with interventionist would be positive effect on my child's development.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.7 A regular home visiting or meeting should be implemented during early interventions for my child.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.8 The intervention would be effective if it implemented more than 25 hours per week.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.9 Opportunities to play with typically developing peers should be given during the intervention.
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.10 Inclusive environment and education is necessary even in early intervention program.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.11 The effectiveness of intervention depends on teacher's ability.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.12 Well-trained or qualified teacher should be employed for early intervention.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.13 Early intervention program should focus on my child's individual needs rather than typical developmental stages.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.14 Appropriate curriculum or materials is important factors for an effective early intervention.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.15 I need an early intervention center located in my community.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.16 I need information about early intervention services available for my child and my family.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.17 I need to know about my child's disorder and how to teach my child.

☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

3.18 I need financial support in order to provide my child early intervention services.

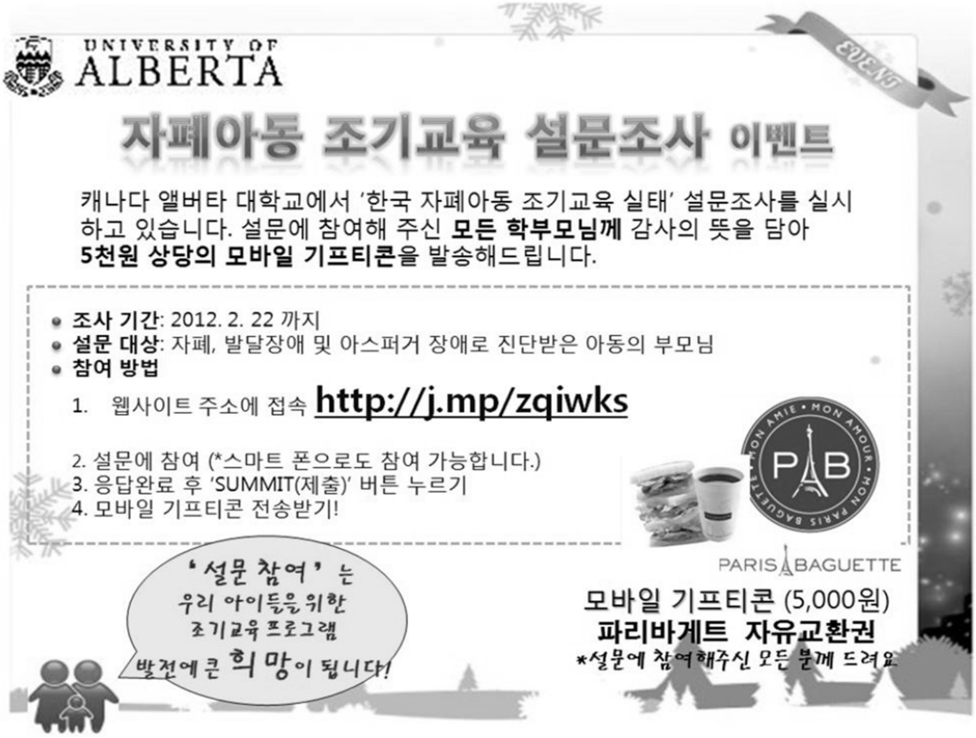
☐Strongly Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly agree

Appendices E: Map depicting the seven provinces of Korea

Appendices F: List of online community websites

List of online community websites			
1	http://cafe.naver.com/djfwkd2080.cafe	13	http://cafe.daum.net/gghope
2	http://cafe.naver.com/joypapa.cafe	14	http://cafe.daum.net/djmomnpapa
3	http://cafe.naver.com/joybasket.cafe	15	http://cafe.daum.net/kangjangmo
4	http://cafe.naver.com/whaoo.cafe	16	http://cafe.daum.net/GBBUMO1004
5	http://cafe.naver.com/turtleslove.cafe	17	http://cafe.daum.net/ksparents
6	http://cafe.daum.net/dedes/	18	http://cafe.daum.net/gyjp
7	http://cafe.daum.net/jape1234	19	http://cafe.daum.net/happych7
8	http://cafe.daum.net/needpmj	20	http://cafe.daum.net/starlovegirl
9	http://cafe.daum.net/love0531	21	http://cafe.daum.net/seochosarang/
10	http://cafe.daum.net/slowpace	22	http://cafe.daum.net/seoulbumo
11	http://cafe.daum.net/gjsnails	23	http://cafe.daum.net/mapozzangbumo
12	http://cafe.daum.net/northmom	24	http://cafe.daum.net/kangdongmf

Appendices G: Flyer (Korean Version)



UNIVERSITY OF ALBERTA

자폐아동 조기교육 설문조사 이벤트

캐나다 앨버타 대학교에서 '한국 자폐아동 조기교육 실태' 설문조사를 실시하고 있습니다. 설문에 참여해 주신 **모든 학부모님께** 감사의 뜻을 담아 **5천원 상당의 모바일 기프티콘**을 발송해드립니다.

- **조사 기간**: 2012. 2. 22 까지
- **설문 대상**: 자폐, 발달장애 및 아스퍼거 장애로 진단받은 아동의 부모님
- **참여 방법**

1. 웹사이트 주소에 접속 **http://j.mp/zqiwks**
2. 설문에 참여 (*스마트 폰으로도 참여 가능합니다.)
3. 응답완료 후 'SUMMIT(제출)' 버튼 누르기
4. 모바일 기프티콘 전송받기!

'설문 참여'는
우리 아이들을 위한
조기교육 프로그램
발전에 큰 희망이 됩니다!

모바일 기프티콘 (5,000원)
파리바게트 자유교환권
*설문에 참여해주신 모든 분께 드려요

Appendices H: The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across variables

Table 10

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across parents' educational level

Education level	Under high	Undergraduate	Graduate		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Early start before 3 age	4.36 (.88)	4.36 (.74)	4.48 (.68)	.122	.885
Intensity of more than 25 hours	3.58 (.86)	3.90 (1.12)	3.90 (.94)	1.003	.370
Opinion on inclusive education	4.50 (.59)	4.31 (.72)	4.54 (.47)	1.101	.336
Qualified teachers	4.50 (.60)	4.34 (.65)	4.54 (.47)	1.003	.370
Systematic curriculum	4.41 (.76)	4.41 (.74)	4.54 (.52)	.151	.860
Parents' involvement	4.61 (.55)	4.58 (.64)	4.45 (.82)	.253	.777

Table 11

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across region

Region	Urban	Non-urban		
	M (SD)	M (SD)	F	*Sig*
Early start before 3 age	4.46 (.67)	4.25 (.89)	5.186	.025*
Intensity of more than 25 hours	3.98 (.97)	3.61 (1.11)	3.597	.060
Opinion on inclusive education	4.52 (.56)	4.22 (.76)	5.161	.025*
Qualified teachers	4.49 (.55)	4.29 (.69)	2.279	.134
Systematic curriculum	4.52 (.64)	4.30 (.82)	2.957	.088
Parents' involvement	4.66 (.53)	4.46 (.73)	7.564	.007**

Table 6

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across monthly income

Monthly income	Lower	Middle	Upper		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Early start before 3 age	4.90 (.26)	4.24 (.81)	4.33 (.79)	1.391	.253
Intensity of more than 25 hours	4.10 (.99)	3.76 (1.06)	3.76 (1.03)	.717	.491
Opinion on inclusive education	4.65 (.47)	4.32 (.72)	4.41 (.56)	1.026	.362
Qualified teachers	4.57 (.62)	4.36 (.64)	4.41 (.50)	.681	.508
Systematic curriculum	4.75 (.55)	4.36 (.77)	4.35 (.60)	.195	.823
Parents' involvement	4.90 (.30)	4.53 (.65)	4.41 (.71)	1.932	.150

Table 13

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across diagnosis

Child diagnosis	AD	AS	PDD-NOS	NYD		
	M (SD)	M (SD)	M (SD)	M (SD)	F	*Sig*
Early start before 3 age	4.36 (.77)	3.50 (1.03)	4.48 (.72)	4.41 (.68)	1.991	.119
Intensity of more than 25 hours	4.36 (.77)	3.50 (1.03)	4.48 (.72)	4.41 (.68)	.542	.654
Opinion on inclusive education	4.36 (.60)	3.37 (1.25)	4.51 (.66)	4.75 (.50)	4.179	.008**
Qualified teachers	4.36 (.60)	3.37 (1.25)	4.51 (.66)	4.75 (.50)	6.161	.001**
Systematic curriculum	4.33 (.72)	3.50 (1.29)	4.64 (.58)	5.00 (.00)	4.984	.003**
Parents' involvement	4.54 (.60)	3.75 (1.50)	4.73 (.44)	4.50 (1.00)	3.349	.022*

Note. AD=Autism Disorders, AS= Asperger's disorders, PDD-NOS=Pervasive Developmental Disorders Not Specified. NYD=Not Yet Diagnosis

Table 14

The Mean and Standard Deviation, F, and Significant of Parents perceptions on six components of successful early intervention across severity

Child severity	Mild	Moderate	Severe		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Best age	4.23 (.96)	4.46 (.63)	4.45 (.60)	1.151	.320
Ideal intensity	3.82 (1.15)	3.81 (.94)	3.84 (1.06)	.004	.996
Opinion on inclusion	4.46 (.64)	4.35 (.73)	4.31 (.62)	.504	.606
Qualified teachers	4.44 (.60)	4.32 (.70)	4.46 (.49)	.511	.601
Systematic curriculum	4.40 (.81)	4.42 (.69)	4.48 (.65)	.078	.925
Parents participation	4.56 (.68)	4.55 (.65)	4.64 (.48)	.154	.857

Appendices I: The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across variables

Table 16

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across educational level

Education level	Under high	Undergraduate	Graduate		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.80 (.40)	4.66 (.60)	4.81 (.40)	.997	.372
Need of parent training	4.43 (.74)	4.52 (.70)	4.77 (.41)	.949	.390
Need of information	4.61 (.49)	4.56 (.62)	4.72 (.46)	.387	.680
Need of one to one service	4.66 (.47)	4.59 (.61)	4.63 (.50)	.174	.840
Need of financial support	4.86 (.34)	4.71 (.56)	4.81 (.40)	1.075	.345

Table 17

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across monthly income

Monthly income	Lower	Middle	Upper		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Local centers	4.95 (.22)	4.64 (.59)	4.76 (.43)	2.690	.072
Parent training	4.75 (.41)	4.43 (.77)	4.67 (.46)	2.120	.125
Information	4.8 (.36)	4.5 (.61)	4.7 (.46)	3.360	.038*
One to one	4.75 (.44)	4.58 (9.61)	4.58 (.50)	.649	.525
Financial	4.95 (.22)	4.71 (.55)	4.76 (.43)	1.766	.176

Table 18

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across region

Region	Urban	Non-urban		
	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.77	4.64	7.858	.006*
	(.42)	(.66)	7.858	.006
Need of parent training	4.56	4.47	1.955	.165
	(.63)	(.77)	1.955	.165
Need of Information	4.66	4.50	8.153	.005*
	(.47)	(.67)	8.153	.005
Need of one to one service	4.68	4.53	4.744	.031*
	(.50)	(.64)	4.744	.031
Need of financial support	4.80	4.71	3.915	.050
	(.40)	(.61)	3.915	.050

Table 7

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across types of diagnosis

Types of diagnosis	AD	AS	PDD-NOS	NYD		
	M (SD)	M (SD)	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.70	3.50	4.84	5.00	9.572	.000**
	(.49)	(1.29)	(.36)	(.00)	9.572	.000
Need of parent training	4.44	3.75	4.72	4.87	3.562	.017*
	(.72)	(1.50)	(.46)	(.25)	3.562	.017
Need of Information	4.54	3.50	4.76	5.00	8.027	.000**
	(.52)	(1.29)	(.43)	(.00)	8.027	.000
Need of one to one service	4.61	3.75	4.70	4.75	3.665	.015*
	(.49)	(1.50)	(.51)	(.50)	3.665	.015
Need of financial support	4.77	3.75	4.83	5.00	6.867	.000**
	(.42)	(1.50)	(.37)	(.00)	6.867	.000

Table 20

The Mean and Standard Deviations of Parents Needs for early intervention for young children with ASD across child's severity

Child severity	Mild	Moderate	Severe		
	M (SD)	M (SD)	M (SD)	F	*Sig*
Need of local centers	4.80	4.60	4.76	1.756	.177
	(.40)	(.65)	(.52)	1.756	.177
Need of parent training	4.56	4.48	4.52	.139	.870
\	(.83)	(.62)	(.54)	.139	.870
Need of Information	4.67	4.48	4.64	1.285	.281
	(.51)	(.66)	(.48)	1.285	.281
Need of one to one service	4.62	4.55	4.72	.665	.516
	(.53)	(.65)	(.45)	.665	.516
Need of financial support	4.82	4.65	4.84	1.558	.215
	(.38)	(.64)	(.37)	1.558	.215