While most children with special needs are enrolled in segregated special schools in Singapore, a small but growing percentage of children with special needs are enrolled in additional mainstream kindergarten. Given that children with special needs are in need of more structured instructions and opportunities for social skills, the current study investigates differences in preschoolers with intellectual disabilities with and without enrolling in mainstream kindergarten. Participants included typically developing children and children with intellectual disabilities between 28 to 97 months. Participants consisted of 3 groups - children with special needs attending in both special and mainstream education, children with special needs attending in special school and typically developing children attending mainstream kindergarten. Parents were administered a demographic questionnaire and the Social Skills Rating System (SSRS), a well-established and widely-used rating scale that measures social skills of preschoolers.
Social Skills in Children with Special Needs
With and Without Mainstream Education in Singapore

In the recent years, there is discernible rise in the prevalence of children with special needs, specifically, intellectual disability. Given the increase in the number of identifiable biological and environmental risk factors associated with intellectual disability, it is estimated that 780 million children may be affected worldwide (Olness, 2003). In Singapore, an estimated 15,200 children below the age of 18 are affected by some form of intellectual disabilities (Chua & Basu, 2007). In the face of these statistics, the educational needs of young children with intellectual disabilities have become a major global concern (Guralnick, 2005). Within Singapore context, this phenomenon has prompted an emerging interest and an increasing awareness of the unique learning needs of the children with intellectual disability.

In Singapore, the education of children with disabilities takes place in segregated settings. At present, there are 24 special schools in Singapore catering to the needs of children with a wide range of disabilities including those who have intellectual disabilities. Following a diagnostic assessment, a referral is made to one of these schools. Young children assessed to have intellectual or developmental impairments are promptly referred to special schools. Under the current system, children with intellectual disabilities are provided with the necessary early intervention educational services in a segregated environment (Quah, 1998). While mainstreaming is common practice in many Western countries, the initiatives to integrate children with special needs in regular classrooms is at its early stages in Singapore.
At present, these children receiving special education are effectively excluded from regular education. In Singapore, past efforts to integrate students with disabilities in the mainstream school settings have excluded children with intellectual disabilities as there were concerns that they will not be able to cope with academic demands (Clarke & Nomanbhoy, 1998). Therefore, under this referral procedure, the educational pathways of children who have intellectual or developmental disabilities differ significantly from typically developing children.

However, past studies within the local context reported positive attitudes of teachers and parents, indicative of a conducive climate for integration at the pre-school level (Clark & Nomanbhoy, 1998; Quah, 1998). Consequently, in the face of raising prevalence and increasing awareness, a growing number of mainstream preschools and childcare centers are admitting children with disabilities. One such preschool is the Integrated ChildCare Programme (ICCP), an inclusive programme for children with special needs between the ages 2 to 6 to learn alongside their regular peers, offered by the Presbyterian Community Services. Another provider of preschool education in Singapore open to children with special needs is the People’s Action Party Community Foundation (PCF) kindergartens. In effect, notwithstanding the generally non-inclusive practice, children with disabilities who are attending special education programs can now be enrolled for additional mainstream kindergarten program.

Anecdotal and informal information indicate that a growing number of parents have opted for the additional mainstream curriculum for their children with special needs. For a particular group of preschoolers who have intellectual disabilities, a typical school day means half a day in a special school and the rest of the day in a mainstream setting.
Whereas a child with disability interacts with other children with special needs in the segregated special school classroom, children with special needs are integrated with typically developing same-age peers in the regular classrooms.

In the local context, preschool programs in Singapore are offered by kindergartens and childcare centres where the duration of sessions may range from 2 to 4 hours per session, catering to the needs of children between 3 to 6 years of age (Lim, 1998). Preschool programs are structured according to the age of the child. Nursery classes are for children aged 3 and kindergarten classes (K1 and K2) are for those aged between 4 to 6. The general curriculum is thematic or integrated in nature with a strong emphasis on activity-based learning. For example, the K1 syllabus focus on developing listening and spoken language skills while the K2 syllabus place emphasis on developing reading, writing and mathematical abilities (Quah, 1998).

The preschool programs in Singapore place emphasis on attention to basic skills required for language and literacy, reading and writing, speaking and listening, mathematics and science, social skills and environmental awareness with increasing focus on maximizing opportunities for purposive play (Sharpe, 1998). The mainstream preschool curriculum and environment in Singapore has a common goal of promoting prereading, math skills and more importantly, an environment for positive socialization (Honig & Lim, 1998). In general, mainstream preschool centres are deemed as an environment where intellectual, emotional and social developments of children with disabilities can be enhanced (Clarke & Nomanbhoy, 1998). Evidently, the mainstream curriculum tailors to the needs of preschool children by emphasizing the cultivation of social skills as of equal importance as the learning of academic concepts. Children with
special needs will benefit from the mainstream preschool albeit in considerably varied ways.

To explore the benefits of integrating young children with intellectual disabilities, it is essential to understand their learning needs. For children with disabilities, impairment in social functioning is manifested in their highly limited interactions with peers (Guralnick & Weinhouse, 1984). It is noteworthy that children with disabilities show deficits in their social competence. Previous research observed that children with disabilities tended to engage in social interactions with peers less often than typically developing children even within an inclusive classroom (Brown, Odom & Zercher, 1999). In fact, many past studies pointed out differences in frequencies and level of maturity of social interactions and social behaviors between children with disabilities and their same-age peers (Odom, McConnell & McEnvoy, 1992). In particular, the impairment of social skills is a primary concern among parents and teachers of children with developmental disabilities (Choi, 2000).

According to Gresham & Elliot (1990), social skills refer to the learned socially acceptable behaviors that facilitate effective interactions with others. On a similar note, Odom et al (1992) conceptualized social competence as the observable and measurable aspects of social behaviors when a targeted child interacts with others. In this light, the learning and acquisition of these skills can enable successful interpersonal relationships with others, which is a significant developmental milestone during childhood (Gresham & Elliot, 1990). In accordance with this perspective, there is growing evidence that the development and acquisition of social skills in children are crucial to their overall developmental outcomes.
Research suggests that social skills play a major role in the overall level of adaptive behavior in individuals with intellectual disability (Kraijer, 2000). Following these observations, Guralnick (1990) proposed that the learning goals of children with disabilities should be skills-oriented in nature and that the development of social skills should be prioritized as an important goal for children with disabilities. Odom (2000) identified social integration, social competency and social relationships as developmental outcomes that we want to promote for children with disabilities. Considering the acknowledged importance of social functioning, the development of social skills for children with disabilities should be a priority in their education as the acquisition of appropriate social skills will improve their overall functioning and increase their integration into the society. Based on past research addressing the social functioning of children with disabilities, the development of social skills is an inherent limitation and therefore, a distinguished learning objective particularly for this population.

There are many grounds to believe that preschoolers with special needs will benefit socially from the mainstream experience. It is acknowledged that much learning in preschoolers occurs through observation of the performance of others and the occurrence of positive consequences to particular responses of their peers within the classroom. Through the opportunities that arise in the environment, preschoolers can learn social behaviors by what they observed in other typically developing children (McClellan & Katz, 2001). Stainback & Stainback (1989) demonstrated that even for the severely disabled children with highly individualized needs where academic requirements are irrelevant, social skills can be learned by observing the appropriate behaviors of
others. Given the ability to observe and imitate others, the presence of typically developing peers may be especially beneficial for preschoolers with disabilities.

Following this view, it can be argued that children with disabilities learn appropriate social skills through incidental learning that takes place alongside typically developing peers. Hart and Risley (1982) defined incidental teaching as teaching that occurs whenever the teacher makes the best out of a situation that naturally call for a reinforcing response by prompting and praising that response. Research suggests that incidental teaching can contribute to the acquisition and more importantly, the generalization of social skills (Oswald et al., 1990). With an emphasis on naturally occurring behaviors, incidental learning takes place unintentionally and spontaneously in a naturalistic environment. The implication of incidental learning for children with disabilities within a mainstream classroom environment is that teachers as well as peers can facilitate the informal learning of social behaviors through normal activities. By means of incidental learning, the learning experience is contextually meaningful and can be easier to grasp from a child’s perspective.

For children who have intellectual or developmental disabilities, special education certainly addresses the need for individualized programs with a strong emphasis on functional academic, self-help and daily living skills within a small group setting. Nevertheless, considering that the key features of the mainstream preschool curriculum may foster the development of social skills, and that the effect of the mainstream curriculum for children affected by intellectual disabilities has yet to be determined, it is worthy to explore whether the additional mainstream environment is beneficial for the development of children with intellectual or developmental disabilities.
In this preliminary study, we examined social skills in children with intellectual and developmental disabilities. The primary purpose of the current research was to examine social skills in preschoolers with intellectual disabilities in special schools with and without additional mainstream kindergarten compared to typically developing preschoolers. In addition, we examined demographic characteristics including parents’ education level, number of siblings, age-intervals between siblings and the identified child and parents’ perceived importance of social skills.

In the present study, we posed the following research questions: (a) Do preschoolers who have intellectual disabilities with and without mainstream kindergarten differ in their level of social skills? (b) How do preschoolers with intellectual disabilities differ from typically developing preschoolers on the domains of social skills (i.e. cooperation, assertiveness, responsibility, self-control and problem behaviors)? (c) How do parents of intellectual disabled preschoolers with and without mainstream kindergartens differ in their perceived importance of social behaviors? (d) How are demographic characteristics such as parent’s level of education, number of siblings and age-intervals between siblings related to social skills of children with special needs?

Method

Research Sample

Regular kindergartens, preschools with integrated programs and special schools across Singapore were approached to participate in the study. The sample involved 3 different groups of children. The first and second group consisted of children with intellectual disabilities. Specifically, the first group consisted of children with disabilities attending special education and additional mainstream kindergarten. The second group
Social skills consisted of children attending only special education without mainstream kindergarten. The third group consisted of typically developing children in mainstream kindergarten.

As is frequently seen in children with disabilities, diagnostic heterogeneity exists in the current sample. For instance, some of the children have Down syndrome or autism. Because the objective of the study was to explore the population with intellectual disabilities, participants were identified based on their intellectual disabilities. There was no effort to distinguish between the various disorders.

In addition, all participating preschoolers with or without additional mainstream kindergarten education, have to be currently attending a special school program for a minimum of 6 months. Preschoolers who receive special schooling or mainstream kindergarten for a period of 6 months or less were not included in the study as any effects of schooling may not have surfaced.

It should be noted that even though “preschool” generally refers to the age group between 3 to 5 years of age, the ages of children participating in the current study may exceed this range. This is due to the local practice of enrolling children from as young as 24 months up to as old as age 8 in preschool programs.

A total of 218 questionnaires were sent out to the various schools and centers. The final sample consisted of children whose parents returned questionnaires with all items completed. Around 40% of parents asked to participate consented and returned a total of 88 completed questionnaires. The relationship between the informant and the child was indicated on the questionnaire. 71% of the questionnaires were completed by mothers and 25% were completed by fathers. The remaining questionnaires were completed by
either guardians or caregivers for the child. Of the total sample, 2 sets of parents indicated that they had completed the questionnaires jointly.

Of which, there were 67 Chinese families, 16 Malay families, 2 Indian families and 1 expatriate family from the Philippines. The ages of children ranged from 28 months to 97 months ($M = 61.34$, $SD = 15.26$). There were 32 children with special needs currently attending special school with additional mainstream preschool program, 22 children with special needs currently attending special school program without mainstream education and 34 typically developing children currently attending a mainstream preschool.

**Instruments**

*Demographic questionnaire.* Information was collected on the identified child. Parents completed a demographic questionnaire. A series of questions yielded information about the age, gender of the child, the number of siblings, the age(s) of sibling(s) and educational background of the parents.

On the sibling-related questions, only the sibling that is closest in age to the child was considered in cases where the identified child has more than one sibling. This rationale was in accordance with the previous studies involving sibling-dyads. In families with more than 2 children, the sibling closest in age to the targeted child is typically considered as having the most similar life experiences and therefore most influences in the growing up years.

A number of measurements were considered and a parent rating scale was finally chosen on several grounds. In a review of recent developments in the assessments of social skills of children, Merrell (2001) recommended the use of behavior rating scales
for its easy practical utility and more technical precision in comparison to other methods.

In the sample of this study, a behavior rating scale is the preferred method of assessment particularly for young children who may have difficulty with providing information about themselves through self-report measurements. When assessing young children, a behavior rating scale can tapped on observations reported by people who are highly familiar with the targeted child’s behaviors. In this case, parents and caregivers whom young children spend most of the time with are considered as most appropriate informants. For these reasons, a parent rating scale was selected amongst other methods for the current study.

While reviewing rating scales measuring social skills, the Social Skills Rating System stood out for its growing research base. The Social Skills Rating System (SSRS) was selected for its wide range of socially validated behaviors as well as its unique features, which addressed the objectives of the current research. A unique feature of the SSRS is the importance rating scale which elicits information on the perceived importance of each social skill from parents’ perspectives. Overall, the Social Skills Rating System is well-established and has been widely used as a measurement of social skills for its excellent psychometric properties (Demaray et al, 1995).

Social Skills Rating System. The Social Skills Rating System (Gresham & Elliot, 1990) questionnaire was developed for the purpose of gathering information and providing a comprehensive picture of social skills. The SSRS was standardized in 1988 on a sample of 4,170 U.S. children, of which 17% had a disability. The SSRS preschool level has been designed for the age group of 3 to 5. The SSRS demonstrated strong internal
consistency (.87 to .90), adequate test-retest, inter-rater reliability and criterion-related validity.

The SSRS parent rating scale consists of the Social Skills domain (subdomains include Cooperation, Assertion, Responsibility and Self-Control) and the Problem Behaviors domain (subdomains include Internalizing Problems and Externalizing Problems). The Cooperation subdomain includes behaviors related to complying with instructions, sharing and helping others. The Assertion subdomain includes initiative behaviors and responding appropriately to the actions of others. The Responsibility subdomain includes behaviors that reflect the ability to communicate with adults effectively. The Self-Control subdomain includes behaviors that demonstrate the ability to manage and compromise during conflict situations. Although the SSRS emphasizes positive behaviors or prosocial skills, problem behaviors are measured as they may influence the acquisition or performance of social skills (Gresham & Elliott, 1990). The Externalizing Problems subdomain includes inappropriate behaviors such as verbal or physical aggression and temper tantrums. The Internalization Problem subdomain includes behaviors that reflect low self-esteem, sadness and anxiety. Finally, the Hyperactivity subdomain includes fidgeting and impulsive behaviors. These subscales were empirically supported and derived from sound analytic procedures (Merrell, 2001).

Based on these domains, the rating scale lists 49 statements relating to specific prosocial behaviors and problem behaviors. Examples of specific social behaviors include “follows instructions”, “attempts household tasks before asking for your help” and examples of problem behaviors include “argues with others” and “disturbs ongoing activities”. Parents were requested to indicate how often each child exhibits certain social
Social skills and how important those skills are for success in their development. On 3-point Likert-type scales, parents were asked to rate $0 = \text{Never}$, $1 = \text{Sometimes}$, $2 = \text{Very Often}$ for the frequency of each specific skill and $0 = \text{Not important}$, $1 = \text{Important}$ and $2 = \text{Critical}$ for perceived importance of each behavior. Scores on the forms derived a standard score for social skills ($M = 100$, $SD = 15$) where a higher standard score on the frequency scale indicated better social skills and higher standard score on the importance scale indicated higher perceived importance.

**Procedure**

In early May, there were efforts made to ascertain the suitability of local kindergartens and special schools to be involved in this study. To survey where to locate a pool of suitable participants, admission criteria including types of disabilities and age range of children of mainstream kindergarten and special schools were considered. Participation in the current study was extended to organizations offering preschool programs including Presbyterian Community Services (PCS), Rainbow Centre and Movement for the Intellectually Disabled in Singapore (MINDS). These organizations were short-listed as they cater to children who meet the criteria for the objective of the current study.

Permission was first obtained from the authorities of the various schools and centers catering to preschoolers. The study was explained to the respective principals and heads of the schools and centers to obtain informed assent. Official consents were obtained from the respective principals and heads by late May.

Next, potential subjects were identified based on referral concerns or diagnoses. Parents of the selected children were approached to participate in the study via the
respective form teachers. For each child, a copy of the consent form outlining the study was provided to parents. Parents indicated their willingness to participate in the study on the consent forms provided. Parents were allowed to take home the questionnaires to complete and return to the form teachers. All further questions and enquiries were directed to the investigator directly.

Following which, questionnaires were sent out and collected between the months of June and August. All returned questionnaires were collected by the end of September.

Results

First, we examined group differences in terms of prosocial behaviors. Prior to analysis, all individual scores on the social skills scales were converted to standardized scores which adjusted for age of the identified child.

To evaluate the hypothesis that children with intellectual disabilities with additional mainstream education demonstrated higher frequency of social skills than children with intellectual disabilities without additional mainstream education, an independent-samples t-test was conducted. The analysis yielded non-significant results for prosocial behaviors, \( t(52) = .308, p = .76 \) and problem behaviors, \( t(52) = .457, p = .65 \). The results of these analyses indicated that on the average intellectually disabled children with additional mainstream education demonstrated social skills and problem behaviors similar to those their peers without additional mainstream education.

An independent t-test was conducted to examine group differences in prosocial behaviors between typically developing children and children with intellectual disabilities. The test yielded significant results, \( t(86) = 3.92, p < .01 \). Typically developing children
Social skills

(M = 86.21, SD = 15.88) on the average demonstrated higher frequency of prosocial behaviors than children with intellectual disabilities (M = 72.17, SD = 16.65).

Consequently, further analyses were conducted to examine group differences between typically developing children and children with intellectual disabilities on the specific domains of prosocial behaviors. Analyses yielded significant results on the Cooperation domain, t(86) = 3.03, p = .01, the Assertion domain, t(86) = 4.27, p < .01 and on the Responsibility domain, t(86) = 5.36, p < .01. These results suggested that children with intellectual disabilities demonstrated significantly lesser prosocial behaviors requiring cooperation (M = 7.91, SD = 3.83), assertion (M = 9.24, SD = 3.70) and responsibility (M = 4.78, SD = 3.77) as compared to their typically developing peers. However, prosocial behaviors requiring self-control was not significantly different between typically developing children and children with intellectual disabilities, t(86) = 1.26, p = .211. This meant that typically developing children did not demonstrate higher frequency of prosocial behaviors requiring self-control than children with intellectual disabilities.

Next, we examined problem behaviors in typically developing children and children with intellectual disabilities. A hierarchical regression analysis was conducted. Controlling for age of child, results of this analysis indicated that presence of intellectual disabilities was marginally significant predictor of problem behaviors, F(2, 85) = 2.78, p = .06. These results suggest that children of the same age displayed more problem behaviors if they are intellectually disabled.

Focusing on parents of children with intellectual disabilities, analyses comparing between parents who enrolled their children for additional mainstream kindergarten and
those who did not showed that there were no differences in their perceived importance of social skills, $t(52) = .333, p = .74$. This result indicated that parents of children with intellectual disabilities perceived social skills behaviors to be of importance to the overall development of their child, whether they enrolled their children for additional mainstream education or not.

Results yielded significant difference between educational background of parents who enrolled their child for additional mainstream education ($M = 6.06, SD = 1.83$) and those who did not ($M = 4.27, SD = 1.52$), $t(52) = 3.78, p < .00$. This result meant that parents who enrolled their children for additional mainstream education received higher education than parents who do not. To assess the relationships between number of siblings, age-interval of sibling-dyads, and the domains of prosocial behavior and problem behaviors, correlation coefficients were computed. The correlations of number of siblings and prosocial and problem behavior measures tended to be low and not significant. These results indicated that there was no association between number of siblings and social skills. However, age-interval between sibling-dyads was significantly correlated with Cooperation domain ($r = -.56, p < .00$). This suggest that amongst children with disabilities who have siblings, the lower the age difference between the sibling-dyads, the higher the frequency of the identified child demonstrating prosocial skills requiring cooperation.

**Discussion**

This section is still in progress. In this section, we will answer each of the research questions. We will draw attention to significant results and explore the implications of our findings. We will integrate our current findings with previous
findings in the Western contexts and explore the generalizability of previous findings within the local context. In addition, we examine the limitations of the current study and make suggestions for future research. In doing so, we will also highlight directions for future research.
Reference


