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Language development among autistic children in integrated and special education settings

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ABSTRACT

Language development among autistic children
in integrated and special education settings

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This study examined the extent to which the language development of young children with autism might be differentially influenced by being in a segregated versus an integrated setting. Participants were six (6) high functioning children with autism enrolled in either an integrated or a segregated elementary school setting. The children's teachers and parents also served as participants. Both quantitative (Peabody Picture Vocabulary Test- Third Edition) and qualitative methodologies were used to assess the children's language abilities. Two observational methods were used. Specimen descriptions recorded baseline reports of each participant's language abilities and time/event samples recorded the number and types of opportunities for communication that were provided to the participants in their respective settings. Participating teachers and parents were individually interviewed to determine certain background information concerning the children and teacher attitudes and experience. Results demonstrated that overall the language development of children with autism seems to be of a higher quality for the children enrolled in an integrated setting as compared to those in a segregated setting. All teachers stated that the children were attending the most appropriate setting for their needs and the parents expressed an overall satisfaction with their child's school. Implications for the language development of children with autism and the most appropriate setting to promote that development are discussed.

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INTRODUCTION

What is Language?

Language, according to the definition in Webster's New World dictionary, is a complex arrangement of sounds that have accepted referents and can be arranged to derive meanings (Guralnik, 1983). This in turn enables individuals to communicate whether it is through verbalisations or gestures. According to James (1990), language is a collection of shared symbols and rules that allow individuals to represent ideas and concepts and to communicate with one another. Language is also considered to be arbitrary, creative, and learned. Language is arbitrary in the sense that there is no logical relationship between the words that we use and the objects that they represent. For example, a four-legged animal that barks is called a dog in English, but there are no relationships that exist to explain this. The creative component of language can be perceived by the way people create and understand sentences that they have never used or heard before. Finally, in order for one to acquire a specific language, he/she has to first learn the shared rules and symbols that are relevant to his/her particular language. Learning language is a complex process, and this process becomes even more difficult when a child experiences developmental delays, such as those found in individuals with autism.

Views of Language Acquisition

There are numerous theories that take into account language development. The following theories provide an overview of three general models for language acquisition: (1) behaviourists; (2) nativists; and (3) interactionists.

Behaviourist Theory

Behaviourists, like Skinner, emphasise reinforcement and imitation as the primary models of language acquisition. Skinner argued that language is a set of verbal behaviours that is learned through a process called operant conditioning, which involves changes in behaviours resulting from circumstances that follow those behaviours (James, 1990). Circumstances that increase the likelihood of a behaviour recurring are referred to as reinforcement, while those that decrease the probability are referred to as punishment. This theory also emphasises the role of imitation in language acquisition, because the child imitates the adult's words and then the child is reinforced for doing so.

Finally, behaviourists view the child as a passive receiver rather than as an active participant in the language acquisition process. Children are seen as being born with few general skills and language is thought to be developed through experience with the world and by forming associations. Therefore, behaviourists advocate the nurture side of the ongoing debate between nature versus nurture.

Nativist Theory

Nativists, like Chomsky, believe that certain universal features, common to all languages, have an innate mechanism that enables children to learn language (James, 1990). The mechanism is usually referred to as the Language Acquisition Device (LAD), which is common to all children and operates on linguistic data supplied by parents to produce a given language. This mechanism is also believed to contain information about the structures and the universal rules of all languages. Therefore, children are required to process the language input that they receive in order to form hypotheses concerning the rules that are inherent to their language. Nativists, unlike behaviourists, believe that the

mechanism involved in learning language is innate, and hence are advocates of the nature side of the debate rather than the nurture side.

Bruner's Theory

The last theory that will be mentioned briefly is that of Bruner, which takes a more interactional approach to language development. Bruner considers the acquisition of language and the development of the ability to think in the symbolic mode to be the chief milestone of cognitive development. Bruner states that it is social interaction that not only activates the children's genetic predispositions to learn language, but also provides frameworks within which children can discover the ways language can be used (Gallaway & Richards, 1994). Therefore, the child's Language Acquisition Device (LAD) could not function without the aid that is provided by an adult who enters into a transactional interaction with the child (Bruner, 1983). The interaction provides the child with a Language Acquisition Support System (LASS). Therefore, what Bruner is implying is that it is the interaction between LAD and LASS that makes it possible for the child to learn a language and at the same time to enter the culture to which the language gives access.

The debate concerning nature versus nurture has been ongoing since the seventeenth century when John Locke suggested that a child's mind at birth is a blank slate upon which knowledge is gradually written by the chalk of experience (James, 1990). Locke's discourse has led to many arguments over the role of an innate mechanism and that of the environment in children's language acquisition process. This debate is still a major issue in the discussion of language acquisition. New theories have emerged, although the nature-nurture continuum is still the main dispute amongst

theorists.

In conclusion, although children are probably biologically prepared for learning language, it is increasingly necessary to formulate a more interactional theory. As more and more research is conducted on the topic, one will inevitably come to the conclusion that the most rational theory is the one willing to recognise both the role of the environment, such as parental and peer interaction, and of biological predispositions as important determinants of language development.

Steps of Language Acquisition in Typically Developing Children

The steps of language acquisition have been shown to be fairly consistent among children, however variability does exist when one considers the age at which each child attains a particular level (Hetherington & Parke, 1993). The first sounds a newborn makes are expressed by his/her crying. Crying is the infant's sole means of communicating his/her physical needs and discomfort. This first step is usually referred to as the pre-linguistic phase. At approximately two months, infants can begin to express non-crying as well as crying sounds. This step is usually called cooing, which is the production of one-syllable vowel-like sounds such as "a" and "o", that are usually produced in response to the caretaker's talking and/or smiling. At about six months of age, infants use a variety of consonants and vowels, and can string together several identical sounds, such as "mamama." This step is usually called reduplicated babbling. By the end of their first year, infants' babbling changes from reduplication to non-reduplication, which combines sequences of syllables that resemble adult speech (James, 1990).

Several theorists on child development agree that somewhere around the first year,

children pronounce their first word(s) (Hetherington & Parke, 1993). The child's first words usually consist of nouns such as "mama" as well as action-linked words, such as "bye-bye." These first words are often described as holophrases because the child uses a single word to convey a whole sentence and they also mark the beginning of syntactic acquisition. For example, a child might say "milk" to convey the message "I want milk." To be able to understand this early language, it is necessary not only to hear what the child says, but also to see what the child is doing or the situation.

Somewhere around 18 to 20 months of age, children begin to string two words together into their first sentences and by 20 to 24 months of age, most children produce three word sentences (Hetherington & Parke, 1993). This step of language acquisition is customarily referred to as telegraphic speech because articles and prepositions are often absent from their sentences, just as they are in telegram messages.

During the third year, children's simple sentences start to become more subtle and complex because they are showing signs of understanding the rules of adult grammar (Hetherington & Parke, 1993). Children can now incorporate and use all the parts of speech in language, such as nouns, verbs, and adjectives, in order to form their sentences. Children also begin to use auxiliary verbs, which opens up the possibility of new forms of expression, such as questions and negatives. They can also form the plural of nouns, use simple tenses, and begin to use pronoun articles as well as complex phrases.

This overview of the different steps in language development shows that children learn to express themselves through speech over a period of three years. During these three years, children must learn several different components of the language system, such as phonology, semantics, syntax and pragmatics in order to fully comprehend its

rules and symbols.

Components of Language

The development of language encompasses four main components, which include: (1) phonology; (2) semantics; (3) syntax; and (4) pragmatics.

Phonology. Phonology is a system of sounds in a given language. It depicts the manner in which the basic sound units (phonemes) are organised in order to create words (James, 1990). A phoneme is the smallest relevant unit available in a language, which refers to the fact that a single phoneme is capable of signalling a meaningful difference among words. For example, the only difference between the words "cat", "hat", and "mat" is in the first phoneme, yet all three words have a different meaning (James, 1990). Therefore, when young children are acquiring a language, they must learn the relevant phonemes that make up their particular language system. In addition to learning phonemes, children must also learn the phonological rules that regulate which phonemes can be combined as well as the order in which they can be combined. For example, the phonemic combination /st/ is acceptable both at the beginning of a word (e.g., structure) and at the end of a word (e.g., cast) in the English language (James, 1990). However, the combination /ts/ is only acceptable at the end of an English word (e.g., bats). Consequently, children learning a language must also learn the appropriate phonological rules in order to ascertain which combinations are allowed and those that are not.

Phonological development has been shown to be present in infants as early as two weeks of age. Morse (cited in Menyuk, 1974) used the High Amplitude Sucking (HAS) test to determine if infants could discriminate between phonologically different sounds. Pacifiers connected to electrodes were given to infants in order to record their sucking

rates. It was stated that infants' increased sucking rate was a reflection of excitement, while a decrease depicted boredom and habituation to the stimuli. Infants were presented with "pa" sounds for several minutes and their sucking rates were recorded. Subsequently, the researcher changed the sounds to "ba's" and once again recorded sucking rates. Results revealed that infants' sucking increased when presented with the second stimuli. Therefore, infants could discriminate between speech stimuli marked by differences in sound categorisation ("pa" versus "ba"). However, sucking rates remained stable and then declined when presented with acoustically different sounds. This result implies that infants could not discriminate between stimuli that were only acoustically different such as two different "pa's" or "ba's." Studies such as this one provide evidence that infants are born with the ability to discriminate between speech sounds that belong to different phonemic categories. Therefore, with increased exposure to different speech sounds, infants become more adept in their ability to distinguish between different phonemes.

Semantics. Semantics is the meaning component of the language system and is capable of assessing how children acquire words and their meanings (James, 1990). Every language has its own particular cultural view that is reflected in the categories and labels that each develops. By the age of 18 months, children have acquired a repertoire of approximately 50 spoken words, which increases dramatically from that point. Although their word production is limited until that point, their word comprehension dramatically surpasses their verbal capabilities. Huttenlocher (cited in James, 1990) suggests that this inequality is due to the nature of what is recognised and what is recalled. Comprehension involves the simple recognition of a word and the recollection of its category, which

usually occurs automatically unless faced with an interfering event during the process. However, word production requires the recognition of an object and the recollection of the word that represents the object in question. The process required for word production is less accessible to young children learning a language than the process required for word comprehension because words frequently have multiple meanings (James, 1990). These multiple meanings can delay children's word production because they first have to decipher all of the possible meanings for a familiar word before they can say it within the proper context.

Children's semantic understanding can be represented as one of two conceptual systems: (1) a taxonomic conceptual system in which objects of the same kind are placed together within the same category (e.g., a running shoe and a high-heeled shoe); or (2) a thematic (or complementary) conceptual system in which objects are placed together using relational criteria (e.g., a running shoe and a foot) (Dunham & Dunham, 1995). Past research has suggested that there are individual differences in children's tendencies to use these different conceptual strategies when they reach three years of age (Dunham & Dunham, 1995). Markman (1989; cited in Dunham & Dunham, 1995) proposed that these individual differences could be accounted for by a developmental shift that occurred in childhood. He stated that preschool children tended to use thematic meanings early in development and then shifted to taxonomic strategies at approximately three years of age. However, Dunham and Dunham (1995) have recently questioned this traditional developmental shift theory. They conducted three studies in order to further explore the individual differences expressed in young children's use of conceptual strategies. Study one analysed individual differences in the cognitive strategies exhibited by 25 3-year-

olds. Children were shown a standard picture and asked to "find another one the same as this one" from a set of three other cards representing a taxonomic, a thematic, and an irrelevant match. This procedure was repeated with ten different sets of pictures. Results revealed a significant group bias toward a taxonomic strategy.

Study two was conducted in order to establish the stability of these individual differences. Fourteen children were given the same match-to-sample task as in the previous study. In addition, the children repeated this task two weeks later using a different set of matching tasks that reduced the perceptual similarity of the taxonomic matches (e.g., the taxonomic match for a police car standard was changed from an ordinary sedan to a classic Volkswagen "Beetle"). Results revealed that the children's tendency to make taxonomic choices significantly increased during the second session, while thematic choices did not differ across sessions. Furthermore, the data also suggest that individual differences in children's choices were relatively stable over time.

Their last study was conducted as a longitudinal analysis of a group of children between 13 and 36 months of age in order to describe some developmental antecedents of individual differences displayed by 3-year-olds. Thirty-six children were followed for a period of two years and tested on three separate occasions (13, 24, and 36 months). During the first visit, the child was videotaped with his/her mother in a play session. The measures used to assess this interaction were pointing behaviour and functional-relational play (ability to bring together and integrate two objects in an appropriate manner). The second visit encompassed the same interaction between mother and child. In addition to the measures used in session one, the child was also assessed for use of productive language (object-identity references; spatial-relational term; and referential- relational);

the mean length of utterance was calculated; and the mothers were also asked to complete the Communicative Development Inventory. Finally, during the 36 month visit the experimenter administered the match-to-sample task using the same ten samples as in previous experiments. Results revealed a general group bias toward taxonomic matching as was depicted in previous studies. Furthermore, there was a significant intercorrelation between the use of pointing at 13 months and the children's use of object-identity terms at 24 months, which demonstrates a link between gestures and subsequent semantic specialisation. In addition, these variables are also positively related to the use of taxonomic conceptual strategies at 3-years of age.

The authors concluded that 3-year-old children show relatively stable individual differences in their use of taxonomic and thematic strategies. They also suggest that these differences were linked with specific characteristics of the child's sensorimotor behaviour and early language production during development. Therefore, the child's use of functional-relational play at 1 year and the use of relational terms at 2 years depict antecedents of the subsequent use of thematic strategies. However, the use of pointing at 1 year, and the use of nouns and adjectives at 2 years are both antecedents of the subsequent use of taxonomic strategies at 3-years of age.

Syntax. The syntactic component of language is comprised of grammatical rules that direct the combination of meaningful segments into larger ones in order to create statements such as questions and commands (James, 1990). These rules are essential in order to properly understand and speak a given language. Children's syntactic development requires several major steps (Tomasello & Brooks, 1999). The first step begins with the use of one single utterance word phrases in order to communicate an

intention. These holophrases allow children to request or identify an object (e.g., ball); to request an event (e.g., more, again); to describe actions (e.g., eat, drink); or to mark a specific situation (e.g., hi, bye, thank you) to name but a few.

The second step begins with the emergence of word combinations. During this step, children learn to use multiple words to express their communicative intentions. Children use multiple words to partition an event into multiple constituents (e.g., more juice). Word combinations are also characterised by a common formula in which there is one constant element and one variable position. For example, a child may say "No more juice" or "No more milk", using "No more" plus a noun as a basic formula. This general pattern is referred to as "pivot grammar" (Tomasello & Brooks, 1999). Using this formula, children are able to use novel words with those already established in their vocabulary.

The third step is referred to as the verb island constructions because each verb is used as its own island of organisation in an otherwise disorganised language system (Tomasello & Brooks, 1999). Therefore, children who are very attentive to the conversations in their surroundings or those exposed to rich speech will be able to use a verb in multiple situations (e.g., Colour__", "Colour__on__", "Colour__ for__"). On the other hand, children who are not attentive or not exposed to rich discourse may not be able to use a verb in several different contexts. In addition, children during this phase use syntactic markings such as word order to indicate a participant's role in an event (e.g., "Daddy throw ball"). This sentence implies that the child knows who the thrower is as well as what will be thrown and consequently orders the words to express this knowledge.

The fourth and final step in syntactic development is adult-like constructions.

During this stage, children are capable of expressing their communicative intentions through the use of sentences that depict all syntactic rules present in adult language. Children in this stage acquire a deep understanding of sentences that goes beyond the simple word order rule needed for the third stage of syntactic development. Once this stage is reached, children are capable of comprehending language and are able to use it in order to successfully communicate with others.

Dromi (1999) discusses whether children acquire grammar with the primary help of syntactic or semantic cues. She presents both sides and then concludes with her own analysis of the situation. The first viewpoint is debated by Pinker (1984) who argues that children are able to make syntactic presumptions due to their semantic information. Therefore, children have to first understand the meaning of words before attempting to analyse them syntactically (e.g., a child cannot know that "dog" is a noun without first acquiring the meaning of that word). The second viewpoint put forth by Gleitman (1990) states that children utilise the constructional facts about verbs, nouns, and so forth as evidence of their semantic interpretations. Hirsh-Pasek, Gleitman, Gleitman, Golinkoff, and Naigles (1988, as cited in Dromi, 1999) conducted a study in order to determine if 27-month-old infants were capable of extracting meanings of verbs from syntactic cues. They showed the infants two competing videos: In one Big Bird and Cookie Monster rotated next to one another, while the other depicted Big Bird rotating Cookie Monster. As the infants were viewing the tapes, they were told two corresponding sentences including a novel verb: The first video was accompanied with "Big Bird is gorping with Cookie Monster", while the second video was associated with "Big Bird is gorping Cookie Monster." The authors measured the amount of looking behaviours displayed by

the subjects. Results revealed that subjects tended to look more at the video in which the puppets performed the same action when they heard the intransitive verb form. Similarly, the infants tended to look at the video depicting one puppet performing an action on another when they were presented with the transitive verb form. These results were replicated in several separate studies conducted by the same authors.

Most studies support the syntactic approach to the acquisition of children's word combinations and this theory is now known as the "syntactic bootstrapping hypothesis" (Dromi, 1999). However, several authors, such as Dromi (1999) and Bloom (1994) have proposed the argument that both syntax and semantics play a role in children's word combinations. They argue that syntax can provide a clue for the broad grammatical category of a word, but that it cannot create a complete understanding of all semantic representations that exist in any given language.

Pragmatics. Finally, pragmatics encompasses the rules that guide individuals on how to properly use language in order to communicate one's intentions, to interact in a conversation with others, and to use different speech styles in a variety of situations (James, 1990).

Conversations require that certain rules be followed in order to properly convey one's message (Pan & Snow, 1999). Children must learn turn-taking skills, how to express their intentions, to provide adequate information, and respond in a clear manner so as to build on the conversation rather than allowing it to deteriorate. A conversation implies that two individuals partake in alternate roles between listener and speaker. Mothers display this pattern of vocal and verbal turn-taking with their offspring as early as infancy (Pan & Snow, 1999). When the child is too young to know when to respond,

mothers maintain the conversation by answering their own questions and speaking for the child, while allowing for long pauses in order to permit the child to respond on his/her own (Martinez, 1987).

By 9-10 months of age, children have the ability to convey what is considered intentful communication (Pan & Snow, 1999). At this age, children are capable of expressing intent by drawing the adult's attention to an object of interest and vocalising. Furthermore, Snow, Pan, Imbens-Bailey, and Herman (1996) report that by the age of two children can express several different types of speech acts, such as: requests for actions (e.g., "catch"); refusals and agreements (e.g., "no" "yes"); why questions; and statements of intent (e.g., "I go there") to name but a few.

During the course of normal social interaction, parents and other adults use a variety of devices that may aid the child's language acquisition and subsequent conversational skills (Hetherington & Parke, 1993). Normal language develops as a result of an understanding of one another and of the message being conveyed between parent and child. Some parental strategies that have been associated with child language development are: nonverbal games; simplified speech; expansion of child's statements; and recasting a child's incomplete sentence into a grammatical form.

Children learn some of the structural components of language, such as turn-taking, through nonverbal games like peek-a-boo or patty cake. These games are regular, repetitive and predictable, which make them ideal for language acquisition. Young children, at first, are not capable of turn-taking, but parents help their children learn this skill by inserting pauses in the game in order to allow time for the child to show involvement through vocalising or by motor movements. This process of parents skilfully

structuring the social environment in order to help their child achieve more than they are capable of doing on their own is referred to as scaffolding (Hetherington & Parke, 1993).

An individual's speech style is another aspect of pragmatics, which depends upon one's listener as well as the communicative situation (James, 1990). For example, the way that parents speak to their children is different both in content and in form than when adults engage in a conversation with another adult. When parents address their children, their speech is characterised by fewer words per utterance (talk slower), better articulation, decreased structural complexity, higher pitched voices, they use more repetition and expansions of the child's statements, and they use many questions (Masataka, 1996). This type of speech is usually referred to as "motherese" or "child-directed" speech. Long before infants begin to produce words, or even to babble, they have the perceptual abilities to discriminate acoustic features of adult speech sounds (Masataka, 1996).

These features are assumed to serve three main functions, all of which relate to language development. First, the enhanced acoustic features of motherese maintain the infant's attention. A higher pitched voice will attract and maintain an infant's attention, hence allowing the adult to interact and, in turn, teach the infant important aspects of language. In contrast, infants get distressed and turn away from low-pitched voices. Second, a possible affective role of motherese has been reported. The earliest signs of comprehension of speech are mainly mediated by affect. Studies have indicated that infants are affectively more responsive and show more readiness for social engagement when listening to infant-directed speech than to adult-directed speech (Masataka, 1996). Finally, a motherese speech style facilitates infant speech by providing important

information concerning linguistic boundaries. It has been suggested that this speech style is uniquely suited to help children acquire language, and it was found to occur more frequently in the speech of caretakers of linguistically accelerated children (James, 1990).

Masataka (1996) conducted a study to examine whether a phenomenon similar to motherese would occur in signed languages. The videotaped results indicated that mothers used signs at a significantly slower tempo when interacting with their infants than when they were reciting the identical script to their adult friends. Mothers often repeated the same sign and exaggerated the movements associated with each sign when interacting with their infants. Results revealed that sign motherese is considered to be parallel to speech motherese in manipulating or varying the prosodic patterns of the signal because duration, scope, and repetition rate are all dimensions of prosody in sign, roughly analogous to duration, pitch, and repetition in speech. The results also suggest that sign motherese evoked more robust infant responsiveness than did adult-directed signing. The author concluded that human infants are equally predisposed to attend to a motherese type of language whether it be in speech or in sign, therefore it seems as though infants learn best through interaction with their environment, namely caretakers at that age, in order to develop language abilities.

Another technique that can aid a child's pragmatic acquisition is recasting or extending a child's incomplete sentence into a modified grammatical form, which parents often employ. For example, when a child says, "ball" the parent might respond "Here is your ball" or "Yes, that is your ball." Expansions are very common in caretaker's speech to children between 18 and 24 months of age. Expansions have also been found to occur more frequently in the speech of caretakers of linguistically accelerated children (James,

1990). This type of technique has also been associated with more complex grammatical speech, as well as the use of questions and complex verbs at an earlier age compared to children of parents who did not use recasting in their speech (Hetherington & Parke, 1993). This technique is very important because children need to learn that a single noun is insufficient when trying to communicate a thought. A child's utterance of the noun "ball" may have a specific intent for that child but it may mean something very different for the child's caretaker. Therefore, through the use of extensions, a child learns that he/she has to complete his/her thoughts in order to convey the message that he/she intended on communicating.

One last technique that can be used to enhance children's pragmatic and language development is a social interactive routine, such as book reading. Joint adult-child book reading is an activity that is appropriate for all ages and it has been associated with a positive outcomes for language (Hoff-Ginsberg, 1991). A leading reason that can explain why joint adult-child book reading is so rewarding and a positive outcome of language acquisition is due to the type of utterances the adult makes during this activity. Adults employ four types of utterances with young children: the first one is attentional vocative, which involves such comments as "Look"; the second type is query, which asks questions such as "What's that?"; the third type is labelling, which has statements such as "It's an apple"; the last utterance type that adults use is feedback, which involves comments such as "Yes, that's right." Through the use of pauses after each utterance, adults allow children to respond and interact by either vocalising, showing affect or making eye contact (Hoff- Ginsberg, 1991). Joint interactions between adult and child can be very beneficial for language development because they represent times when both participants

are attentive to one another's needs. This can also motivate children to form links between what the adult is saying and showing to them, which will facilitate their pragmatic as well as semantic development.

Although there has been ample evidence to indicate that adults contribute an enormous amount towards helping children learn language, there are also indications that some techniques may actually hinder a child's language acquisition. One such technique is a directive speech style, which consists of many commands, requests, directions and instruction. This style has been associated with a slower rate of language acquisition because it does not allow the child to take part in the conversation (Akhtar, Dunham, & Dunham, 1991). A child who interacts with a directive adult has to constantly determine the focus of the adult's speech and therefore has less time to devote to the acquisition of language.

Kloth, Janssen, Kraaimaat, and Brutten (1998) conducted a study to determine whether mothers displayed different communication styles while interacting with their 2- to 5-year old children. The dyads were videotaped during two 15-minute sessions: One session was relatively structured with toys such as a colouring game and puzzles; the second session was more of a free play format with toys like a farm house or a tea set. The mother-child communicative interaction was assessed on two levels- structural and functional categories. The structural category contained variables such as amount of speech, turn-taking, duration of pauses, and interruptions. The functional category assessed the communicative function of the mothers' speech with variables such as yes-no questions, simple and complex information requests, commands, warnings, labelling, criticisms, compliments, and information giving.

Three maternal communication styles were distinguished: non-intervening, explaining, and directing. The non-intervening style reflected a communicative pattern in which there was no direct pressure from the mother for the child to respond verbally. Mothers indirectly encouraged their child to take over the speaking turn by pausing rather than by requesting information. This style, according to the authors, allows the child the opportunity to prepare and formulate linguistic and motor plans. The explaining style is characterised by high level of talkativeness, high frequency of information giving, labelling, interruptions and short pause time. In this style, the mothers have little concern with the verbal participation of the child and the mother dominates the communication by being didactic. The directing mother mainly engaged in restricting the child's behaviour by means of verbal control. The authors reported that the directing style was significantly and negatively related to both receptive and expressive language levels. On the other hand, a positive correlation was observed between the explaining maternal style and the child's receptive language level. The authors stated that since the explaining style was characterised by mothers who were more talkative, that the amount of speech addressed to the child was a positive predictor of vocabulary development. In conclusion, the authors found that the non-intervening style was the best predictor of child language development, which is consistent with the motherese style mentioned previously.

These results were also supported by Hoff-Ginsberg (1991) who also looked at mother's speech style, but she was concerned with any social class differences that might be associated with a child's language acquisition. She reported that upper-middle class mothers' speech was more contingent on their child's speech and was less directive than lower class mothers. The author also reported that upper-middle class mothers produced

significantly more topic-continuing replies to their children's utterances during book reading than did lower class mothers.

As mentioned, much of a child's early language acquisition occurs in recurring routines that involve joint attention. These routines are usually well established and free the child from having to determine the parent's focus. This, in turn, allows the child to allocate more of his/her attention to language learning. On the other hand, children who have parents who use a directive style continually, have to devote more time to determining their parent's focus and hence have fewer resources to devote to language learning. Therefore, a directing style may only be harmful to a child's language acquisition when it does not involve joint attention. Furthermore, with proper environments and role models, children can become better conversationalists over the course of their language development. Throughout the different discourses, children acquire knowledge that enables them to take on a listener's perspective; the ability to express their own perspectives; the ability to take signal alternative stances; and master the different types of discourse (Pan & Snow, 1999).

In conclusion, children must acquire all four pertinent components of language in order to be able to fully engage in a conversation with another person. Children begin by learning the different sounds that exist in any given language, which is known as phonetics. Once the child is proficient in the different sounds, he/she must then learn to combine these sounds into words that will be used to communicate with others, this is known as the syntax. In addition to being able to create different words, children must also learn the meanings of each of these in order to properly use them in a conversation, this is known as semantic development. Finally, once a child has the ability to create

words and understand their meanings, he/she must learn how to properly use these skills in order to convey his/her intentions to others and to be able to sustain an ongoing conversation. This last component is referred to as pragmatics. However, these components are not always properly acquired or developed at the same rate, which can result in language impairments, such as those reflected in children diagnosed with autism.

What is Autism?

Autism is a complex neurodevelopmental disorder that encompasses three areas of impairments: (1) social, (2) communication, and (3) a restricted repertoire of activities and interests (Mesibov, Adams, & Klinger, 1997). The first impairment is further subdivided into four categories as delineated in the DSM-IV. The first one is an impaired use of nonverbal behaviour, which includes such behaviours as eye-to-eye gaze, facial expression, body posture, and gestures used in social interactions. The second category involves a lack of peer relationships, which is due to an inability to establish friendships or to a lack of interest in engaging in such relationships. The third category is a failure to spontaneously share enjoyment, interests, and achievements with others. The final category is a lack of reciprocity, which is depicted by either monopolising an interaction or leaving a social interaction prematurely. Children diagnosed with autism are either qualitatively impaired in all four categories or are completely lacking these abilities.

The second area of impairment can also be further subdivided into four categories again as per the DSM-IV. The first impairment is a lack or delay of language, which is defined by a failure to develop single words by the age of two and short phrases by the age of three. The second category is a difficulty initiating or sustaining conversations. The third category involves stereotyped, repetitive, or idiosyncratic uses of language. The

fourth and final category of this area is an impaired ability to engage in pretend play, which can be seen in a child's lack of make-believe play or social imitative play such as "doctor" or "house".

Finally, the third area of impairment can also be subdivided into four separate categories. The DSM-IV lists the first category as interests that are narrow in intensity or focus. The second category is routines and rituals, such as a precise order and only eating certain foods that have to be served in a particular manner. The third category encompasses stereotypic and repetitive motor mannerisms, such as rocking and head-banging. Finally, the fourth category is a persistent preoccupation with parts of objects, such as the wheels on a special truck that a child spins for most of his/her play. Autism is still diagnosed exclusively on behavioural criteria such as these, because a biological marker has not been identified to date (Tager-Flusberg, 1999).

Language Acquisition in Populations with Autism

The most universal symptom of an autistic disorder is language impairment. Therefore, children diagnosed with autism do not progress through the same developmental stages of language acquisition as evidenced in typically developing children. In fact, more than half of all children with autism remain mute, and those who do eventually learn to use speech continue to show signs of abnormalities (Sarason & Sarason, 1996). The primary discrepancy is depicted by the fact that children with autism rarely display gestures or communicative babbling and they have marked abnormalities in the production of speech (or vocalisations as the case may be), which is represented by their monotonous and mechanical tone, question-like melody, or high-pitched voice (Erickson, 1992).

Children, who do eventually develop some form of language, continue to have marked abnormalities in the form or content (Sarason & Sarason, 1996). These children usually reverse "I" and "you" and refer to themselves as "you" in conversation. Another common characteristic of their speech is echolalia, in which the child will simply echo or repeat what he/she hears. Therefore, their ability to initiate or sustain a conversation with others is substantially impaired, because their capabilities are limited to either repetition or to indulgence in monologues. Children with autism also show fewer nonverbal communication skills, such as eye-to-eye gaze, facial expression, smiling, body posture or any other means of initiating social interaction, which can also impede their language acquisition as they cannot properly interact in a social situation.

Children need to interact with others as well as their environment in order to develop and expand their speech-sound repertoire. Bruner states that it is this social interaction, which not only activates the children's genetic predispositions to learn language, but it also provides frameworks within which children can discover the ways language can be used (Gallaway & Richards, 1994). However, autistic children lack this ability to interact with others, hence making it difficult for them to acquire language. In addition, autistic children also experience difficulties acquiring several of the required language components.

Autism and the Four Components of Language

Phonology. Due to the fact that autism is never diagnosed in infancy, research on children's early verbal development has not been undertaken (Tager-Flusberg, 1999). However, some studies have been conducted on the development of phonology in populations with autism. Tager-Flusberg (1999), after reviewing the literature, has

reported that controlled studies of children with autism have not found any differences between their phonological development and that of their typically developing peers. Their skills are relatively unimpaired and the errors that they do make are very similar to those made by other children of similar ages. The only difference that was noted was by Simmons and Baltaxe (1975). They reported that the voice quality and intonation patterns of children with autism were atypical and that these problems seemed to persist throughout adulthood. Children with autism are therefore fully capable of developing the first component of language, phonology.

Semantics. Several researchers believe that children with autism do not have the ability to form concepts and extend word meanings (Tager-Flusberg, 1999). This notion is primarily based on the fact that children with autism are prone to using idiosyncratic words and repeating phrases (i.e., echolalia), which would assume that they are not capable of understanding the meaning of words. Mesibov et al. (1997) have argued that the language comprehension of children with autism is concrete and literal, because of their inability to understand the semantic content of language. However, Tager-Flusberg (1985b, 1999) reports that experimental studies of children with autism have found no support for this hypothesis. She has further reported that children with autism performed equally as well as a matched control group in such tasks as organisation and representation of basic level and superordinate level concepts. Results also revealed that children with autism had no difficulty extending words to a range of different exemplars, and their extensions were based on a prototype organisation of their semantic concepts (Tager-Flusberg, as cited in Tager-Flusberg, 1999). She further reports that standardised measures such as the Peabody Picture Vocabulary Test-Revised (PPVT-R) suggests that

the receptive vocabulary development of children with autism may be an area of relative strength.

Despite these findings, Volden and Lord (1991) have found that children with autism, who acquire functional language, often misuse words and phrases, which result in their common use of idiosyncratic terms. However, it has also been suggested that these abnormal uses of words may be functionally similar to the same kinds of word meaning errors made by typically developing children early in their language acquisition (Rutter, 1987). In conclusion, there seems to be mixed views concerning the semantic development of children with autism. However, reports using experimental strategies to determine the ability of children with autism to develop the semantic component of language provide strong evidence that these children are capable of developing a proper understanding of words and their meanings.

Syntax. Studies on complex syntactic construction have not been addressed in populations with autism, which results in limited knowledge concerning this topic. However, there have been some studies addressing the basic syntactic construction used in this population. A longitudinal study conducted by Tager-Flusberg, Calkins, Nolin, Baumberger, Anderson, and Chadwick-Dias (1990) reported that children with autism followed the same grammatical path as children with Down's syndrome and typically developing children. Despite the fact that they have a tendency to follow the same path, children with autism tend to acquire grammatical structures at a slower rate as determined by their mean length utterances (MLU), which is considered to be the hallmark measure of grammatical development. Furthermore, Scarborough, Rescorla, Tager- Flusberg, Fowler, and Sudhalter (1991) reported that children with autism had a tendency to make

use of a narrower range of constructions and to ask fewer questions, which results in simple uses of syntax as opposed to the more complex rules employed by similarly aged typical children. Furthermore, children with autism also relied on more imitation, repetition and formulaic routines, which also results in an increased use of simple rather than complex rules of language. Prizant (1983) has argued that these strategies are a crucial process in language and grammatical development for populations with autism. Tager-Flusberg and Calkins (1990) have tried to replicate Prizant's arguments, but to no avail. They reported that the spontaneous utterances of children with autism were significantly longer and included more advanced grammatical constructions than simple imitation. Therefore, the majority of the studies have revealed that grammatical development in children with autism is not specifically impaired, but still does not reach the level of that achieved by typically developing children.

Pragmatics. Language impairments in autism are most pronounced in the pragmatic development of language (Mesibov et al., 1997). Several aspects of their conversational abilities are atypical, such as the use of irrelevant detail, lack of eye contact, and their inability to remain on-topic. Furthermore, Klin (1991) reported that toddlers with autism did not show a preference for their mother's speech as typical children do. Therefore, children with autism have several social deficits that impinge upon their ability to develop adequate interaction skills. These deficits manifest themselves in several well-documented studies examining joint attention in children diagnosed with autism.

McArthur and Adamson (1996) determined both how adults acted to elicit episodes of joint attention and how children with atypical communication development

responded to the invitations of their adult partners. Fifteen children diagnosed with autism and 15 diagnosed with developmental language disorder participated in the study. All children were videotaped in a play session that lasted approximately 15 minutes, which was divided into two segments. During the first five minutes, children played alone with toys of their choice; during the last ten minutes, children interacted with an unfamiliar adult who followed a standardised protocol that resulted in a number of object-focused activities that aimed to elicit language, play, and prosocial behaviour. An event-based coding scheme was used to measure the amount of joint attention during each dyadic interaction.

Results revealed that there were no differences in the overall rate of adult marking of objects as a function of the child's diagnosis. However, adults did use a different mix of marking strategies when calling attention to objects for children with autism as compared to children with developmental language disorder. Children with autism differed from the children with developmental language disorders in the proportion of object-sharing invitations that they accepted from adults. The authors concluded that children with autism rarely attended to their partners. In response to this, partners appeared to act in synergy with their avoidance of social interaction by using animation and more literal acts of reference rather than conventional means. Joint-attention studies point out the earliest manifestations of specific deficits in the conversational abilities of children with autism.

Mundy, Sigman, Ungerer, and Sherman (1987) examined whether young children with autism who exhibited elementary language skills would also exhibit gestural referential skills. They also wanted to determine whether the number of functional and

symbolic play acts exhibited by children with autism were correlated with the level of their expressive as well as receptive primary language skills. Sixteen children with autism ranging in age from 38 to 75 months participated in the study. Each child was assessed using several scales. The Merrill-Palmer scales were used to provide an estimate of general cognitive development, which attempts to minimise the influence of language ability. Language skills (expressive and receptive) were assessed with the Reynell Developmental Language Scales. Play was assessed with the procedures developed by Ungerer and colleagues, which records the child's spontaneous use of the objects into two categories (functional and symbolic). Finally, nonverbal communication skill was assessed using a form of the Early Social Communication Scales and grouped according to three categories of behaviour (social interaction, joint attention, and behaviour regulation).

Results revealed that the total number of symbolic play acts was significantly correlated with the Reynell expressive language age scores as well as with the receptive language age scores. However, the total number of different functional play acts was only significantly correlated with receptive language ability. Children with autism who had higher developmental level scores on the joint attention measure exhibited more advanced language skills than those with lower scores. Children who were more likely to follow pointing by an adult also tended to show more symbolic play in a structured setting. The authors concluded that play and gestural referential communication measures reflected independent sources of variance of psychological factors that bear a significant relationship to language abilities in young children with autism. These results also add to the notion that joint-attention is an important factor for language development, especially

for populations who experience difficulties with the social rules of conversation.

Loveland, McEvoy, Tunali, and Kelley (1990) investigated narrative skills expressed by higher functioning children with autism. They asked the children to retell a story, that they were shown, in the form of a puppet show or video sketch. Compared to the control group, children with autism were more likely to exhibit pragmatic violations, which included inappropriate utterances. Furthermore, they were less able to take into consideration the listener's needs, which resulted in a low-functioning ability to engage in a conversation. The authors concluded that the discourse problems exhibited by children with autism reflected their deficits in theory of mind. These results were further replicated by Tager-Flusberg (1995). In addition, she also reported that children with autism did not include any causal explanations for the events in the stories, which suggested that they experience impairments within a causal-explanatory framework.

Language impairments are among the core features of autism (Tager-Flusberg, 1999). There are enormous variations in this domain, which range from no functional language abilities to high functional abilities that allow individuals with autism to communicate with others. However, despite this range, children with autism will most likely display certain deficits, such as those reflected in their pragmatic development of language.

How Language is Related to Social Development and Academic Success

Language use and comprehension are fundamental to social and academic success (Bashir & Scavuzzo, 1992). Much of the research has focused on the differences between children who are developing normal communication skills and children who have language disorders. Bashir and Scavuzzo (1992) addressed issues related to the

continuous academic vulnerability of children with language disorders during the school years. The majority of these children experienced problems in both the acquisition and development of speech and language. The authors suggested that the academic vulnerability of these children resulted from the lifelong need to acquire language, to learn with language, and to apply that acquired knowledge to learning tasks, such as reading and writing. The design of educational curricula assumes that the children have a basic knowledge of language. This knowledge, as well as the ability to apply that knowledge, is thus, fundamental to learning in school. The authors conclude that the differences between the language the child has acquired and that is required for learning in school often result in inefficient and ineffective learning by children with language disorders. Therefore, this is a major reason why children with language disorders are academically vulnerable. The ability to communicate is an extremely important factor for academic success because it is an essential aspect of every subject. One has to be able to understand and communicate about the material learned in the class. Some of Bashir and Scavuzzo's (1992) results suggested that children with language disabilities showed some improvement in learning, but the curve was not equivalent to those children without language impairments.

Bashir and Scavuzzo (1992) also suggested three essential functions that language served during the school years. First, the propositional aspects are concerned with the ways in which language is used to represent and analyse knowledge and information. Therefore, learning a given subject in school involves learning that subject's specific language. Therefore, learning will depend on the student's ability to process the text and lectures, a task that is not easy for children with language knowledge, and hence, even

harder for those without a proper understanding of language. Second, language facilitates social interactions during and beyond the school years. Language abilities enable children to establish themselves within different social communities through speaking about events, as well as being able to participate in various social interactions. Finally, language allows children to express themselves by speaking about their beliefs, feelings and values. Through the acquisition of language, children develop a sense of personal identity (Bashir & Scavuzzo, 1992).

Children with language impairments are at increased risk not only for academic failure, but also for future deficits in learning tasks that are language-based (Bashir & Scavuzzo, 1992). Tasks such as reading are highly dependent on language knowledge, as well as the ability to apply that knowledge. Without these skills children not only are disadvantaged due to lack of language abilities, but also because they are at risk of not being able to read or having limited literacy abilities. Therefore, teachers responsible for these students should have an understanding of their deficiencies and should be trained to implement specific strategies to assist these children in their learning processes. Teachers should receive training in order to help these children respond verbally within the classroom. Proper teacher training may not only help these children acquire language knowledge, but in turn may also help them grasp the course material. Learning to communicate not only will help these children in their academic endeavours, but it will also increase their social abilities.

Rescorla, Roberts, and Dahlsgaard (1997) examined what occurred to late-talking children as they got older. They followed a sample of 34 toddlers manifesting specific expressive language (SLI-E) delay at 24 to 31 months. All subjects were seen for follow-

up at age three in the company of their mothers. They administered several tests that included a nonverbal intelligence measure; a test of auditory comprehension of language; a receptive language measure; and the Expressive One-Word Picture Vocabulary test. In addition, each child played with his/her mother for approximately 30 minutes using a Fisher Price village. The results showed that at 3-years of age, children in the SLI-E group scored at the same level as comparison children in nonverbal ability. Scores on the Expressive One-Word Picture Vocabulary test revealed that SLI-E children scored significantly below the level of the comparison children. The most dramatic differences between SLI-E and comparison children were in syntax. The general pattern of findings using group means at outcome was that late-talkers were significantly different from the comparison children on all expressive language measures. The authors concluded that late-talkers, who were identified primarily for delays in lexical development at 24 to 31 months, were most conspicuously delayed in syntactic complexity and morphological maturity by 36 months of age.

This study reveals that identifying a language delay early is extremely important because the impairment is likely to continue and may even worsen. Therefore, parents should be aware that a 24-month-old child with few or no expressive abilities may be at risk for continuing language delay and should consider early intervention programs in order to stimulate the child's language acquisition (Rescorla et al., 1997). The intervention may not correct the problem completely, but it may improve the child's language acquisition, which in turn would assist him/her in academic work and social interactions. Early diagnosis means early intervention in order to improve upon the language skills and, hence, academic and social skills as well.

Language abilities are extremely important aspects of social interaction. In order for a child to interact with another, a form of speech is required in order for the dyad to understand one another's intent. Children with impaired speech and/or language skills are at risk for social difficulties due to a lack of speech skills, which places these children at a disadvantage in their relationships with peers (Brinton, Fujiki, Spencer, & Robinson, 1997). Socially adept children tend to use language more skilfully in social interaction than less socially adept children. Even if children with language impairments were to enter into a social situation, it may not guarantee inclusion or integration within that group. This is so because even though the child has enough language ability to allow him/her to gain access, it does not necessarily mean that the child will have sufficient language abilities to maintain the interaction.

Brinton et al. (1997) examined attempts to access ongoing interactions by 8- to 12-year-old children with specific language impairments (SLI), their typically developing language age-similar (LS) peers, and their typically developing chronological age-matched (CA) peers. All 18 participants were informed that they would be talking to two other children for about 20 minutes. Triads were composed of three children who attended different classes of the same grade level at the same school. Two children were introduced and left to play with various toys placed on a table. Approximately 10 minutes after the two children were introduced; a second investigator brought the target child in and introduced him/her. Each target child was required to attempt to access an ongoing dyadic interaction. Access occurred when the subject took a verbal or nonverbal turn in the play that was accepted by one or both of the partners. All children in the LS and CA groups successfully accessed the interaction, and most did so quickly. Two children from

the SLI group did not access, and the four remaining subjects required varying amounts of time to access. Following successful access, the triadic interactions of participants were examined. Results revealed that the accessing children with SLI talked significantly less, were addressed significantly less, and collaborated less than either of the partners within their triad. LS and CA groups were not significantly different from one another. Because this study was an extension of a previous study with younger children, the authors were able to compare the results from both studies. They concluded that the potential for failure in important social contexts is considerable, and the ramifications for failure for social growth and friendship formation are of concern. In addition, it would appear that the access difficulties of children with SLI do not resolve with increasing age. Finally, the authors suggested that poor language comprehension could have influenced how well the target child understood the ongoing verbal interaction between the partners, and thus, how adeptly they made relevant contributions to that interaction.

The results from this study confirm the fact that children with language impairments have a difficult time interacting with their peers. It is hard to determine what factors influence this difficulty because there can be many interacting at the same time. One obvious factor is that poor language comprehension and poor expressive skills might hinder verbal interactions and participation within a group of peers, as discussed by Brinton et al. (1997). Another factor could be that their social skills were influenced by past rejections and failures when they attempted to interact with peers (Craig, 1993). This past history might make them more cautious and reticent to approach unfamiliar peers who are already interacting with one another. One last factor that could be considered is that the child might have another underlying problem that is not associated with the delay

of language. Consideration of all of these aspects can have beneficial effects for intervention programs for children with specific language impairments.

Gertner, Rice, and Hadley (1994) explored the relationship between children's ability to use language skilfully and their acceptance among peers. Complex social interaction skills are learned best in stable dyads and social skills develop within a friendship relationship. Therefore, being able to secure and maintain mutual friendships early in life is important and beneficial for later interactions. In order to secure a friendship, a child must first be accepted by a peer. Because children are highly dependent on their communication abilities to make friends, children who exhibit language impairments are at risk for failure in their social interactions with peers (Gertner et al., 1994). In addition, children who are less able to engage peers in conversational interactions are not as well equipped with the crucial skills necessary to transform social relationships into friendships. In this study, the authors examined the relationship between linguistic competence and social status for three groups of children: (1) children who were developing language normally (ND); (2) children with speech and/or language impairments (SLI); (3) and those learning English as a second language (ESL). Two sociometric tasks were used to measure peer popularity: positive nominations and negative nominations. Results indicated that children in the ND group received more positive nominations than the children in either the ESL or the SLI groups. The children's positive and negative nominations were combined to classify them as liked, disliked, low impact (children not conspicuously liked, but not obviously disliked), or mixed (children controversial in nature-may receive high number of both positive and negative nominations). The ND children predominated in the liked cell, whereas the other two

groups of children fell into the disliked or low impact cells. In addition, receptive measures of language were found to be the best predictors of peer popularity. These results suggest that limited language ability is associated with lower levels of social acceptance among peers. The children with language limitations were the least likely to be identified as preferred peer playmates, especially when involved in verbally demanding activities. The authors concluded that children with speech/language impairments were more likely to lack reciprocal friendships than children with typically developing language abilities.

The results from this study depict the relationship between the necessity of language ability and reciprocated friendships. Peer acceptance is heavily reliant on verbal abilities. Therefore, children with language limitations are at risk for the negative consequences of unpopularity. One possible reason for this could be that children with speech and/or language impairments may be unable to address other children by their proper name, which could have implications for being liked by one's peers. In fact, results from the present study revealed that many SLI and ESL children were unfamiliar with the names of their classmates (Gertner et al., 1994). SLI children especially experienced difficulties when it came to pronouncing or remembering the names of the children in the ESL group because of the unfamiliarity of their names. This fact suggests that children who can use proper names have a better opportunity to establish joint attention with their peers than children who have limited abilities and address their peers with "Hey you" type utterances. If children are not liked by their peers or cannot establish a joint attention with them, it becomes even more difficult for children with speech/ language problems to make and maintain friendships. The fact that these children usually

do not have a circle of friends with whom they can have verbal exchanges creates an even larger problem concerning their language abilities. Because they do not have social partners with whom they can converse, practice verbal skills, and listen to makes it even more difficult for their language skills to develop and expand. Early treatment or intervention may help these children become more adept at communication and at addressing peers. In turn, it may also improve their ability to establish and maintain meaningful friendships, which will also help them with their social skills. This may or may not be achieved through the use of early integration of such children with their typically developing peers, who can act as models and help improve their language abilities.

Inclusion

Inclusion can be defined as the provision of appropriate, high quality education for children with special needs in regular schools (Pijl, Meijer, & Hegarty, 1997). Whether these children are provided with appropriate and high quality education in regular schools is dependent upon the teachers' willingness to take on this task, as well as their ability to carry it out. Although government policies acknowledge the need for inclusion of special needs children into the regular school system, teachers are rarely provided with the necessary training to properly teach these children (Hunt & Goetz, 1997). In order to include children with special needs in regular classrooms, it is necessary to change the regular curriculum, to train teachers, and to make funds available for necessary materials. The curriculum should be modified to include all children, but does not have to imply that all children learn in the same way or progress at the same pace. This type of curriculum would not only benefit children with special needs, but also

typically developing children because each child would have the opportunity to progress at his or her own speed. Due to the various factors surrounding inclusion, several researchers have questioned its efficacy for children with special needs.

Several researchers have reported positive effects of inclusion for children with special needs. Students with severe disabilities who are placed in general education classrooms show several improvements in their abilities. Wang and Baker (1986) reported that children with special needs enrolled in inclusive classrooms consistently outperformed their peers who were enrolled in segregated settings. Hunt and Goetz (1997) reported that children with severe disabilities who were educated in inclusive classrooms had better social development, demonstrated more social interaction, enhanced skill acquisition and generalisation, better health, and greater success in meeting the objectives of their Individualised Education Plan (IEP). They also reported that these children were more independent and showed more adult-type functioning than children who were educated in a special education school. One concern that special education teachers have is that children who are a part of inclusion do not learn the necessary skills needed to become self- sufficient. This should no longer be of concern because children who are included in regular classrooms still learn life skills that will enable them to survive in society. In fact, they may even have advantages over children in special education classrooms due to the additional skills and strengths that are fostered in regular classrooms.

Hunt and Goetz (1997) also examined the effects of inclusion for children diagnosed with mild disabilities. They revealed that these children had higher academic achievement and a greater socioemotional growth when compared to children in special

education schools. Similarly, Carlberg and Kavale (1980) demonstrated that children with below average IQ's or diagnosed with mild mental retardation showed higher academic achievement in general education classrooms than in special education classrooms. They also concluded that of the 50 studies that they reviewed, special class placement was inferior to regular class placement regardless of the type of outcome that was measured.

Odom and Diamond (1998) reported that peer interaction for children with disabilities occurred more frequently in inclusive settings than in non-inclusive settings containing only children with disabilities. Guralnick, Connor, Hammond, Gottman, and Kinnish (1996a) also found that all children were more interactive when in an inclusive setting than when they were in segregated settings including only children with disabilities. Therefore, past research has revealed that inclusive settings can provide an environment capable of enhancing the social and academic development of children with special needs.

However, there are some exceptions to the norm as is usual in most every situation. Fewell and Oelwein (1990) reported significant differences between inclusion and segregated children, with communication gains favouring the children in sites with no integration. However, the results of this study may be due to the authors' definition of inclusion. The three groups of children tested were all recruited from similar outreach sites with the same program. The three groups consisted of those who spent no time per week in inclusive lessons, those who spent 1 to 300 minutes per week and those who spent 301 or more minutes per week in such lessons. Therefore, the children all officially attended a special education setting, but two of the groups had the opportunity to spend some of their time in inclusive-type lessons. The integrated settings are usually within a

regular school serving both children with special needs and their typically developing peers. Therefore, this study does not appear to be considering the usual type of comparison between inclusive and segregated settings, which may explain the lack of a positive outcome regarding the inclusive setting as depicted in the above studies.

Ottensbacher and Cooper (1984) conducted a meta-analysis of several studies and concluded that children with special needs displayed better social adjustment when enrolled in special classes than when they were integrated with their typically developing peers. However, the studies reviewed by these authors did not include children diagnosed with autism. Carlberg and Kavale (1980) and Marston (1996) both reported that children with learning disabilities, emotional disturbances or behavioural disorders made more academic progress and read significantly better in special education programs than in general education classrooms. These findings were supported by Vaughn and Klingner (1998) who examined students' perceptions of inclusion across eight studies. Children with learning disabilities preferred to receive specialised instruction outside of the general education classroom for part of the school day. They reported that in the resource room they learned more, received extra help, had fun activities, easier work, and it provided a quiet place where they could better concentrate on their work.

Many students with learning disabilities acknowledge that they require extra help from a special education teacher. If this is better accomplished within a resource room then schools should provide for such accommodations in order to allow these students to become successful learners. A quiet environment, away from the commotion that exists in large classrooms, can have beneficial effects for those students who required more concentration in order to complete a task. However, interpreting the students' reasons for

enjoying the resource room because the activities are fun and less difficult may have a positive as well as a negative side. Students with learning disabilities may enjoy the resource room because they have tasks that are commensurate with their abilities, which enhance their learning capabilities as well as their confidence. On the other hand, it could also mean that the work is not challenging enough and that the students are not working to their full potential. If the latter is the case, then these students should not be taken out of regular classrooms to go to resource rooms, because it may not be the most effective educational method for them to develop their highest capabilities.

Madden and Slavin's (1983) research seems to favour placement in inclusive classrooms, but with the use of individualised instruction or supplemented by well-designed resource programs. They state that such placements improve the children's achievement, self-esteem, behaviour and emotional adjustment. Placement should be based on the individual characteristics and needs of the students rather than on the disability category because what may be beneficial for one may be detrimental for another. Therefore, due to these inconsistent findings, additional research is needed in order to determine which type of placement has greater benefits for children with special needs. In general, most studies appear to support inclusion and its benefits for children with special needs. Inclusive settings seem to favour the children's social development, their academic performance and their general health, which are all important variables when considering the best educational placement for a child diagnosed with special needs (Hunt & Goetz, 1997). The benefits have to outweigh the costs when reviewing the information concerning inclusion, which seems to be the case in previous literature. However, further research is still required in order to provide additional support for

inclusion as well as to determine the effects and benefits of each setting on children's language development, which has been neglected in previous literature on children with special needs.

Inclusion and its Effects on Typically Developing Children

Inclusion not only has beneficial effects on children with special needs, it also facilitates nondisabled children's development. Typically developing children can benefit from an education in an inclusion classroom because they can act as tutors, which not only reinforces their own knowledge about the subjects, but also promotes self-esteem and a sense of competence. Manset and Semmel (1997) stated that every study that chose to look at normally achieving children found relatively greater improvement on measures of basic skills. They concluded that the efforts to transform the school into an effective environment for children with disabilities may also have had a positive impact on normally achieving children.

Odom and Diamond (1998) also looked at the influence of inclusion on typically developing children. They reported that typically developing children were consistently persistent in trying to elicit responses from their classmates with special needs. Despite these positive findings, the authors also reported that typically developing children showed a tendency to prefer interacting with other typically developing children rather than their peers with special needs. Furthermore, they also found that social rejection by peers appeared to be more common for the children with special needs than the typically developing ones. Therefore, although an inclusive school can become an open and accepting community that welcomes diversity and recognises the important contributions that both special needs and typically developing children can offer, additional research is

required in order to determine whether the benefits outweigh the costs that seem to be apparent for some populations with special needs.

Parental Attitudes Towards Inclusion

Parents of children who attend inclusive settings have expressed glowing reports concerning their children's progression. An ABC program entitled Sean's story: A lesson in life (Vieira, 1994), which is a story of a young child diagnosed with Down's syndrome whose parents fight the educational system in order to allow Sean to be enrolled in an integrated school, displays one such glowing report. Sean's mother reported that after only one year of integration he was writing on his own, he was able to stay focused in group activities, he had made several friends, and he showed overall small improvements in his academic work. Similarly, Ayres (1988) who is Andy's (diagnosed with Down's syndrome) mother wrote that her son took his worksheets seriously and worked diligently among his classmates in a regular classroom. She also stated that before integration, *"Many of the children who live near us did not know how to play with Andy...they stared, teased him, or ran away from him...now, children have spontaneously come to our house to ask Andy to ride bikes with them or play catch"* (p. 25). Inclusion, for these two children, as well as many others, has not only improved their academic achievements, but their social interaction skills as well.

Odom and Diamond (1998) reviewed the literature concerning family perspectives. They reported three general findings across studies: (1) that family members report positive feelings about inclusive settings; (2) that the families have identified some benefits for their children; and (3) that some families share some fears and concerns about inclusive placements, but that mostly they are unfounded. They also reported that parents

believed that their children in inclusive settings tended to be accepted by their peers and that the program prepared their children for the real world. Therefore, parents tend to favour inclusive settings over segregated ones for their children with special needs.

Teacher Attitudes Towards Inclusion

The integration of children with special needs has become an important focus of current educational improvement. There are several factors affecting the successful integration of children with special needs in regular education classrooms. Teacher attitudes and perceptions play important roles in this process. For example, the attitudes of teachers toward integration may help or hinder their interactions with an integrated child and, hence, influence the quality of this student's educational experience. Teachers act as role models in their classrooms, which means that their attitudes and perceptions towards integration can easily be transmitted to their students. Consequently, a teacher with a negative attitude towards an integrated child in his or her classroom will induce, to a greater or lesser extent, similar behaviours in the other students (Goupil & Brunet, 1984).

The literature on teachers' attitudes and perceptions toward integration is varied. Bueli, Hallam, Gamel-McCormick, and Scheer (1999) found that there was a strong positive relationship that existed between an understanding of integration and a teacher's belief that he/she can have an impact on a student. Furthermore, general education teachers expressed the need for more training than did the special education teachers. Therefore, additional training was thought to be necessary to assist the teachers in tasks such as assessing the academic progress of the children, adapting a proper curriculum to meet their needs and managing the students' behaviours. The special education teachers

reported that they felt more confident than the general education teachers in all aspects related to the integrated classroom. Finally, the general education teachers felt that they were lacking several necessary components required to properly integrate students with special needs. They stated that they did not receive adequate support and resources, that they did not have satisfactory class sizes, that they did not have in-service training, and that they did not have enough time to meet with the students' families. The special education teachers reported similar feelings. However, they stated that they felt they had adequate time to spend with the families of the students. Therefore, it seems as though teachers feel that integration is feasible as long as the appropriate support and funds are provided.

Heflin and Bullock (1999) found that the teachers surveyed in their study reported an overall improvement in behaviour for the majority of the students with special needs in general education classes. The teachers in this study were also willing to integrate children provided that they were given appropriate support. The authors also stated that the age of the teachers appeared to influence their willingness to integrate, with the older teachers showing more resistance.

Finally, all teachers reported that they did not believe that full integration would benefit the needs of all students with special needs because they would lack specialised instruction and would infringe on the needs of the typically developing students. Goupil and Brunet (1984) also found that teachers believed that special classes were seen as advantageous because they facilitated the teachers' work and the learning of the typically developing students. However, Lieber, Capell, Sandall, Wolfberg, Horn, and Beckman (1998) found that teachers believed that integration meant that the children with special

needs should be members of the classroom and that they would benefit from having typically developing peers to model more sophisticated behaviours. They also reported that the teachers felt that integration provided typically developing children with the opportunity to learn about and accept differences, that they would learn empathy, tolerance and compassion for others.

Stoiber, Gettinger and Goetz (1998) reported that teachers with 15 or more years of experience expressed more positive feelings towards integration than their counterparts with only 1 to 4 years of experience. This finding contradicts the result reported in Heflin and Bullock's (1999) study. The authors also reported that general education teachers felt least prepared for the integration of children with neurological disorders, visual/hearing impairments, and autism. However, special education teachers reported feeling a greater sense of proficiency in serving children with ADHD, autism, challenging behaviours, emotional disturbances, hearing impairments and mild cognitive disabilities. Finally, teachers with the proper educational background and experience reported more positive beliefs concerning the integration of children with special needs into the general education system than those with a lack of experience and specialised training.

Autism and Class Placement

Research with populations diagnosed with autism has been very limited as the recent focus has been mainly with other children with special needs, such as those diagnosed with Down's syndrome or those experiencing learning disabilities. However, there have been a few studies that have focused on the development of children with autism and the best placement for their progress. Kamps, Walker, Maher, and Rotholz (1992) investigated the performance of students with autism and other developmental

disabilities in one-to-one instruction as compared to those moved to small group arrangements. They concluded that a group format was a feasible instructional method for such populations. However, despite these positive results the authors did not specifically look at the difference between segregated versus integrated settings. Furthermore, they failed to mention whether the small group formats included only children with special needs or if typically developing children were also included.

Strain (1983, 1984) observed generalisation in segregated or integrated settings of social behaviours that have been taught during training sessions between children with autism and their typically developing peers. The authors reported that learned social interaction skills generalised better in integrated, rather than segregated settings. However, the authors failed to mention whether the children with autism increased their initiation of social interactions, whether they responded in a verbal manner to bids directed towards them, or if they simply shared toys in response to bids (Mesibov & Shea, 1996).

Sigafoos, Roberts, Kerr, Couzens, and Baglioni (1994) believe that communication intervention is an important component of an educational program meant for children with developmental disabilities. With this in mind, the teachers were observed in order to record the number and types of opportunities for communication that they provided for the children. Four types of opportunities were recorded: (1) requesting; (2) naming or commenting; (3) communicating an answer; and (4) imitation or echoic behaviour. Results revealed that less than 14 percent of the more than 6000 observations contained an opportunity for communication. Furthermore, most opportunities involved naming, which was followed by requesting, answering and finally imitating opportunities.

The authors concluded that there was a strong positive correlation between a child's existing communication skills and the number of opportunities that he/she received in the classroom. This study, as the previous one, looked at only one type of setting (special education classrooms) and neglected the fact that children with autism could also be part of the integration movement. Despite this fact, their methodology provided insightful information concerning the communication opportunities provided to children with autism and, hence, will be used as part of the present study's methodology.

Finally, Harris, Handleman, Kristoff, Bass, and Gordon (1990) explored the difference between the language development of children with autism who attended an integrated classroom as compared to those attending a segregated classroom. The authors reported no significant differences in the changes in language abilities between both groups of children. These non-significant results may be attributed to certain methodological flaws in this study, which the present study will attempt to correct. First of all, both classes were chosen from new preschool classes for children with autism at the Douglass Developmental Disabilities Centre. The curriculum for both classes was based upon the same set of educational goals and objectives and were both language-focused. Despite the convenience of this arrangement, this formation would not be the case for integrated and segregated classrooms outside of this centre. The second aspect of this study that the present research will endeavour to correct is its omission of qualitative observations. The authors based their conclusions on the results from one standardised test (PSL), which may not have been the appropriate measure and may not have provided accurate measures of the language abilities for this population. The present study will attempt to correct this factor by including observational methods in addition to the results

obtained from the standardised Peabody Picture Vocabulary Test- Third Edition.

Rationale for Present Study

Very few empirical studies have directly addressed the educational needs of children with autism (Mesibov & Shea, 1996). Furthermore, as seen above, even fewer studies have addressed the language acquisition process for children with autism and the best placement to optimise this process. With this in mind, the main goal of this research project is to explore the extent to which the language development of young children with autism might be differentially influenced by being in a segregated versus an integrated setting. This will be achieved through the use of both quantitative (Peabody Picture Vocabulary Test- Third Edition) and qualitative methodologies. Two observational methods will be used: Specimen descriptions will be recorded in order to obtain baseline reports of each participant's language abilities; the second method is time/event sampling, which will be used to observe and record the number and types of opportunities for communication that are provided to the participants in their respective settings. Due to the exploratory nature of this study, hypotheses were not formulated. However, the following research questions will be addressed during the course of this study:

1. Which setting (integrated or segregated), if any, is capable of optimising the language development of young children with autism?

2. In which setting (integrated or segregated), if any, are young children with autism provided with more occasions and different types of opportunities for communication?

3. Does teacher training and experience relate to attitudes and beliefs about integration and class placement and do they relate to the language opportunities provided to the children with autism in their classrooms?

According to previous research, it is expected that teachers with adequate training and many years of experience will express more positive attitudes toward children with special needs and integration in general. Furthermore, it is expected that teachers expressing more positive attitudes toward children with special needs will also provide more communicative opportunities for them. Based on previous studies and the research on integration, the results are expected to favour the integrated setting over the segregated one for the first two research questions. It is expected that the children with autism enrolled in the integrated setting will be exposed to more opportunities to listen to and to express themselves, thereby using their language skills. This rationale is based on Odom and Diamond's (1998) study that reported that typically developing children were persistent in trying to elicit responses from their classmates with special needs.

Based on the language acquisition theories mentioned in the above literature review, the present study will adopt an interactional perspective. Hence, both the role of the environment, such as adult and peer interactions, and of biological predispositions are considered to be important features when discussing the language abilities displayed by the children diagnosed with autism. Therefore, it is anticipated that the children with autism in the integrated setting will be exposed to more language role models and will be able to practice their language abilities with more individuals than the children enrolled in the segregated setting. The anticipated number of positive interactions within the integrated setting is expected to facilitate the participants' biological predisposition to language development. The children in the integrated setting are expected to have a greater number of social interactions and language role models when compared to their peers in the segregated setting. In addition to the adults in the setting, the integrated

children have the benefit of being in an environment that include their typically developing peers who are expected to have higher language abilities. These additional peer social interactions are expected to provide the integrated children with more opportunities to listen to and practice their own language, which will provide extra stimulation to their biological predisposition to language acquisition. The children in the segregated setting are enrolled with peers who are expected to have similar (although some may display more advanced or reduced) language abilities as they do. This factor may not allow for many communicative opportunities or occasions to learn from and interact with their peers who are more advanced language users, such as those provided to the children enrolled in an integrated setting with their typically developing peers.

As can be seen in the above studies, educating a population with autism can raise many interesting questions concerning the most appropriate placement for their optimal development, and the value of full inclusion for this specific population. The results of this study are expected to further our knowledge on the effects and possible advantages of integrating children with autism as it is related to their language development. Furthermore, the results may also be helpful for the parents' decisions concerning their child's educational placement. This decision is extremely important in order to ensure that the environment chosen is capable of promoting the child's optimal development in all areas. This proposed project can possibly provide parents with the additional information needed for them to make an informed decision concerning the best placement that will promote the language development of their child who is diagnosed with autism.

METHOD

Participants

Six children (two boys and four girls) ranging in age from five years eleven months to seven years eight months participated in this study. The children were all diagnosed between the ages of two and a half and four years with autism as well as possible Pervasive Developmental Disorder (PDD). According to the parents, the children were all developing typically and reached all of the milestones up to the age of two. At that point, their development declined and remained delayed, especially for their language and social development. Most of the children have had recurrent ear infections and/or throat problems, but have all been tested and are fine. All of the participants have had both occupational therapy and speech therapy prior to entering the educational system. Only two participants are currently receiving speech and/or occupational therapy (one in the segregated setting and one in the integrated setting).

Three of the six participants were enrolled in an integrated school setting serving both children who are typically developing and those with special needs while the other three were enrolled in a segregated school setting serving only children with special needs. The participants in the integrated setting spend part of their day in a resource room and the rest of their time is spent in the grade one classroom with their typically developing peers. In addition, recess, lunchtime and outside play are all spent with their typically developing peers. The participants were enrolled in their respective settings for one of four reasons: (1) due to recommendations from psychologists; (2) the school board; (3) recommendations from other parents; and (4) because the special education program was not accepting any new students. All of the parents reported working with the

children at home following suggestions from the respective schools or educators. All of the parents attempted to reinforce what was taught at school and to stimulate their child's language development. The children were identified by the speech pathologist and/or the integration specialist in each setting and were characterised as being relatively high functioning. That is, the participating children all displayed language abilities beyond echolalia and imitation and they were all capable of spontaneous speech and imitative play. However, all participants demonstrated deficits in communication and social skills. The participating children all had similar previous and current interventions, which increased the likelihood of the results being reflective of the program that the children were enrolled in rather than other intervening variables. The children were recruited from two schools one in the Montreal and one in the Laval, Quebec area.

Settings

Integrated school. The integrated setting is located in the Laval, Quebec area and is part of the Sir Wilfred Laurier School Board. The setting is an elementary school serving both children who are typically developing and those with special needs. Their aim is to encourage a co-operative setting that is capable of fostering individual growth and potential of the whole child in a secure, stimulating and inclusive environment. When the children with special needs first enter the school (five years old), they are fully integrated into the kindergarten classroom along with their same aged peers. Prior to entering the first grade, each child is individually evaluated by a team composed of a psychologist, a speech therapist, an occupational therapist, a teacher, and an integration specialist. This team determines the amount of time that each child will spend in an integrated classroom; the remainder of the time is spent in the learning centre. The

learning centre is used as a resource room and helps to reinforce the skills and information taught in the integrated classrooms. The integrated classrooms are usually composed of approximately 20 typically developing children and the children with special needs (three in the classroom observed for the present study). The children in the integrated classrooms are shadowed by an integration aid who helps redirect their attention and reinforces what the teacher asks of them. The typically developing children are also helpful and offer support and help to the children with special needs. Finally, the children are observed and evaluated throughout the year for continued integration and to determine if the integration time should be increased, decreased, or remain the same.

Segregated setting. The segregated setting is located in the Montreal, Quebec area. The setting is a special education school serving only children with special needs. The children attending the school have intellectual disabilities who demonstrate deficits in communication, cognition and social skills, some also have behavioural disabilities. The school has approximately 300 students enrolled ranging in age from 4 to 21 years of age. The school's program follows three different steps: (1) when the students enter the school, the curriculum focuses on the children's developmental milestones; (2) the students then proceed to either an academic or a functional curriculum, which is dependent upon their individual ability; and (3) the older students attend vocational training and then complete internal (within the school) or external (affiliated companies or universities) stages. The school employs five social workers, five psychologists, speech therapists, occupational therapists, art therapists, music therapists and woodworking therapists. The classrooms are composed of eight to eleven students and two staff members. The school also has three special classrooms, which have five to six students

and three staff members. These are for the students with severe behavioural problems and who are aggressive. Finally, the children in each classroom are matched according to their social and cognitive abilities.

Measures

(1) A background interview, designed by the main investigator (see Appendix A), was used to assess the participants' language development. The main researcher conducted a telephone interview with the mother of each participating child during a convenient time of day. The interview questions were straight-forward and were designed with the intent to better understand the participants' language development, the type of interventions that they may have received or were currently receiving and a little about their health and global development. The main investigator began the interview with an open-ended question such as, "Can you tell me a little about your child's language development?" The mothers were very responsive and provided ample information concerning their child's development. The interview consisted of seven questions, was orally administered, and took approximately 20 minutes to complete. The main investigator interviewed each of the participants' mothers and wrote down their answers (verbatim) on the interview sheet.

The parents were called once again at the end of the data collection in order to ask them two additional interview questions (see Appendix A). The interview questions were designed with the intent to better understand their reasons for choosing the respective settings and their feelings regarding their satisfaction with the schools. Again, the interview questions were orally administered over the telephone and took about 10 minutes to complete. Answers were written down verbatim as during the first interview.

(2) The Early Childhood Environment Rating Scale- Revised edition (ECERS-R) (Harms, Clifford, & Cryer, 1998) was used to assess the quality of each setting. This scale was devised in order to measure the quality of early childcare environments. However, it has also been used successfully with kindergarten classrooms. Although the present study was conducted with grade one classrooms, the scale was still used because the environments resembled kindergarten rooms. The subscales that were irrelevant to the setting were omitted, such as nap/rest, space for privacy and toileting/diapering. The environment was rated by examining the seven main components of the scale: Space and furnishings; personal care routines; language reasoning; activities; interactions; program structure; and parents and staff. The items are rated on a 7-point Likert-type scale, ranging from Inadequate (1) to Excellent (7). Items were summed to create an overall total score for each setting. The ECERS-R has been recognised as a valid and reliable instrument used to measure the quality of childcare settings (Harms et al., 1998). The percentage agreement across the full 470 indicators in the scale is 86.1% with no item having a level below 70% (Harms et al., 1998). Furthermore, the internal consistency of the scale was between .71 and .88 with a total scale internal consistency of .92. This rating scale was used in the present study to evaluate and compare the segregated and the integrated settings. By comparing both settings, assumptions concerning the similarities and the differences can be made more accurately. Furthermore, by including this comparison, the author will be better equipped to interpret the obtained results in each setting.

(3) The Peabody Picture Vocabulary Test- Third Edition (PPVT- III) (Dunn & Dunn, 1997) was used to assess the children's listening comprehension for spoken words

as well as verbal ability. The PPVT- III is an individually administered and a norm-referenced test for ages two and a half through 90+ years (Dunn & Dunn, 1997). Since the PPVT- III did not require reading, oral or written responses, it was a useful measure when testing individuals with special needs and language impairments (Dunn & Dunn, 1997). The PPVT- III has been recognised as a valid and reliable instrument used to measure the receptive and verbal ability of individuals (Dunn & Dunn, 1997). The PPVT-III was correlated with the WISC-III on a measure of verbal ability and received a score of .91. The internal consistency of the test was determined as being between .92 and .98 with a medium score of .95. The test contained four training items followed by 204 test items, which were divided into 17 sets of 12 items each. The sets were progressively difficult. The participants progressed through the different sets until they reached a ceiling of eight errors per set of 12 items. Each item had four simple, black and white illustrations on a PicturePlate, which were arranged in a multiple-choice format (Dunn & Dunn, 1997). The child's task was to select the picture that he/she considered to be the best illustration to the meaning of a stimulus word presented orally by the examiner. The administration time was approximately 15 minutes per participant. The test was used as a standardised and quantitative measure of the participants' level of language comprehension, which was used to supplement the qualitative language information collected for each participant.

(4) A specimen description is a narrative description of behaviours and/or events, which are recorded in substantial detail (Irwin & Bushnell, 1980). Specimen descriptions of each participant were used to record a detailed and continuous narrative account of each participant's behaviour in his/her immediate environmental context, which in this study was his/her respective educational setting (see Appendix B). Each child was

observed for a period of one hour (four 15 minute periods over four weeks, see Appendix C for observation schedule) in order to ensure that the researcher was able to collect sufficient data for an adequate baseline representation of each child's use of spontaneous language.

(5) Time/event sampling involves observations that record predefined behaviours. A combination of both time and event sampling was used because the behaviours recorded were frequently occurring, which would suggest a time sample. However, the behaviours were recorded according to predetermined triggers, which would suggest the use of event sampling. For this study, the behaviour in question was the number and types of communication opportunities each participant had in the respective settings. The types of opportunities that were observed were based on a study conducted by Sigafoos et al. (1994). They determined four classes of communicative opportunities, which were defined and based on Skinner's (as cited in Sigafoos et al., 1994) functional taxonomy of verbal behaviour. The four classes were (1) requesting; (2) naming or commenting; (3) communicating an answer; and (4) imitation or echoic behaviour. Each class was operationally defined using Sigafoos et al.'s classes, in order to eliminate any discrepancies during the interrater reliability (see Appendix D for the definitions of each class).

In addition to Sigafoos et al.'s classes, the main investigator also recorded information such as the initiator of each event, what was spoken (if anything) both by the initiator and the target as well as the tone used by both parties. Furthermore, a template chart with all of the relevant categories that were being observed was created prior to the commencement of the study to facilitate observations (see Appendix E). Like the

specimen descriptions, each child was observed for a period of one-hour (four 15 minute periods over four weeks (see Appendix C for observation schedule) in order to ensure an adequate amount of time for a proper representation of the children's communicative opportunities.

(6) An interview, contrived by the main investigator (see Appendix F) was used to assess the teachers' expectations and attitudes towards the participating children. The main researcher interviewed each teacher concerning each participant. The interview questions were straight-forward and were designed with the intent to better understand the teachers' background experience and their expectations and goals for the participating children in their classrooms. The interview consisted of eight questions, was orally administered, and took approximately 10-20 minutes to complete depending on the number of participating children in their classrooms. The main investigator interviewed each of the participants' teachers and wrote down their answers (verbatim) on the interview sheet as the teachers expressed their responses.

Interrater Reliability

In order to calculate and ensure interrater reliability, a research assistant trained to work with children with special needs and who was familiar with the observational techniques was trained prior to collecting the data. The observational methods that were used are common, which made training easier. Due to the limited number of children with autism meeting the necessary criteria for the study, the research assistant was trained using actual observations. The specimen descriptions involved recording every detail possible in a specified amount of time. The training for these records was completed on site with actual observations. The time/event sampling had a chart with all of the relevant

information that the observers used during the observations. Each category was operationally defined in order to eliminate any discrepancies between observers. Training for these observations was completed in a university research office. The main researcher collected preliminary data and then provided the research assistant with a detailed written account of the time/event sample observations. The research assistant then proceeded to complete the time/event charts that were used throughout the data collection procedure. This procedure was repeated until the interrater reliability reached an 80 percent level of agreement.

Reliability was calculated for 25 percent of the overall observations. The random numbers table was used in order to determine which observations would be included in the reliability calculations. The two sets of specimen descriptions were compared and they both reported similar observations, which meant that the two observers saw the same types of behaviours and the language content recorded was the same or very similar to one another. In order to determine interrater reliability for the time/event sample data, the agreements to agreements plus disagreements ratios were calculated and ranged from .85 to .92 for all of the categories listed in the coding chart.

Procedure

Data were collected over the course of four and a half months. The Société Québécoise de L'autisme and other societies throughout the Montreal region as well as several schools in both environments (segregated and integrated) were identified and contacted. The main investigator spoke to the principals of several schools in order to explain the purpose of the study. Consent forms and letters (see Appendix G) explaining the nature of the study and the required characteristics of the children were then mailed to

those schools expressing an interest in the project. Two schools, one integrated and one segregated, consented to participate in the study. The speech therapist in the segregated setting identified three children with autism meeting the necessary criteria and the integration specialist in the integrated setting was also able to identify three children meeting the required criteria. The number of participants was low because it represented the proportion of children, with the required characteristics for the present study, that exists in the school system today.

Once the schools' consents were obtained and the participants were identified, letters and consent forms were then sent home to the parents' of the prospective children diagnosed with autism in both schools (see Appendix H for the letter sent to the parents and the consent forms). The schools then contacted the main investigator to notify her of the number of consenting parents. Once all of the consent forms had been received, the main investigator organised meetings at each school in order to be introduced to the speech therapist, the integration specialist, the teachers and the six participating children. During these meetings, the main investigator also collected the consent forms and prepared a schedule that encompassed all of the necessary visits to complete the data collection.

In total, seven visits were scheduled with each school. The first visit was to collect the ECERS-R information; the second visit was to administer the PPVT-III with each participant; the third through to the sixth visits were to collect the observational data; and the seventh visit was scheduled for make-up observations for any absenteeism and to interview the teachers. The recruitment method used did not include any form of persuasion and/or incentives. The schools as well as the parents were free to refuse or

withdraw their participation for any reason and at any time throughout the study without any negative recourse.

The purpose of the second visit to each school was to complete the Early Childhood Environment Rating Scale- Revised (ECERS-R) within the relevant classrooms. This procedure ensured that both settings received similar ratings and provided the participants with the same or similar quality education and language stimulation. Preliminary analyses of the two settings revealed that there were no significant differences between environments. Therefore, the main investigator proceeded to the following step in the procedure.

Once the rating scale was completed in both settings and the results tabulated, the main investigator then proceeded to contact each family in order to conduct an informal telephone interview with one of the parents of each participating child. The main investigator began the interview with an open-ended question such as, "Can you tell me a little about your child's language development?" The interview consisted of seven questions, was orally administered, and took approximately 20 minutes to complete. The main investigator interviewed each participant's mother and wrote down her answers on the interview sheet. The information collected from each interview was used to compare the participants in each school setting. The demographics for each participant were assessed and the two groups (segregated and integrated) were found to be equivalent both for previous and current interventions, diagnosis and general health, general language development, as well as involvement from the parents. The main investigator then proceeded to the following step in the procedure, which was to assess the participants' listening comprehension for spoken words and verbal ability.

The purpose of the third visit to each setting was to complete the Peabody Picture Vocabulary Test- Third Edition with each participant. Each participant was tested individually and he/she required approximately 15 minutes in order to achieve a ceiling set, which was eight or more errors in a set of 12 words. This was the only time that the main investigator spent one-on-one with the individual participants, as the subsequent data was collected through observations only, which did not interfere with their normal school schedules. This standardised test provided the investigators with a quantitative score of each child's language comprehension and abilities.

In order to substantiate the results obtained with the PPVT-III, the main investigator returned to each setting four times over four weeks (once per week) to obtain observational data for each participant. During these observations, the researcher acted in an unobtrusive manner so as to avoid any possible disruptions to the classroom schedule. The main investigator collected the necessary observational data for each participant over a period of four weeks with a fifth week scheduled for any make-up observations for absenteeism (see Appendix C). Each participant was observed for half of an hour a day over a period of four weeks. The half of an hour for each participant was comprised of two 15 minute observational periods: one for the specimen description data and one for the time/event sample data. Therefore, at the end of the four weeks of observations each participant had a total of one hour of data for the specimen descriptions and one hour of data for the time/event samples. The observation schedule was counterbalanced to ensure that the participants were observed at different times of the day and with different observational techniques. Additional time for observations was set aside to account for absenteeism. Each participant was observed for an equal amount of time for both

observational techniques. These observational data were used in order to corroborate the participant's individual scores received on the PPVT-III. A research assistant joined the main investigator for 25 percent of the total observations in order to obtain reliability results.

The final visit to the schools was to complete any observational data that were missing due to absenteeism. Only one extra day was required for each setting. In addition to the observations, the main investigator also used this last visit in order to interview the teachers of the participants. Each teacher was informally interviewed individually. The interview consisted of eight questions, was orally administered, and took approximately 10-20 minutes to complete depending on the number of participating children in their classrooms. The main investigator interviewed each of the participants' teachers and wrote down their answers on the interview sheet. The teachers as well as the school principals were thanked for their participation and co-operation in the present study. They were informed that they would receive the participants' PPVT-III scores as well as a summary of the findings once the study was completed.

Finally, the parents of the participants were contacted one last time in order to complete the last informal telephone interview. Two additional interview questions were posed to the parents with the intent to better understand their reasons for choosing the respective setting and their satisfaction with the school. Again, the interview questions were orally administered over the telephone and took about 10 minutes to complete. The parents were thanked for their and their child's participation and co-operation in the study. They were also informed that they would receive a summary of the findings once the study was completed.

Scoring and Data Analysis

Once all of the data were collected, the main investigator proceeded to calculate the PPVT-III standard scores of each participant. Raw scores were calculated by subtracting the total number of errors that each child received from the number of the ceiling item, which is the highest number achieved. The standard scores were calculated using the Norms table provided by the authors.

The ECERS-R was scored according to the authors' instructions. The mean score of several questions that were each rated on a seven-point scale determined each subscale score. Higher scores represented a higher quality of the setting's educational environment. The ECERS-R had already been scored prior to the start of the data collection in order to ensure that the two settings were of equal quality.

The specimen descriptions and the time/event samples were transcribed and then summarised into several categories. The number of words spoken was tabulated in the participants' specimen descriptions and a total word count was calculated for each participant. The data from the time/event samples were broken down into several different categories. First of all, the number of events were calculated for each participant. The number of events was then broken down into two other categories: (1) the number of time the events were child, adult or peer initiated and (2) the number of events in each class of communication as defined by Sigafoos et al (1994) (requesting, naming/ commenting, communicating an answer, and imitation or echoic behaviour). The appropriateness of the participants' responses was also tabulated into one of two categories: (1) within the context of the conversation and (2) out of context with the conversation. The participants' verbalisations were then analysed according to the type of

sentence spoken; whether the sentence was complete or incomplete. An incomplete sentence was considered to be a yes or no response, a complete lack of response or a response lacking the necessary components of a sentence. Finally, the total number of words spoken by each participant was calculated.

The raw data were entered into Minitab, which is a statistical computer program. Descriptive statistics were calculated for each participant and then the individual means were collapsed to achieve a total group mean that was representative of the two settings. The means for each of the above categories were compared across the integrated and the segregated settings. T-tests were conducted for all of the categories to determine whether there were significant differences between the language abilities of the children enrolled in a segregated versus an integrated school setting.

RESULTS

Results were analysed both qualitatively and quantitatively. The data from the ECERS-R, the PPVT-III, and the two types of observations were all analysed quantitatively. The teacher and parent interviews were analysed qualitatively due to their semi-structured format. Parts of the specimen descriptions were also analysed qualitatively in order to record general behaviours of the participants in each school setting. Throughout the study, it was independently determined that the scores of one child in the segregated setting were consistently higher when compared to the remainder of her group. This participant was considered to be an outlier and was, therefore, removed from the statistical analyses. Despite this, the results remained the same for all tests and consequently her data were included in the final presentation of the results.

Early Childhood Environment Rating Scale- Revised (ECERS-R)

Both the integrated and the segregated classroom settings were rated using the ECERS-R. The settings' mean scores for the seven subscales are presented in Table 1. No significant differences between the two settings were found after t-tests were performed. This means that the two schools received similar scores on each of the seven subscales. The most important subscale for the present study was language-reasoning. Both schools scored equally high on this subscale (integrated $\underline{M} = 7.00$, segregated $\underline{M} = 6.75$ of a possible 7), which suggests that the participants in each setting were exposed to similar language stimulation, reasoning skills and the use of informal communication.

Table 1

Mean Subscale Scores on the ECERS-R

	Settings		
	Integrated n= 1	Segregated n= 3	
Subscales	M	M	SD
Space and Furnishings	6.00	5.17	0.17
Personal care	7.00	6.67	0.58
Language reasoning	7.00	6.75	0.00
Activities	4.70	3.30	0.30
Interactions	7.00	6.60	0.32
Program structure	5.75	4.92	1.01
Parents and Staff	5.33	4.50	0.00
Total Mean Score	5.90	5.10	0.31

Note. The mean score of several questions that are each rated on a seven-point scale determines each subscale. Higher scores represent a higher quality of the setting's environment.

Peabody Picture Vocabulary Test- Third Edition (PPVT-III)

All of the participants' verbal and listening abilities were determined with the use of the PPVT-III. The participants completed the test individually with the main investigator and the tests were then scored according to the instructions by the authors. The participants' raw and standard scores are presented in Table 2. No significant group differences were found after a t-test was performed. This result can possibly be explained by the small sample size (N = 6). Although the statistical test did not find a significant difference between the two groups, the mean standard scores suggest that the participants in the integrated setting performed at a higher level ($\underline{M}$ = 71.33) than did the participants in the segregated setting ($\underline{M}$ = 59.00). The participants in the integrated setting appear to exhibit listening and verbal abilities that are more developed than that of the participants attending the segregated setting. This may be explained by the fact that the integrated participants attend school and engage daily with their typically developing peers who may act in such a manner so as to encourage the children with autism to use and subsequently understand higher levels of language.

Table 2

Participants' Raw and Standard Scores on the PPVT-III

Participants	Score	
	Raw	Standard
	Integrated	
1	74	97
2	31	52
3	51	65
M	52	71.33
SD	21.52	23.20
	Segregated	
4	35	60
5	19	40
6	75	77
M	43	59
SD	28.84	17.60

Note. Raw scores are calculated by subtracting the total number of errors from the number of the ceiling item. The standard scores are calculated using the Norms table provided by the authors.

Observational Data

Specimen descriptions. All of the participants were observed for a total period of one hour each over four weeks. The use of spontaneous language and general behaviours were recorded in different types of activities. After having transcribed the records, the information was reviewed in order to calculate the number of words spoken by each participant. The number of words spoken by each participant as well as the group means are presented in Table 3. No significant group difference was found after a t-test was performed. Again, this may be explained by the small sample size (N = 6).

However, group differences were found when the observations were analysed qualitatively. The raw data were reviewed qualitatively by returning to the participants' specimen records and examining each one individually for specific trends, similarities and/or differences that may exist between the two groups. This procedure revealed several trends that existed between the two settings. The participants in the segregated setting spoke mostly to the adult figures in the classrooms and when they did speak to their peers it was to push them away or to tell them what to do. For example, they would speak to their peers only to say, "Go, this is my toy" or "Go, this is where I play." The segregated participants appeared to verbalise more with the adults in the classroom however the majority of the conversations were initiated by the adults rather than the children. The participants' sentences were mostly responses to questions, echoic verbalisations and/or incomplete (i.e., they would respond "Yes", "No", no verbal response, or by repeating what the adult had just asked). Finally, their time was mostly spent by themselves and they did not try to engage other children in their play. As the main investigator was observing the children in their environment, she noted that the

children in the segregated setting were positioned throughout the classroom and playing by themselves. Rarely, one would see two or three children playing in the same area of the room, but this was never the case for the segregated children who participated in the present study as they played by themselves.

The participants in the integrated setting spoke both to the adults and to their peers in the classrooms. The integrated participants initiated and replied to conversations with both the adults and their peers. They were often observed approaching their peers to engage them in a mutual activity such as a toy that required two children in order to make it turn in circles as they sat opposite one another. Compared to the participants in the segregated setting, the integrated participants were rarely seen playing by themselves or refusing to engage with their peers. The participants' sentences were mostly complete and they displayed several episodes of spontaneous language. For example, one participant put a block on a pencil and exclaimed to the children and the teacher, "Look, I made a lollipop! It's good." The integrated participants were often observed initiating conversations or communicating a thought or feeling (e.g., "It's raining out today, boy the sky is grey"). Finally, their time was mostly spent engaged with their peers in mutual activities. For instance, one of the participants always asked a peer to play on the computer with him and they would sit side by side and share the computer mouse and aid each other progress through the program. Another participant often approached a peer to play in the ball area or to make a sandcastle in the school's sandbox (i.e., "Let's make a sandcastle okay?" or "Do you want to play in the balls with me?"). However, they did also spend some of their time by themselves, but in close proximity to their peers. One participant, who seemed a little more shy than the rest, would often sit amongst other

Table 3

Number of Words Spoken Over Four Specimen Descriptions

	Number of words spoken
	Integrated
Participants	
1	224
2	87
3	288
M	49.92
SD	52.27
	Segregated
4	377
5	127
6	123
M	52.25
SD	43.24

Note. Total of number of words spoken by each participant over four observation periods.

children and begin playing with the same toys and would eventually contribute to the ongoing conversation. Once again, these differences may be explained by the fact that the integrated children are exposed to the interactions and language of their typically developing peers, which may enhance the participants' own behaviour and use of language.

Time/event sample. All of the participants were observed for a total period of one hour each over four weeks. Four classes of communication opportunities were recorded in different types of activities. The events were categorised and then analysed. Six categories were created: (1) the number of events; (2) the initiator of each event (child, adult or peer); (3) the number of events in each class (requesting, naming/commenting, communicating an answer, and imitation or echoic behaviour); (4) appropriateness of the response (in or out of context); (5) sentence quality (complete or incomplete/no response); and (6) the number of words spoken. The group means for each category are presented in Table 4 and Table 5. Thirteen t-tests were performed. Two significant differences were found between the participants' sentence quality. The participants in the segregated setting displayed more instances of verbalising incomplete sentences when compared to the participants in the integrated setting, $t(6) = 5.74$, $p = .01$. Therefore, the integrated participants exhibited more complete sentences than did the participants in the segregated setting, $t(6) = -5.74$, $p = .01$.

No significant group differences were found with the remaining t-tests that were performed. Again, this can possibly be explained by the small sample size ($N = 6$). As such, the mean scores were qualitatively reviewed. Again the main investigator returned to the raw data and examined the information for any possible trends, similarities and/or

Table 4

Mean Category Scores of Types of Opportunities for Communication

	Settings			
	Segregated n= 3		Integrated n= 3	
Categories	M	SD	M	SD
Number of events	71.33	16.01	58.33	9.50
Requesting	18.66	2.94	23.71	6.78
Naming or commenting	65.42	3.91	61.90	3.75
Communicating an answer	14.33	4.55	08.95	7.08
Imitation/Echoic behavior	01.60	1.86	05.44	9.43

Note. Raw scores were collapsed over setting in order to obtain a total mean score per setting for each category.

Table 5

Mean Category Scores on the Time/Event Sample

	Settings			
	Segregated n= 3		Integrated n= 3	
Categories	M	SD	M	SD
Complete sentences	49.60	8.49	82.38	5.08
Incomplete sentences	50.40	8.49	17.62	5.08
Child initiated events	26.41	8.77	34.43	18.45
Adult initiated events	72.52	9.54	57.35	18.26
Peer initiated events	01.07	0.95	08.22	5.89
Within proper context	97.46	2.23	98.07	2.05
Out of context	02.54	2.23	01.93	2.05
Number of words	181.70	23.70	228.70	74.10

Note. Raw scores, determined by reviewing the individual observational records for trends, were collapsed over setting in order to obtain a total mean score per setting for each category.

differences that may exist between the two settings. Even though statistical tests found no significant differences between the groups, the mean scores suggest that some differences are present. The participants in the segregated setting had a higher number of events (n = 71.33) than did the integrated participants (n = 58.33). However, when one considers the mean number of words spoken by each group, the integrated participants spoke more (n = 228.70) than did the segregated participants (n = 181.70). This suggests that even though the participants in the segregated setting had a greater number of communicative opportunities, they did not speak as many words as the participants in the integrated setting did. When reviewing the raw data for a possible explanation for this finding, it was noticed that the participants in the segregated setting responded with one word sentences such as "Yes", "No" or a single noun rather than providing a complete response as the integrated participants did. This finding can be corroborated by the significant group differences found when comparing the number of incomplete and complete sentences spoken by the participants in each setting.

Furthermore, the participants in the integrated setting had fewer adult initiated events and more events initiated by the participants themselves and by their peers (n = 57.35, n = 34.43 and n = 8.22 respectively), while the participants in the segregated setting had fewer events initiated by themselves and by their peers and more adult initiated events (n = 26.41, n = 1.07 and n = 72.52, respectively). This suggests that the participants in the integrated setting may be more outgoing and more confident in their language use, which allows them to initiate more communicative opportunities for themselves. Having more positive language role models may have provided the integrated participants with additional language knowledge, which was represented by their

increased use of complete sentences. For instance, in response to a question such as, "What can you see in the sky?" a segregated participant responded, "Cloud." Whereas when an integrated participant was asked a similar question ("What do you hear outside?"), he responded, "I can hear a bird, peep, peep, peep." In addition, the participants in the integrated setting were exposed to more communicative opportunities initiated by their peers when compared to the participants in the segregated setting. The participating children in the integrated setting were often exposed to conversations with their typically developing peers who would engage them in their ongoing activities. Throughout the observations, the typically developing children were often seen helping their peers with special needs re-focus their attention to the task at hand (i.e., "...you have to pay attention to what Miss____ is saying so you can do the activity."). They would also help them prepare for recess and lunch and would make sure that they did not spend their free time alone in a corner of the yard or classroom. Conversations were frequent, which allowed the integrated participants to hear and subsequently learn more about language than their counterparts in the segregated setting. This may be explained by the fact that the participants in the segregated setting were placed in classrooms with other children who had similar cognitive and social abilities. Therefore, their peers may not have had the language skills needed to engage other children in a communicative interchange. The participants in the integrated setting have the benefit of interacting with their typically developing peers who have more advanced language skills and who are capable of initiating communicative interchanges with others.

The participants in the integrated setting had more events that involved a request and imitation ($\underline{n} = 23.71$ and $\underline{n} = 5.44$ respectively), while the participants in the

segregated setting had more events that involved naming or commenting and communicating an answer ($\underline{n}$ = 65.42 and $\underline{n}$ = 14.33 respectively). This may be explained by the fact that the participants in the segregated setting were asked more questions by the adult figures in the classrooms than did the participants in the integrated setting. These questions required the participants to either name, comment or communicate an answer in order to respond. For example, the teachers in the segregated setting would ask several questions one after another such as, "What do you see in the sky?" "What can you see on the trees?" and "What comes after Friday?" In response to these numerous questions, the participants would reply with only one word. Whereas in the integrated setting, the teachers used questions that would initiate a conversation with the participants (i.e., "Can you tell me a little about the different seasons and what happens?" or "What did you do during recess?").

Finally, the data suggest that the participants in the integrated setting spoke slightly more in context ($\underline{n}$ = 98.07) than did the participants in the segregated setting ($\underline{n}$ = 97.46). Therefore, the participants in the segregated setting spoke slightly more out of context ($\underline{n}$ = 2.54) than did the participants in the integrated setting ($\underline{n}$ = 1.93). For instance, a participant in the segregated setting was observed responding, "Planes" to the question, "What can be seen migrating south for the winter?" Her response remained the same although the teacher tried numerous times to explain the meaning of the question. On the other hand, the participants in the integrated setting, if faced with something that did not make sense to them or that they did not comprehend, would often state that they did not understand the question being posed rather than attempting an answer. Again, this may be explained by the fact that the participants in the integrated setting are exposed to

higher levels of language from their typically developing peers and they seem to have more language role models than do the participants in the segregated setting.

Parent Interviews

Parents were asked a number of questions regarding their child's language development and general background information related to their language abilities. The parents were also contacted a second time with the intent to better understand their reasons for choosing the respective settings and their feelings regarding their satisfaction with the schools. All parents were very willing to share the information surrounding their child's language development and the main investigator rarely had to probe further as the parents provided all of the required information. The results of the first interview were used to characterise the participants and to compare the two groups. These results are presented in the participant section of the methodology. The results of the second interview are presented below.

The first of two questions that the parents were asked was how they decided on the school setting for their child. This question was asked in order to determine whether parents made this choice of their own volition or if other variables led them to make the decision that they did.

The parents reported that their children were enrolled in the respective settings for one of four reasons: (1) due to recommendations from psychologists; (2) the school board; (3) recommendations from other parents; and (4) because the special education program was not accepting any new students. Furthermore, the parents of the participants in the segregated setting reported that their child was enrolled in that school because it was the best educational setting for their child due to the specialised classes and the

additional therapeutic aid such as physiotherapy and speech therapy. However, these specialists are also made available to children attending regular school settings such as the one used in this study.

A parent of one of the participants in the integrated setting reported that their child was enrolled in that particular school due to circumstances out of their control. The parent in question was informed that the special education settings were not accepting children and that she would have to enroll her child in a regular school within her district. Overall, the parents in both groups seem to have had some choice concerning their child's educational placement. However, this decision also seems to have been made according to outside circumstances, such as recommendations from psychologists and the school boards.

Teacher Interview

The teachers of the participating children were asked a number of questions regarding their background experience and their expectations and goals for the participating children in their classrooms. The results of the interviews are summarised below.

Background experience. The teachers in the integrated setting had earned different degrees. The participants' first grade teacher had a Bachelor of Science in Psychology with a main focus on child psychology, abnormal development and child development. She had also completed a Bachelor of Education, which provided integration courses and she also had a Master of Arts in Child Study. The last two degrees were obtained within the last four to five years. The special integration aid had completed a three year Special Care Counselling program approximately ten years ago. The special education teacher

whom the participants saw in the resource room had obtained a Bachelor of Education and then received a Special Education Diploma approximately 24 years ago. All three teachers regularly attended conferences, workshops and conventions that focus on children with special needs.

They all had previous experience working with children with special needs. Although the first grade teacher had been teaching formally for only one year, she was previously an educator for one of the children's hospitals in the Montreal, Quebec area. The special integration aid had been working with children with special needs for approximately ten years in a variety of school settings. The special education teacher had been teaching children with special needs for over 24 years and several schools have employed her. They all worked together to benefit the children's progress.

The teachers in the segregated setting all had obtained similar degrees. One teacher had received both a Bachelor in Early Childhood and a Certificate in Special Education approximately 23 years ago. The second teacher had a Bachelor of Education and a Certificate in Special Care Counselling, which were obtained approximately five years ago. The third teacher had a Certificate in Special Education, which was acquired three years ago. All but one teacher reported regularly attending the workshops and in-service training provided by the school.

All three teachers in the segregated setting have spent their whole career working in segregated settings and have had a lot of experience working with children with special needs. Only one teacher had taught outside of the current establishment. She had been teaching in segregated settings for approximately 20 years. The other two teachers have been employed at the same establishment for 11 and 5 years respectively. The teachers

each have their own classroom and students.

Goals and expectations. The first grade teacher expressed that the integrated participants should continue to be integrated more and more each year, but that an aid would be required throughout their academic careers. She felt that the participants showed potential and were academically ready for full integration (with the exception of mathematics as it is too abstract for them). However, she also indicated that they were lacking focus at times, which is why she suggested that an aid be present at all times so as to avoid disrupting the rest of the class.

The special integration aid also believed that the participants should be integrated more in order to reach the point where they would be fully integrated into the regular classroom. She also stated that the participants required additional interaction time with their typically developing peers (outside of school) in order to help develop their social skills. Finally, she felt that all of the participants needed assistance with their focus so as to increase their on-task time, which would help them to achieve more academically.

The special education teacher also felt the participants should be fully integrated within the next few years with the resource room used for follow-up and support if needed. She also expressed that she felt the participants required additional behavioural and/or social skills help within the home environment. Again, it was stated that the participants would require an aid within the integration classroom in order to maintain their focus and on-task behaviour.

The teacher of one participant in the segregated setting felt that she could improve her language and social abilities in order to achieve higher academic skills. The teacher also stated that she could learn more functional academics and that she could eventually

learn how to read. One last goal that the teacher expressed was for the participating child to develop better social skills to enable her to interact with the other children rather than playing on her own all the time.

The teacher of the second participant in the segregated setting felt that her student could develop more advanced coping skills in order to help her manage in conflict situations. She also expressed that one of the goals she had for her student was to develop skills that would enable her to function in a larger class environment. Finally, she also mentioned that she would want her student to develop more social skills in order to be able to interact with other children.

The teacher of the third participating child in the segregated setting seemed very aloof and stated that she did not have the time for this interview. However, she did state that some of her goals for her student were to develop higher levels of fine motor abilities, social language and reading skills. She ended by saying that her student has achieved many of these goals and that she has improved a lot since she has been attending this setting.

Appropriateness of setting. The teachers in each setting were asked which educational setting they thought was appropriate for the participants to achieve the above mentioned goals. The teachers in the integrated setting all agreed that the participants in their establishment should remain in an integrated setting. They stated that the participants' integration time should be increased slightly to help them develop more adequate social abilities. Finally, they all agreed that the participants should not be integrated for mathematics because it is too abstract and they do not believe that the participants could grasp the subject.

The teachers in the segregated setting stated that the participants in their establishment should remain in a segregated environment. They all felt that the participants were in the most favourable setting for their needs. The main reasons for their choice were the small class size, the provision of occupational therapy and the sensory help that they receive. They stated that the participants would not receive these accommodations in an integrated setting. One teacher expressed that her student, "...might benefit in an integrated setting with pull-out, but knowing the educational setting and system this is the best place for her." The teacher believed that if the resources were improved in the integrated settings, she might consider referring her student to such an environment. Overall, the teachers in both settings believed that their students were in the proper educational setting for their individual needs.

DISCUSSION

The results from the qualitative analyses, which were determined by returning to the raw observational data and examining them for specific trends that existed among the participants, demonstrate that the children attending the integrated setting used more advanced structures of language than did the children in the segregated setting. Therefore, the integrated setting seems capable of optimising the language development of young children with autism. The children in the segregated setting were provided with more occasions and different types of opportunities for communication than did the children in the integrated setting. However, the data suggest that the children in the integrated setting initiated more communication opportunities for themselves and they engaged in more conversations with their peers than did the children in the segregated setting. For example, the children in the integrated setting often engaged their peers (either typically developing or special needs) in a conversation or would ask them if they could play together or share a toy. This was not the case in the segregated setting. The only time a segregated participant was seen initiating a conversation with one of her peers was to tell him/her to stop talking and listen to the teacher or to say "Go, this is my toy." The segregated participants, hence, appear to have had only the adults to engage in conversations with as they did not positively associate with their peers. Therefore, these findings help support Bruner's interactional theory of language development because it shows that the more positive interactions one has in his/her environment the more positive his/her language development appears to be. The integrated participants interacted with both their peers and the adults in their environment, which seemed to slightly enhance their overall language abilities. Finally, the number of years teaching and

the experience that a teacher reported having did not appear to be related to the language opportunities provided to the children with autism in his/her classroom.

Based on the results of the Early Childhood Environment Rating Scale- Revised (ECERS-R), both schools received similar moderately good overall ratings. The most important subscale for the present study was language-reasoning. Both schools scored equally high on this subscale, which suggests that the participants in each setting were exposed to similar language stimulation, reasoning skills and the use of informal communication. This result is in accordance with the current literature. La Paro, Sexton and Snyder (1998) examined the program quality of 58 segregated and inclusive early childhood settings. They reported that segregated and inclusive settings were generally similar across different categories of program quality and that the levels of quality were moderately good in both settings.

Based on the results of the participants' Peabody Picture Vocabulary Test- Third Edition (PPVT-III) standard scores, the participants in the integrated setting performed at a higher level than did the participants in the segregated setting. It appears as though the participants in the integrated setting exhibited listening and verbal abilities that were more developed than those of the participants attending the segregated setting. This may be explained by the fact that the integrated participants attended school and engaged daily with their typically developing peers who may act in such a manner so as to encourage the children with autism to use and subsequently understand higher levels of language.

This finding parallels the outcomes from several other studies. Lieber et al. (1998) reported that a benefit of inclusion was that typically developing children would help others by taking on a teaching role. Furthermore, Odom and Diamond (1998) found that

typically developing children enrolled in an integrated setting were persistent in trying to elicit responses from their classmates with special needs. Therefore, the integrated participants appeared to have benefited from interacting with their typically developing peers. The children in the integrated setting seemed to have had more language role models, which provided guidance and assistance in their language acquisition processes. The participants in the segregated setting interacted with peers who displayed similar language abilities and comprehension, which limited their language role models. Typically developing children are more effective as role models for children with special needs than are children with special needs (see Madden & Slavin, 1983).

The participants in the segregated setting spoke mostly to the adult figures in the classrooms while the participants in the integrated setting spoke both to the adults and to their peers in the classrooms. Interactions between the segregated participants and their peers consisted of verbalisations that enabled them to push them away or to tell them what to do. In addition, the segregated participants' verbalisations were mostly responses to questions, echoic utterances and/or incomplete sentences. On the other hand, the integrated participants' verbalisations were characterised by several utterances representing spontaneous language and their sentences were mostly complete. Finally, the participants in the segregated setting spent the majority of their time by themselves and they did not try to engage other children in their play. However, the participants in the integrated setting spent most of the observation time engaged with their peers in mutual activities. Despite this, they did also spend some of their time by themselves, but in close proximity to their peers.

Once again, these differences may be explained by the fact that the integrated

children were exposed to the interactions and language of their typically developing peers, which may have enhanced the participants' own behaviour and use of language. As mentioned previously, positive role models help to promote the healthy development of skills such as language and social interactions. However, the children in the segregated setting were enrolled with similarly developing peers. Therefore, they may interact more with the adults because they are the only positive role models in their educational environment. Inclusive settings, more than segregated ones, provide an educational environment capable of promoting communicative and social interactions between typically developing children and those with special needs (see Hunt & Goetz, 1997).

The participants in the segregated setting displayed more instances of verbalising incomplete sentences than did the participants in the integrated setting, which also suggested that the integrated participants exhibited more instances of complete sentences than did their counterparts in the segregated setting.

Despite the fact that the participants in the segregated setting were provided with what seemed to be more opportunities for communication than the integrated participants, the overall number of words uttered was greater for the integrated participants than for the segregated ones. This finding suggests that although the participants in the segregated setting had a greater number of communicative opportunities, they did not seem to take advantage of these occasions to help develop their language abilities. This may be due to the fact that the participants in the segregated setting did not appear to have as many positive language role models as did the participants in the integrated setting. Therefore, they may not have had sufficient language knowledge in order to facilitate their communicative interactions. This result was corroborated by the significant group

differences found between the number of incomplete and complete sentences uttered by the participants in each setting.

The integrated participants displayed fewer adult initiated events and more events initiated by the participants themselves and by their peers, while the segregated participants had fewer events initiated by themselves and by their peers and more adult initiated events. The participants in the segregated setting were exposed to fewer opportunities for communication that were initiated by their peers, which may be explained by the fact that the participants were enrolled in classrooms with children who had similar cognitive and social abilities. Therefore, their peers may not have had the language abilities required to initiate a communicative interchange with them.

However, the integrated participants had the benefit of interacting daily with their typically developing peers who have more advanced language skills and who are capable of initiating communicative interchanges with them. Children enrolled in general education settings have been reported as having higher levels of social contact with their typically developing peers, higher levels of social support and larger friendship networks when compared to those children in special education settings (see Hunt & Goetz, 1997). Furthermore, Tari, Hancock and Brophy (1989) reported that the social abilities of children with special needs was maximised in an integrated setting and that their social behaviours resembled that of their typically developing peers. Therefore, this may also be true for the language skills of the children with special needs in the integrated setting. These factors may have helped the participants in the integrated setting to be more outgoing and confident in their language use, which allowed them to initiate more communicative opportunities for themselves.

In addition, the participants in the integrated setting had more events that involved a request and imitation, while the participants in the segregated setting had more events that involved naming or commenting and communicating an answer. The segregated participants were asked more questions by the adult figures in the classrooms than did the integrated participants. These questions involved attempts by the teachers to have the children name, comment or communicate an answer concerning a particular object or event. On the other hand, the integrated participants were provided with more requesting opportunities, which, according to Sigafoos et al. (1994), "*enabled them to obtain reinforcers and exert some degree of control over their environment* (p.275)." They believe that requesting opportunities represent an important communication component. Therefore, because the integrated participants were exposed to a greater number of such opportunities they may have had an advantage over the segregated participants.

Finally, the participants in the integrated setting spoke a very slight amount more in context than did the participants in the segregated setting. Again, this finding may be explained by the fact that the integrated participants were exposed to higher levels of language from their typically developing peers as well as the adults and they appear to be exposed to more positive language role models than the segregated participants. As mentioned previously, typically developing children are more effective as role models than are children with special needs (Madden & Slavin, 1983).

In summary, the participants in the integrated setting appear to have developed slightly more advanced language abilities than the participants in the segregated setting. These results may be due in part to the children's exposure to and interactions with their typically developing peers. However, the characteristics of the adults in their environment

may also have had an influence on their overall language abilities.

Overall, the parents in both groups believed that they had some influence concerning their child's educational placement. However, they also stated that outside circumstances, such as recommendations from psychologists and the school boards were important factors in the final decision. The parents of the participants in the segregated setting reported that their child was enrolled in that school because of the specialised classes and the additional therapeutic aid such as physiotherapy and speech therapy. However, they did not seem to be aware of the fact that these specialists were also made available to children attending regular school settings such as the one in this study. Tari et al. (1989) stated that parents could both receive and find needed support through contacts and networking with other parents of both children with special needs and those who are typically developing.

Only one parent reported that her child was enrolled in a particular school due to circumstances out of her control. The parent in question was informed that the special education settings were not accepting children and that she would have to enroll her child in a regular school within her district. She had expressed some concerns regarding this issue, but she now reported complete satisfaction with the integrated setting and stated that she had noted some improvements in her child's behaviour. The decision concerning a child's best educational placement is difficult especially for the parents. Parents with children enrolled in an integrated setting have reported concerns about their child's possible social rejection and the fear that their child may not receive the required specialised services that he/she would in a segregated setting (Guralnick, 1994).

The teachers in both the integrated and the segregated settings had similar degrees

obtained. Four teachers, two in either setting, had received a Bachelors degree either in Education, Psychology, or Early Childhood. All but one of the teachers had obtained a certificate in either Special Education or Special Care Counselling. The first grade teacher in the integrated setting was the only one to obtain a Master of Arts degree, in addition to two Bachelor degrees.

The number of years of experience working with children with special needs ranged from three to twenty-four. The data suggest that the teachers in the segregated setting had fewer years of experience than did the teachers in the integrated setting. Finally, all but one teacher reported that they regularly attended conferences, workshops, conventions and in-service training that focused on children with special needs. Several of these findings are in accordance with those reported by La Paro et al. (1998). They found no significant differences between teacher characteristics in segregated and integrated settings.

All three teachers in the integrated setting expressed that the participants would benefit from continued integration. They stated that the participants should spend more time in the regular classroom and use the resource room for follow-up and support only if needed. However, they all stated that an aid would be required throughout their academic careers in order to help maintain their focus and on-task behaviour. Furthermore, they also agreed that the participants required additional interaction time with their typically developing peers (outside of school) in order to help develop their social skills. The special education teacher also felt that the participants required additional behavioural and/or social skills training within the home environment.

The teachers in the segregated setting stated differing goals for each of their

students. The first teacher reported that her student required additional functional academic skills. The second teacher reported that the main goal she had for her student was to develop more advanced coping skills in order to aid her in conflict management. She also stated that her student required skills to help her function in a larger classroom setting. The final teacher stated that her main goals for her student were to increase her fine motor and reading skills. Finally, all teachers stated that the participants required additional social and language skills that would enable them to interact with their peers rather than playing on their own all the time.

Overall, the teachers in both settings believed that their students were in the proper educational setting for their individual needs. The teachers in the integrated setting all stated that the participants in their establishment should remain in an integrated setting and that they would not benefit from a special education setting. They stated that the participants were enrolled in the most appropriate setting for them and that the integrated environment would help develop their social abilities (see Hunt & Goetz, 1997; Lieber et al., 1998; Madden & Slavin, 1983; Odom & Diamond, 1998). They felt that this could not be achieved in a segregated setting where the children interact with similarly developing children. However, they all agreed that the participants would not benefit from being in an integrated mathematics course because it is too abstract and they did not believe that the participants could grasp the subject.

The teachers in the segregated setting all stated that the participants in their establishment should remain in a segregated environment. They all felt that the participants were in the most favourable setting for their needs. They stated that the participants benefited from the small class size, the occupational therapy and the sensory

help that they were receiving. They expressed a belief that the participants would not receive these accommodations in an integrated setting. However, several integrated settings, such as the one in this study, offer such assistance in their resource rooms or pullout services (see Tari et al., 1989). One teacher in the segregated setting felt that her student might benefit from being enrolled in an integrated setting equipped with a pull-out program, but stated that she did not think that the educational system provided the integrated schools with adequate support and equipment to teach children with special needs.

Therefore, it appears as though the teachers in the segregated setting did not feel as though integration was a feasible educational path for the children with special needs in their care. The teachers in the segregated setting also reported fewer years of experience working with children with special needs. Stoiber et al. (1998) stated that teachers with 15 or more years of experience expressed more positive attitudes towards integration than did teachers with only 1 to 4 years. Their belief that children with special needs benefit more from attending a segregated setting over an integrated one may be due in part to the number of years of experience reported. However, one teacher in the segregated setting stated that she was not completely against integrated settings and that if they had better provisions and funds she may consider referring her student to such an educational setting. This teacher was the only one in the segregated setting with more than 15 years of experience working with children with special needs. Therefore, these findings support previous studies reporting that teachers with greater experience working in the educational field and with children with special needs held more positive views towards the thought of integration than did the teachers with fewer years of experience

(see Stoiber et al., 1998).

Overall, the findings of the present study appear to be consistent with the results from previous studies found in the literature. It is important to note that the participating children have been attending their respective settings for only one or two years and that the current findings may not carry forward to subsequent years. Despite the fact that integration is part of the educational reform, the integrated setting must assume the responsibility of providing the same adequate support to the children in their care in order to report continued success for the children with special needs.

The teachers and parents should also be further informed of the changes that have occurred in the educational system concerning integration. This information would provide them with the proper information required to make an informed decision concerning the best educational placement for the language development of a child with special needs.

CONCLUSION

This study has highlighted the fact that the language development of children with autism seems to be of a higher quality for the children enrolled in an integrated setting as compared to those in a segregated setting. Although the children in the segregated setting were provided with more opportunities to communicate than were the children in the integrated setting, they did not verbalise as much and the quality of their utterances was poor. The children in the integrated setting engaged more with their peers than did the children in the segregated setting. Therefore, the integrated children seem to have been exposed to more language role models, which may account for their greater language abilities. This implies that the social integration of the children with special needs in both settings must also be considered when reviewing the language development of children with autism.

The type of communication opportunities provided to the children also influence their language abilities. This study has shown that communicative opportunities involving a request enhanced the children's language skills in that they exerted some degree of control over their responses. This is in accordance with the findings reported in Sigafoos et al. (1994). This finding provides insight as to the types of communicative opportunities that help promote the language development of children with autism. Finally, this implies that the teachers' instructional style should also be considered when comparing the two types of educational settings.

The findings have also shed light on the fact that schools attempting to integrate children with special needs should not overlook essential factors such as providing the children with experienced teachers and adequate specialised services like occupational

therapy. Teacher experience seems to be related to their beliefs about integration (Stoiber et al., 1998). Therefore, a teacher with little experience working with children with special needs should not be placed in an integrated classroom without first receiving the proper training. Furthermore, the parents would most likely feel more confident and positive about enrolling their child in an integrated setting if they were assured that their child would receive the same specialised services as they would in a segregated setting (see Tari et al., 1989). The integrated setting in the present study provided their students with special needs with similar types of therapy and services as those received in the segregated setting.

This study also has implications for the parents' decision concerning their child's educational placement. As Tari et al. (1989) reported, the decision to integrate a child can be particularly difficult and stressful for parents. They also stated that the lack of co-ordinated community services and information provided constraints for the parents trying to make the appropriate decision for their child's education. As more studies reveal the differences between segregated and integrated settings, parents will be better equipped to make an informed decision as to the best school placement for their child's language development.

Despite the exploratory basis of this study, the findings have provided additional knowledge concerning the differences and similarities that exist between integrated and segregated school settings. Furthermore, the findings have also provided information in regards to characteristics that may influence the language development of children with autism. For instance, the findings suggest that teacher experience and the types of communication opportunities provided to the children may be related to their language

abilities. Little is known in regards to the language development of children with autism and which school setting optimises that development. This study provides much needed information concerning this process, which may be beneficial not only for the children, but for the parents and the teachers as well. Perhaps more teacher training programs could be administered in order to provide knowledge concerning how to promote language development among children diagnosed with autism. Future research assessing which teacher characteristics are capable of promoting language development among children with autism must be conducted in order to prepare teachers planning on educating children in an integrated environment.

It is important to emphasise that the basis of this study was exploratory in nature. The lack of empirical data represented in the literature contributed to the limitations of this study. In addition, the small sample size limits the generalisability of the study's findings. Further research needs to be conducted in an attempt to replicate the findings of the present study with a greater number of participants in both educational settings. Future studies should also include parental and teacher questionnaires or interviews assessing their attitudes and perceptions concerning the benefits and drawbacks of integrated and segregated school settings.

Furthermore, future research on the language development of children with autism and the best school placement to optimise that process needs to be conducted on a larger scale. That is, longitudinal studies that will follow high functioning children diagnosed with autism, randomly chosen from the two educational settings, and observed over several school years is recommended. The studies should include pre and post language samples for each participant in order to assess their level of understanding and use of

language. In addition, teachers' attitudes and perceptions towards integration and segregation must be assessed. Teachers play an important role in these children's language development. Therefore, it stands to reason, that if the teachers' attitudes and perceptions do not coincide with their current teaching position then the children may suffer educationally. Finally, since parents also play a role in the educational placement of their children, their attitudes towards integration and segregation must also be assessed in future studies.

Overall, the findings of this exploratory study have furthered our knowledge concerning the most appropriate educational placement capable of optimising the language development of high functioning children diagnosed with autism. This study has added to previous literature that showed that integration appears to favour the development of children with special needs when compared to segregated settings. Therefore, integrated settings seem to be feasible educational environments for children diagnosed with special needs. As more studies are completed, parents, teachers and the educational system as a whole will be better equipped to educate these children and aid their overall language abilities.

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APPENDIX A

Background Interview and Follow-up Questions for Parents
The purpose of the following questions is to provide additional information on each child and his/her past experiences and history.

(1) Gender: Boy_____ or Girl____
(2) Age:_____ years and _____ months
Can you tell me a little about your child's language development?

(3) Previous interventions and/or therapies received prior to entering the educational system (such as language and speech therapy):

(4) Current interventions and/or therapies that the child may be receiving:

(5) Any health concerns (other than the diagnosis of autism)?

(6) Any additional language stimulation or help received (such as at home, babysitter, etc.)

(7) Any additional information that may be helpful in understanding his/her language development.

Follow-up Interview Questions

(1) Can you tell me some of the reasons or factors that helped you in your decision concerning the educational setting, integrated or segregated, you chose for your child? (If the parents did not have a choice) What factors prevented you from choosing the educational setting for your child?

(2) How satisfied are you with your child's current educational setting?

Parents were thanked for their participation and their co-operation throughout the study.

APPENDIX B

Specimen Description Template

A specimen description (running record) is a narrative description of behaviors or events, which are recorded in substantial detail. Specimen description will be used to record a detailed and continuous narrative account of each individual's behavior in his/her immediate environmental context (the classroom, in this case). These accounts will be used to ensure a representation of each child's use of spontaneous language or lack thereof. Any and every detail should be recorded concerning the child's language. If there is no language observed during the pre-established time periods all other detail concerning the child's activities should be recorded (e.g., what he/she is doing throughout the time period, actions, games being played, activities, etc.).

Child's name:
Setting:
Date:
Day of the week:
Time:
Activity:
Number of children:
Number of adults:
Atmosphere:

Time	Observations

APPENDIX C

Observation Schedule for May and June 2001 (S= specimen and T/E= time/event sample)

Sunday	Monday	Tuesday	Wed.	Thursday	Friday	Saturday
		1	2	3	4	5
6	7 Segregated A.M. (S) P.M. (T/E)	8	9	10 Integrated A.M. (S) P.M. (T/E)	11	12
13	14	15 Segregated A.M. (T/E) P.M. (S)	16 Integrated A.M. (T/E) P.M. (S)	17	18	19
20	21	22	23 Integrated A.M. (S) P.M. (T/E)	24 Segregated A.M. (S) P.M. (T/E)	25	26
27	28 Integrated A.M. (T/E) P.M. (S)	29	30 Segregated A.M. (T/E) P.M. (S)	31		

Sunday	Monday	Tuesday	Wed.	Thursday	Friday	Saturday
					1 Make-up day for integrated setting	2
3	4 Make-up day for segregated setting	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

APPENDIX D

Operational Definitions Used for the Time/Event Sample

Time/Event sample: Language/ communication – any verbal form of communication used by the child in question.

Categories: Verbal communication (based on Sigafoos et al., 1994):

Requesting- recorded when (1) the educator or another student offers the child one or more items that the child may want or require. The educator/student must wait at least three seconds for the child to make an appropriate request before giving the child the item (e.g.) educator/student may hold a drink in front of the child and ask "Would you like a drink?" or the educator/student may ask "What do you want?" or some equivalent sentence and then wait for a response from the child; (2) when the child requests something that he/she needs or wants (e.g.) child may ask the educator or another child for some additional information concerning an activity "Can you help me with this?" or any other type of request communicated by the child.

Naming or commenting- recorded when (1) the educator or another student shows, points to, or draws the child's attention to a particular object, activity, or event, while asking something that is equivalent to "What is this?" Again, the educator/student must wait at least three seconds for the child's response; (2) when the child shows, points to, or draws the educator's (or fellow student's) attention to a particular object, activity, or event, while asking a question; (3) any comments made by either the child, a student or the teacher.

Communicating an answer- recorded when (1) the educator or another student asks a specific question about something that is not present in the immediate environment. This

is basically an opportunity for small talk between the child and the educator/student (e.g.) educator/student may ask "What did you do on the weekend?" or "How are you today?" Again, the educator/student must wait at least three seconds for the child's response; (2) when the child initiates a conversation that opens lines of communication involving small talk (e.g.) child may ask any of the above questions or any leading question that would commence a conversation.

Imitation or Echoic behavior- can occur in one of three ways: (1) educator or another student instructs the child to imitate a word (e.g., "Say ball."); (2) educator or student could demonstrate a manual sign and instruct the child to repeat that sign (e.g., "Do this." While making a sign for ball); and (3) educator or student could point to a communication symbol and then give the child an opportunity to imitate that response (e.g., "Now you point to the symbol for ball."). Once again, for this to be recorded, the educator or student must wait at least three seconds for the child's response.

APPENDIX E

Time/Event Sample Coding Template

Name of child:
Date: Day of week:
Time of observation:
Number of adults:
Number of children:
Activity(s):
Atmosphere:

Start and end time	Start and end time of the event being recorded
Verbal category	One of the four categories listed above
Initiator	*Who initiated the communication sequence (either the educator, one of the students of the child in question)*
Verbal communication	*What was said to initiate the communication sequence between the two people in question (e.g., "How are you doing?").*
Tone	*Did the initiator have a positive, negative or neutral tone when he/she initiated the communication sequence?*
Target	*Who was the communication sequence directed towards? (educator, another student or the child in question).*
Verbal response	*Anything said verbally in response to the initiator's communication (e.g., "I'm fine.").*
No response	*Check here if there is no response to the original communication initiated and write what the child, educator, or student did instead of responding (e.g., walked away without acknowledging the communication initiated.).*
Tone	*Did the target respond in a positive, negative, or neutral tone to the initiator?*

Written description:

A detailed account of what occurred during the communication sequence between the child and his/her communication partner. Does not have to be a lenghthy account simply enough information to recall what occurred during this event. Sufficient information so that someone not present could re-enact the communication sequence between the two individuals.

APPENDIX F

Teacher Interview- Questions

1. What is your highest teaching degree obtained to date? When did you receive this degree?

2. Are you currently completing any programs or degrees? Do you regularly attend workshops and/or conferences?

3. How many years have you been teaching?

4. How many years have you been teaching children with special needs?

5. Do you have a degree in special education? If not did you receive any specialised training? Do you regularly attend information sessions (workshops, in-service training, etc.) for updated material on the education of children with special needs?

6. Where did you teach prior to the current establishment?

7. What are your personal expectations or goals for (name of the child)? What do you think he/she can achieve?

8. In your personal opinion, in what educational setting do you think (name of the child) would best achieve these goals?

Thank you very much for your co-operation and time throughout the course of this study.

APPENDIX G

Letter and consent forms for the schools

To Whom It May Concern:

Allow me to introduce myself, my name is Barbara Welburn of the Education Department of Concordia University. I am currently completing a Masters degree in Child Study and will be conducting a research project with children diagnosed with autism. This project has been reviewed and has received ethical approval from the Concordia ethics committee. The purpose of this letter is to request permission from your facility to participate in this research project, which will be conducted with the children with autism in your establishment if you so choose to participate. The purpose of this research is to explore the extent to which the language development of young children with autism might be differentially influenced by being in a segregated versus integrated setting. The study will be non intrusive and non invasive. It will require that the children complete a language abilities test (Peabody Picture Vocabulary Test- Third Edition) with the researcher. This test contains four training items followed by 204 test items, which are divided into 17 sets of 12 items each. Each item has four simple, black and white illustrations on a PicturePlate, which are arranged in a multiple-choice format. The child's task will be to select the picture that he/she considers to best illustrate the meaning of a stimulus word presented orally by the examiner. The administration time is minimal and averages 11-12-minutes per child. The remainder of the information will be collected through observations conducted throughout the normal course of the program. The research will require several visits to your facility in order to collect the information from the language test and to observe the participant(s) in his/her environment. Furthermore, an additional visit will be required in order to collect some information about your facility and the classroom that the participating children attend. This will incorporate the Early Childhood Environment Rating Scale- Revised as well as a brief interview with the teacher of the classroom in question. Finally, a second researcher may be present during some of the observations in order to establish reliability for the information that will be collected.

All information collected in this study will be confidential and your facility's name will not be mentioned and your participation is completely voluntary. Parents will also be contacted in order to receive their permission for their child's participation. This study is not a clinical study in that I will not be doing any direct intervention or providing treatment for children. Rather, the results of this study will help us to understand more about the language development of young children diagnosed with autism as well as the best setting for that development.

I hope that you will agree to your facility's participation in this project as we feel we can learn helpful information about the language development of children with autism. I would greatly appreciate it if you could sign the permission slip below and return it to me with your decision at your earliest convenience. If you have any questions,

please call Barbara Welburn at (450) 965-0668 or Dr. Miranda D'Amico at (514) 848-2040.

Thank you for reading this letter. We hope that your facility will be able to participate.

Sincerely,

Barbara Welburn

_____ I give permission for this study to be conducted in this facility.

_____ I do not give permission for this study to be conducted in this facility.

Name and name of facility_____

Signature_____ Date_____

Witness Signature_____ Date_____

APPENDIX H

Letter and consent forms for the parents

Dear Parent:

Allow me to introduce myself, my name is Barbara Welburn of the Education Department of Concordia University. I am currently completing a Masters degree in Child Study and will be conducting a research project in your child's educational facility. This project has been reviewed and has received ethical approval from the Concordia ethics committee. The purpose of this letter is to request permission for your child to participate in this research project, which will be conducted with the children diagnosed with autism. This research will explore the extent to which the language development of young children with autism might be differentially influenced by being in a segregated versus an integrated setting. The study will be non intrusive and non invasive. It will require that the children complete a language abilities test (Peabody Picture Vocabulary Test). This test contains four training items followed by 204 test items, which are divided into 17 sets of 12 items each. Each item has four simple, black and white illustrations on a PicturePlate, which are arranged in a multiple-choice format. Your child's task will be to select the picture that he/she considers to best illustrate the meaning of a stimulus word presented orally by the examiner. The administration time is minimal and averages 12-minutes per child. The remainder of the information will be collected through observations conducted throughout the normal course of the facility's program. The purpose of the observations is to note your child's use of spontaneous language in a naturalistic setting. The information collected on your child will not be associated with your child's name and will be kept in the strictest of confidence. The only participation required from your child will be during the Peabody Picture Vocabulary Test- III. The remainder of the information will be collected without interrupting your child's usual schedule. Your participation will also be requested to complete two brief informal telephone interviews concerning your child's background and satisfaction with the edcational setting. Your child's participation will be completely voluntary and you may refuse to participate without any negative consequences to either yourself or your child. Furthermore, you will be free to withdraw your participation and that of your child's at any time throughout the study. The researcher may also choose to withdraw your child from the study if she feels that he/she is uncomfortable or does not want to continue his/her participation.

All information collected in this study will be confidential and your child's participation is completely voluntary. This study is not a clinical study in that I will not be doing any direct intervention or providing treatment for children. Rather, the results of this study will help us to understand more about the language development of young children diagnosed with autism as well as the best setting for that development.

I hope that you will agree to your child's participation in this project as we feel

we can learn helpful information about the language development of children with autism. I would greatly appreciate it if you signed the attached form and had your child return it to his/her educator at your earliest convenience. If you have any questions, please do not hesitate to contact Barbara Welburn at (450) 965-0668 or Dr. Miranda D'Amico at (514) 848-2040.

Thank you for reading this letter. We hope that your child will be able to participate.

Sincerely,

Barbara Welburn

Consent Form

This is to state that I agree to allow my child to participate in a program of research being conducted by Barbara Welburn of the Education Department of Concordia University.

A. Purpose

I have been informed that the purpose of the research is to explore the extent to which the language development of young children with autism might be differentially influenced by being in a segregated versus integrated setting.

B. Procedures

I understand that my child will participate in a study conducted at his/her educational facility within his/her own classroom and that the educator will be present at all times. I am aware that my child will be required to complete a language abilities test called Peabody Picture Vocabulary Test- Third Edition with the researcher. The study will require only a minimal amount of my child's time. I also am aware that my child will be observed during the regular routine of the class. These observations will be used to collect additional information concerning my child's spontaneous use and opportunities for language. I also understand that I will required to complete two brief telephone interviews on my child's background in order to provide any information concerning previous interventions. I understand that the above procedure will not harm or risk myself nor my child. Finally, I understand that all the information provided to the researcher will be kept in the strictest of confidence and will not be divulged to anyone without my permission.

C. Conditions of Participation

- I understand that my child's participation in this study is completely voluntary.
- I understand that I, or my child, can withdraw and discontinue our participation at anytime and for any reason without negative consequences to either of us.
- I understand that my child's participation in this study is confidential (i.e., only the researcher will know his/her identity and his/her information, and will not disclose them to anyone without my prior consent).
- I understand that the data from this study may be published, but that no individual results or names will be divulged.

I have carefully studied the above and understand this agreement. I freely consent and voluntarily agree to allow my child to participate in this study.

I,_____, do hereby give my consent for my child to participate in a study conducted by Barbara Welburn from Concordia University. A copy of this consent form will be sent to me upon request.

Parent's signature on behalf of child:_____ Date:_____

Parent's signature:_____ Date: _____

Witness signature:_____ Date: _____