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A Survey Of Knowledge Among Illinois School Psychologists Regarding Autism

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A SURVEY OF KNOWLEDGE AMONG ILLINOIS SCHOOL
PSYCHOLOGISTS REGARDING AUTISM

BOUR

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A Survey of Knowledge
Among Illinois School Psychologists Regarding Autism
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BY

Julia Bour

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

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IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1996
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Running head: A SURVEY OF KNOWLEDGE

A Survey of Knowledge
Among Illinois School Psychologists Regarding Autism

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Abstract

A questionnaire was designed by the examiner to identify prevailing misconceptions which Illinois school psychologists and speech-language pathologists have regarding autism. The results were also evaluated to determine if a significant difference in knowledge of autism, based on the examiner's questionnaire, exists between the two groups of professionals.

The subjects consisted of 55 school psychologists and 60 speech-language pathologists, who completed the examiner's questionnaire.

The results of the survey revealed that both groups do have certain misconceptions about the syndrome of autism as measured by the examiner's questionnaire. Both Illinois school psychologist and speech-language respondents harbor misconceptions regarding incidence, age of onset, prevalence of mental retardation with autism, essential educational interventions, diagnostic components, and common characteristics of individuals with autism. Overall, both groups indicate difficulty diagnosing and making programming decisions for children with autism, in addition to making a differential diagnosis of autism. In conclusion, 92% of the speech-language pathologist and 86% of the school psychologist respondents indicate that they would like further opportunities to be in-serviced about autism.

Acknowledgements

8,647 words and 2 years later, the dark cloud has finally lifted. There were as many times as words in this thesis that I thought I would never finish this project. In moments of desperation I prayed that God would provide me with a finished thesis while I slept. However, with the guidance of Dr. Richard, Dr. Havey, and Marjorie Hanft-Martone, I have finished what I thought was once impossible. Those people who supported and encouraged me know who they are, and know that I couldn't have made it without them next to me every step of the way. These are the people who helped me up when I stumbled, and told me things I needed to hear, even when I didn't always want to listen. This thesis is more than just a "completed degree requirement." It is a symbol of my proudest accomplishment. A simple "thank you" doesn't seem enough; but all the same, I want to thank my family and friends for their endless support and encouragement.

Table of Contents

Abstract.....	i
Acknowledgements.....	ii
Table of Contents.....	iii
List of Tables.....	iv
Table of Appendices.....	v
Chapter	
I. Review of the Literature.....	1
II. Method.....	19
Subjects.....	19
Rating Scale Instrument.....	20
Procedures.....	21
III. Results.....	23
IV. Discussion.....	26
References.....	34
Appendices.....	39

List of Tables

1. Demographic Characteristics of School Psychologist and Speech-Language Pathologist Respondents.....19
2. Percentage of Questions Answered Correctly by Respondents.....24
3. Mean Ratings for Difficulty Making a Differential Diagnosis on a Scale of 1-8.....30
4. Disorders Identified as Being Difficult to Differentiate from Autism.....31

List of Appendices

- A. Questionnaire Form.....39-40
- B. School Psychologists' Identifying Information.....41
- C. Speech-Language Path. Identifying Information.....42

Chapter 1

Review of Literature

A study by Stone and Rosenbaum (1988) found that both parents and teachers have misconceptions regarding cognitive, developmental, and emotional components of autism. Both groups had a tendency to view individuals with autism as more intelligent and less often mentally retarded than indicated from research findings and specialist responses to the survey administered in this study. Gilliam and Coleman (1982) conducted a survey to assess knowledge of autism among experts and caregivers. Results of the survey indicated three areas requiring further in-service training of caregivers: incidence and gender ratio, etiology, and attitudes toward the public education of children with autism.

An assessment of a child with autism requires knowledge of instruments designed for this particular disorder, and the ability to adapt to the specific communication, cognitive, and behavior problems of autism. In addition, accurate behavioral observation is needed since it is a behaviorally defined disorder. A lack of knowledge regarding appropriate assessment of children with autism can sometimes result in the label of "untestable," which contributes little information (Olley & Rosenthal, 1985). School psychologists may also be put in the position of informing students, teachers, and administrators about autism. Olley

and Rosenthal (1985) reported that there is "no evidence that knowledge and skills related to autism are emphasized in school psychology training programs" (p. 169). Training in the area of autism could increase the contribution school psychologists make to educational programs for students with autism.

Theoretical Background and Definition of Terms

Leo Kanner and Hans Asperger, independently of each other, published accounts of autism. Kanner first published in the United States in 1943 and Asperger in Austria in 1944. Both described detailed case studies and proposed the first theoretical attempts to explain autism. "Both authorities believed that there was present from birth a fundamental disturbance which gave rise to highly characteristic problems" (Frith, 1989, p. 7). Kanner and Asperger used the word 'autistic' to illustrate the nature of the underlying disturbance. They described certain cases of children that seemed incapable of forming or sustaining normal affective relationships with people. It is now believed that Asperger's definition of autism differed from Kanner's view of autism. Asperger included cases that showed severe organic damage as well as cases of individuals that might be seen as normal. Presently, the label 'Asperger's syndrome' is applied to those children with autism who have higher intelligence and excellent verbal communication. Kanner's syndrome is often used to describe the child with a

"constellation of classic 'nuclear' features, resembling in astonishing detail the features that Kanner identified in his first, inspired description" (Frith, p. 8). Regardless of the numerous differences in the individuals with autism that Kanner described, he was adamant that only two features were of primary significance. These two features were necessary and perhaps sufficient for a diagnosis of autism. The main feature was described as autistic aloneness; these children had severe impairments in communicating and socially interacting with other people. The second feature was termed insistence on sameness and included compulsive, stereotypical, or ritualistic behaviors (Frith, 1989).

Asperger's Disorder

Based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), the essential features of Asperger's Disorder are severe and sustained impairment in social interaction and the development of restricted, repetitive patterns of behavior, interests, and activities. Unlike Autistic Disorder, there are no clinically significant delays in language with Asperger's Disorder. Also, cognitive development and the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood are not significantly delayed (p.75).

Diagnosis of Autism

According to Hart (1993), the signs of autism usually appear at first to be developmental delays. The child may appear to be slower than most children in achieving meaningful speech or making social gestures, such as smiling. Hart also stated that autism is classified as a developmental disability because it disrupts the normal rate and/or sequence of childhood development (p. 5). While many parents suspect early developmental problems, even during the first year, few feel the need to pursue professional help. Parents typically become more concerned during the second year. This is probably due to the combined effect of severity of the autistic characteristics, parental worry and feelings of helplessness, and the laborious search for appropriate professional support (Watson & Marcus, 1988).

Vicker and Monahan (1988) conducted a study to obtain information on diagnostic practices regarding autism. The departments of Public Instruction and Departments of Mental Health in all 50 states were surveyed. These researchers concluded that the "quality of professional training programs, as well as the type of professional conducting the diagnosis, is likely to vary from state to state, thus adding to national variability in diagnostic practice" (p. 232). Depending on agency criteria, the same individual with autism may be classified differently within a single state. It was also hypothesized that the more precise diagnostic criteria led to higher reliability in identifying people

with autism. The diagnostic system used most frequently by Departments of Mental Health was the Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised (DSM III-R). The DSM III-R criteria were used 68.9% of the time to diagnose autism. The second most frequently used system was professional judgement (27.1% of the total sample for Department of Mental Health). Professional judgement was used by all departments of Public Instruction. According to Vicker and Monahan, "the lack of uniform criteria creates opportunities for an incorrect diagnosis by those professionals not familiar with the current literature on autism" (p. 239). The findings of this study indicate the need for more consistent and precise diagnostic practices regarding autism.

Luke Tsai (1994 Autism Society of America conference, p. 223-224) discussed four essential features of autism:

1. A lack of social interest and responsiveness;
2. Impaired language, ranging from absence of speech to peculiar speech patterns;
3. Bizarre motor behavior, ranging from rigid and limited play patterns to more complex ritualistic and compulsive behavior;
4. Early onset, before 30 months of age.

These four essential features were adopted by using three sets of diagnosis and classification systems that have been used worldwide by clinicians: the International

Classification of Diseases, 9th revision (ICD-9) of the World Health Organization; the Diagnostic and Statistical Manual of Mental Disorders; and the revised edition (DSM III-R) of American Psychiatric Association; and the Diagnostic Definition of the Autism Society of America (Tsai, p. 224). Tsai also stated that the ICD-9 and the DSM III-R contain differences in their concept of autism. In ICD-9, autism is classified as a subtype of "psychoses with origin specific to childhood" (p. 224). The DSM-III and DSM III-R systems view autism as a developmental disorder and group it under the very broad class of pervasive developmental disorders (PDD).

Based on the 1994 revision of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), the following criteria are currently used to diagnose Autistic Disorder (p. 70):

1. Qualitative impairment in social interaction;
2. Qualitative impairments in communication;
3. Restricted repetitive and stereotyped patterns of behavior, interests, and activities;
4. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.
5. The disturbance is not better accounted for by

Rett's Disorder or Childhood Disintegrative Disorder.

The DSM-IV reports that the rates of autism are 2-5 cases per 10,000 individuals. Rates of this disorder are also four to five times higher in males than in females (p. 68). However, the Autism Society of America reports 15 cases per 10,000 individuals. In terms of associated characteristics, Wing and Attwood (1987) state that "retardation of cognitive, language, and motor skills from any cause can occur with or without autism" (p.12). In 1943, Kanner claimed that children with autism had potential to develop normal cognitive skills. Researchers (American Psychiatric Association, 1994; Frith, 1989; Hart, 1988; Lowery, Quinn, & Stewart, 1983; Phelps & Grabowski, 1991) have indicated that although autism does occur in individuals with normal intelligence, approximately 75% of individuals with autism do function at a retarded level. Furthermore, these researchers assert that individuals with autism usually have uneven development and may display splinter skills with some that are normal or superior for their age, and others that are significantly delayed. Consequently, the cognitive profile of a child with autism typically appears uneven due to the varying ability levels they develop.

Diagnostic criteria for autism have varied over the years due to the considerable variability in concepts and

issues surrounding autism. When autism was viewed as a childhood psychosis, attention was focused on the child's bizarre behavior. The focus shifted towards the impairment in language and social development when researchers began studying the cognitive deficits that existed in people with autism. According to Rutter and Schopler (1988), what separates autism from other disorders of development is not the delay in the developmental process, but rather the deviance that occurs during development with autism (p. 18). They also noted that children with autism typically show a combination of bizarre behaviors, developmental delay, and developmental deviance. Many autistic characteristics are found in other disorders, but it is the deviance in language and social development that sets this syndrome apart from other conditions.

Many children with autism never speak. When they do, their speech is often characterized by echolalia, lack of spontaneous speech for communication, pronoun reversal, and abnormal speech tone or rhythm (DeMyer, Hingtgen, & Jackson, 1981). It has been found that the loss of previously acquired speech, including reportedly meaningful language, occurs in a large percentage of children with autism (Kurita, 1985). The prognosis for this group may be poorer than those children who have not shown such regressions in language development (Kurita, 1985).

The area of pragmatic language usage is a major focus

in the study of autism--that is, language within a social context. Researchers agree that difficulty with pragmatic language exists in all individuals with autism regardless of their intellectual level (Frith, 1989). Even in individuals with high functioning autism, nonverbal communicative behavior remains impaired, albeit to a lesser degree than those with low functioning autism. Ricks and Wing (1975) point out that the gestures, facial expressions, head nods, smiles, and other means usually used to converse with people are absent or deviant in the conversations with people having autism. Ricks and Wing (1995) state that people with autism often fail to respond to social cues given by others and may discuss at great length topics of little interest to others. Typical youngsters begin babbling around six months, speaking first words at a year, and using two or three words together by eighteen months. According to Hart (1993), children with autism have no common pattern of language development. Stewart & Tsai (1983) state that about half of all children with autism do not have meaningful speech by the age of five years.

Another characteristic of autism is specific sensory sensitivity. People with autism display abnormal responses to sensory stimulation. The level of responsiveness to sensory stimuli involving all modalities can vary a great in people with autism (Golden, 1987). Certain stimuli may be totally ignored or responded to in extreme fashion.

Stereotypic movements, such as hand-flapping or rocking, are seen in response to sensory input or used to provide sensory stimulation. One child may find a hair brush too painful to tolerate (hypersensitive), whereas another might bang his/her head against a wall for sensory stimulation (hyposensitive). The underlying neurological abnormality is assumed to be a dysfunction of the vestibular connections (Golden, 1987).

The social impairments of people with autism are among the most noticeable features of the syndrome of autism. Kanner (1943) considered social aloofness to be one of the cardinal features of this disorder. Even those people functioning at a high intellectual level are typically unable to sustain more than a simple social relationship (Volkmar & Cohen, 1988). This important characteristic of autism is emphasized in current diagnostic criteria for this disorder. Parents typically suspect that something is not right when the infant fails to reciprocate eye contact and acquire the social smile within the first months of life. Although young children with autism may be highly responsive to insignificant changes in their environment, the human face and social interaction may hold little interest for them, in striking contrast to normally developed or even mentally impaired children (Volkmar, 1987).

Specific social attachments do not develop when expected, though highly uncommon and peculiar attachments to

objects may be seen. As infants, children with autism may not seek comfort from parents and may be difficult to hold. Often times, infants are just as content with strangers as with caregivers (DeMyer, 1979). This is not to say that these children do not seek comfort; comfort from their parents may be sought in ways other than physical affection. Although appropriate affectionate behaviors may fail to develop in the first years of life, they may appear later in the course of the child's development. Children with autism express joy, fear, anger and other moods, but these emotions often deviate from social expectations. According to Volkmar (1987), "It is clear that social relationships do not simply fail to develop; rather it is the quality of the social relationship that seems to be aberrant" (p.46).

Many children remain presumably content to be left alone to engage in self-stimulatory and other seemingly unusual activities. In older children, the social impairment in communication is most evident as children fail to engage in social interchange and have difficulties taking another person's point of view into account (Langdell, 1978). Even when social relationships do develop, they are typically with adults; other children seem to hold less interest and increase anxiety for the child with autism. Mutual or cooperative play is frequently absent, unless it is specifically taught to the child and role playing takes place to allow the child to practice the skills needed to

interact with others. Children with autism do not simply fail to respond socially. Rather, they respond differently to attentive versus inattentive adults and show different social behaviors to those people they know versus strangers (Sigman & Ungerer, 1984).

Social impairment in autism presents itself differently at the various levels of development (Frith, 1989). Signs of impairment also vary according to the presence or degree of mental retardation. Evidence of social impairment exists even in the highest functioning individuals, and is often apparent to the lay persons they encounter on a daily basis.

Etiology of Autism

Although there have been assertions that autism is a result of a fear over social contacts (Tinbergen & Tinbergen, 1983) or of parental rejection (Bettelheim, 1967), the research does not support either theory (Rutter & Schopler, 1988). Although abnormalities in raising children can result in serious social problems, these problems are strikingly different than those found in autism.

At one time, many researchers believed that autism was a functional, not an organic disorder, since there was then no direct evidence of brain abnormality. One of the first facts that dispelled this belief was the finding that epilepsy appears in about one-third of autistic adolescents (Gillberg & Steffenburg, 1987). Even those children that function cognitively above the mentally impaired range still

show signs of neurological abnormalities. According to Frith (1989), "Signs of neurological dysfunction that are frequently found in children with autism include: EEG abnormalities, abnormal nystagmus, abnormal persistence of certain infantile reflexes and stereotypic movements" (p. 70). The behavioral, emotional, and cognitive symptoms found with autism strongly suggest that central nervous system functioning is altered in autism (Anderson & Hoshino, 1987). Although the specific cause of the syndrome is unknown, it is known that autism has multiple etiologies (Rutter, 1974). According to Rapin (1987), "Autism, like acquired aphasia, is not a disease; it is a behavioral syndrome with many different etiologies" (p. 711).

When discussing the etiology of autism, it is important to consider the ways in which male and female individuals with autism differ. It is well established that autism is more common in boys than in girls. Furthermore, it seems that autistic girls tend to be more seriously affected and possibly more likely to have a family history of cognitive problems. These findings need replication as well as extension to determine whether there are any other differences in pattern between boys and girls with autism (Tsai, Stewart & August, 1981; Lord, Schopler, & Revick, 1982; Wing, 1981).

There is overwhelming evidence that there is organic involvement in the syndrome of autism. However, this

evidence only establishes that there is brain abnormality, not its nature (Frith, 1989). It has been found that many children with autism have elevated blood serotonin levels. At the same time, serotonin in the spinal fluid and elsewhere in the body is present at normal levels (Anderson & Hoshino, 1987). According to Frith (1989), "The abnormality was pinned down to an alteration in uptake or storage of serotonin by blood platelets" (p. 73). A theory is also suggested that the dopamine system is impaired in people with autism. This theory focuses on those neurological symptoms which seem to be closely related to autism: strange gait, poor voice control, apparently expressionless faces, hand flapping, repetitious actions, lack of spontaneity, perseveration on a topic and social impairment. These symptoms could possibly reflect dysfunction in those areas of the brain which are controlled by the dopamine system (Frith, 1989).

Since autism is rare in occurrence, one would not expect to see more than one child with autism in a family. However, 2 percent of siblings of children with autism are found to have autism themselves. This incidence is 50 to 100 times higher than that of the population in general (Frith, 1989; Brill, 1994).

The occurrence of fragile X syndrome with autism is an area that is currently being researched. It has been found that between 5-10% of people with autism also have the

fragile-X anomaly. According to Brill (1994), fragile X accounts for one of ten cases of autism. This chromosomal abnormality clearly accounts for a higher proportion of cases of autism than any other previously identified etiology. Individuals with fragile-X display language abnormalities similar to those found in people with autism. According to Frith (1989), it is estimated that between 10-20% of boys with autism have a chromosome abnormality, fragile-X being the most plausible. The literature is not clear on whether or not cases of autism due to fragile-X syndrome are different from other cases of autism. (Bregman, Dykens, Watson, Ort & Leckman, 1987; Coleman & Gillberg, 1985).

Differential Diagnosis

The syndrome of autism is considered to be a spectrum disorder with symptoms ranging from mild to severe. According to Freeman (1994), the mistake most often made in diagnosis is the failure to recognize all the possible combinations of symptoms that can occur within this syndrome. Rutter and Schopler (1988) said the following:

Autism differs in so many ways from the ordinary run of emotional and behavioral disorders of childhood that its distinctiveness is beyond dispute. Thus, it stands out in terms of its strong association with mental retardation and with organic brain dysfunction, as well as in its worse prognosis, and its persisting

differences in symptomatology (p. 17).

A difficult task in making a differential diagnosis is the fact that there is no readily recognizable separation point between "true" autism and other disorders that share some of the characteristics, but do not fulfill the complete set of criteria needed to make a diagnosis of autism (Rutter & Schopler, 1988).

A differential diagnosis is most difficult to make when a child is very seriously retarded with a mental age below 2 years of age. Wing and Gould (1979) found that about one half of all children with an intelligent quotient below 50 showed autistic-like symptoms such as, language impairments and repetitive behaviors. Conflicting diagnoses may also occur with children who have borderline or normal intelligence, since the features of autism may be present in less obvious forms. In girls, there is a need to differentiate autism with Rett's syndrome. Rett's syndrome is a progressive debilitating disorder with loss of facial expression, interpersonal contact, stereotyped movements, ataxia, and loss of purposeful hand use. Rett's syndrome can be mistaken for autism in its early stages (Holm, 1985).

Developmental language disorders affect essentially the reception and expression of speech or articulation. Social behavior may be immature or impaired; however, children without autism that have language problems are typically eager to communicate in any way they are able, interact with

peers, and develop pretend play. The same can be said when differentiating autism with a hearing impairment (Wing & Attwood, 1987).

Researchers have shown that caregivers and professionals have common misconceptions about the syndrome of autism (Gilliam & Coleman, 1982). Research on autism has been plagued by the use of inconsistent criteria in defining autistic populations and has consequently produced results that are often conflicting or unclear (Gilliam & Coleman).

Now that autism is a special education category, school psychologists are charged with diagnosing children with this disorder. It is critical that school psychologists be knowledgeable in this area and possess an understanding of the nature of this disorder. A lack of awareness of current views of autism may result in significant negative consequences, including misdiagnosis and missed opportunities for intervention. Thus, an evaluation of Illinois school psychologists' knowledge of autism may serve to pinpoint specific training needs of this group of professionals. This study will attempt to identify the prevailing misconceptions held by Illinois school psychologists about the syndrome of autism as measured by the examiner's questionnaire. It is hypothesized that school psychologists will demonstrate adequate knowledge about autism due to the addition of this syndrome as a special education category. Furthermore, this study will determine

if a significant difference exists between Illinois school psychologists and speech-language pathologists' knowledge of autism.

For the purpose of this study, Illinois speech-language pathologists will be used as a comparison group to contrast their responses to the questionnaire with those of Illinois school psychologists. School psychologists and speech-language pathologists have similar degree requirements in their professions, and both professionals are members of multidisciplinary teams responsible for diagnosis and instructional planning for students with autism in an educational setting. The impairment of language in children with autism is an essential feature of this syndrome, and the involvement of speech-language pathologists in educational programming is often vital to a child's success both in and outside of the classroom.

Research Questions

The following research questions are posed:

- (1) What misconceptions do Illinois school psychologists have about the syndrome of autism as measured by the examiner's survey questions?
- (2) Is there a significant difference in their knowledge of autism, based on the examiner's questionnaire, between Illinois school psychologists and speech-language pathologists?

Chapter 2

Method

Subjects

Questionnaires were mailed to 150 randomly selected members of the Illinois School Psychologists Association and returned by 55 for a response rate of 37%. The questionnaire was also mailed to 150 randomly selected members of the Illinois Speech-Language-Hearing Association and returned by 60 for a response rate of 40%. The overall response rate for the study was 38%. Only those speech-language pathologists who work in a school setting were chosen to participate in the study. Table 1 presents the respondents' demographic characteristics as indicated on the returned questionnaires.

Table I.

Demographic Characteristics of School Psychologists & Speech-Language Pathologists

	SCH. PSY	SLP
n=	55	60
Female	44	56
Male	11	4
Formal training in autism?		
Yes	41	42
No	14	18
Years experience		
Mean	8.0	12.4
SD	6.6	7.5
Total no. autistic children seen past yr.		
Mean	3.0	2.1
SD	3.4	2.9
Comfort in diagnosing and programming*		
Mean	4.4	5.2
SD	2.0	2.2

Note. *= rated on a scale from 1-8

The school psychologist respondents ranged from 25 to

63 years of age; the speech-language pathologist respondents ranged from 30 to 73 years of age. The school psychologists' experience in their present position ranged from 1 to 24 years, with the average years of experience being 8. The speech-language pathologists' experience ranged from 1 to 27 years, with the average years of experience being 12.4 in their present position. Appendices B and C summarize the respondents' identifying information as well as their geographic location.

Instrument

A 13 item questionnaire was designed which contained both multiple-choice and true-false statements (Appendix A). The questionnaire form included a space to mark the respondent's gender, age, current position, degree, and whether or not they had received formal training or information regarding children with autism. The form also included space for the respondent to indicate how many children with autism they had worked with in a professional capacity within the past year, and whether or not they would like more opportunities for in-service on the topic of autism.

In addition to true-false and multiple-choice questions, a Likert-type rating scale was designed to measure the respondents' comfort level in diagnosing and making programming decisions for children with autism, as well as making a differential diagnosis of autism. This

Likert-type rating scale contained ratings from 1-8, and an even number of choices to avoid a midpoint selection.

Questions were designed to identify prevailing misconceptions that school psychologists and speech-language pathologists may have in the following areas: incidence, sex-ratio, etiology, characteristics of the syndrome, diagnosis in an educational setting, and essential educational interventions for children with autism. These areas were chosen for survey questions because of their encompassing nature in understanding the syndrome of autism. If a professional had adequate knowledge in these areas it could be said that he/she had a good grasp of the syndrome as well as the characteristics and educational needs of a child with autism.

Procedures

The examiner mailed 150 questionnaires to randomly selected Illinois School Psychologist Association (ISPA) members and 150 randomly selected Illinois Speech-Language-Hearing Association (ISHA) members. The names and addresses used for the mailing were obtained from the membership directories of the above mentioned organizations. A systematic sampling system was used to obtain a random sample: Every third person was taken from the ISPA directory, and every fifth person was selected from the ISHA directory to participate in the study. Questionnaires were sent to the 300 randomly selected members of ISPA and ISHA

along with a cover letter summarizing the purpose of the survey and a postage-paid return envelope.

The respondents were given two weeks from the day the questionnaires were sent to return the surveys. The zip codes were placed on the return envelopes to track the number of questionnaires returned.

Chapter 3

Results

The results of the survey for school psychologists and speech-language pathologists revealed that these groups of professionals do have certain misconceptions regarding the syndrome of autism as measured by the examiner's questionnaire. Responses to the survey items were analyzed by comparing the two groups of professionals' responses to the individual items on the questionnaire. This was done to determine if a significant difference was present in knowledge of autism, based on the examiner's questionnaire. Each group's responses were also analyzed separately to determine if any misconceptions about autism were present among Illinois school psychologists or speech-language pathologists. A group was considered to demonstrate adequate knowledge about a specific area of autism if a question was answered correctly by seventy or more percent of the respondents. This figure was determined by the examiner of the study to be an acceptable level of knowledge for the surveyed group of professionals.

Table 2 summarizes the percentage of questions answered correctly by the two groups of professionals. Results of the survey indicated several areas which may require further in-service training for both school psychologists and speech-language pathologists. School psychologists harbored misconceptions (as measured by the examiner's questionnaire)

in the areas of incidence, age of onset, prevalence of mental retardation with autism, educational interventions, and common characteristics of autism.

Table II.

Percentage of Questions Answered Correctly by Respondents

Question Topic	Correct Respondents (%)	
	Sch. Psy	SLP
Incidence	*20	*25
Gender ratio	91	86
Age of onset	*47	*34
Etiology	91	90
Prevalence of mental retardation	*69	*45
Common Characteristics of Autism		
Sensory disturbances	*60	79
Social functioning	*43	*41
Phonology	*65	78
Pragmatic language	72	95
Diagnostic components	*60	*57
Assessment w/IQ tests	*45	*19
Essential Educational Interventions		
Strict operant beh. mod. plan	*65	*53
Self-contained class	100	96
Visual teaching techniques	74	82
Social skills training	85	91

Note. * = These areas were not answered with at least 70% accuracy.

The Illinois school psychologist respondents demonstrated adequate knowledge in the area of gender ratio. An equal percentage of school psychologists responded that autism is neurobiological disorder which may have many different causes. School psychologists also recognized the significant impact that autism has on an individual's pragmatic language use, regardless of intellectual level. The school psychologist respondents did display some misconceptions with the required components needed to make a diagnosis of autism in an educational setting.

The speech-language pathologist respondents indicted adequate gender ratio and etiological knowledge of autism. This group harbored misconceptions in the areas of incidence, age of onset, prevalence of mental retardation with autism, and common characteristics of individuals with autism. This group also had difficulty identifying the components necessary to make a diagnosis, and essential educational interventions for children with autism.

Overall, results indicated the following:

1. Both Illinois school psychologist and speech-language pathologist respondents harbored misconceptions regarding incidence, age of onset, prevalence of mental retardation with autism, essential educational interventions, diagnostic components, and common characteristics of individuals with autism.
2. Overall, both groups of respondents indicated some difficulty diagnosing and making programming decisions for children with autism, in addition to making a differential diagnosis of autism.
3. Ninety-two percent of the speech-language pathologist and eighty-six percent of the school psychologist respondents indicated that they would like further opportunities to be in-serviced about autism.

Chapter 4

Discussion

Previous research and literature has shown that both parents and teachers have misconceptions regarding cognitive, developmental, and emotional components of autism. Both groups had a tendency to view individuals with autism as more intelligent and less often mentally retarded than indicated from research findings (Stone & Rosenbaum, 1988) and specialist responses to the survey administered in this study. In a survey conducted by Gilliam and Coleman (1982), results indicated three areas requiring further in-service training for caregivers of individuals with autism: incidence and gender ratio, etiology, and attitudes toward the public education of children with autism. The purpose of this study was to determine if Illinois school psychologists and speech-language pathologists held misconceptions regarding the syndrome of autism as measured by the examiner's survey questions. Another purpose of this study was to determine if a significant difference exists between the school psychologists and speech-language pathologists' knowledge of autism.

The results of the survey revealed that both the Illinois school psychologist and speech-language pathologist respondents had certain misconceptions regarding the syndrome of autism. The Illinois school psychologist and speech-language pathologist respondents did not demonstrate

an adequate level of knowledge when identifying the age of onset in autism. Eighteen percent of the school psychologists (34% of speech pathologists) believed that autism develops within the first 12 months of life. Thirty-one percent of school psychologists and thirty percent of speech pathologists identified the development as being within the first two years of life.

Research suggests that at least 75% of individuals with autism also have some degree of mental retardation. However, 31% of school psychologist and 55% of speech-language pathologist respondents indicated that less than half of those individuals with autism have some degree of mental retardation.

Sensory disturbances are cited in the literature as a common characteristic of autism. While only 21% of the speech-language pathologists answered this question incorrectly, 40% of the school psychologists indicated that sensory disturbances were not highly specific to autism. It is important that these groups of professionals be aware of symptoms when interacting with or making programming decisions for children with autism. It appears that a great deal of professional individuals are not aware of the impact that autism has on an individual's sensory system.

Another area in which both groups of professionals held misconceptions was social functioning. Fifty-seven percent of the school psychologists and 59% of the speech-language

incorrectly responded that children with high functioning autism are typically able to sustain more than a simple social relationship. The literature suggests that all individuals with autism have difficulty sustaining anything beyond a simple social relationship. As a result, social skills training should be a vital part of all (including high functioning) autistic children's educational programs.

Although 78% of the speech-language pathologists correctly indicated that children with autism who speak usually show normal phonology, only 65% of the school psychologists responded correctly to this question.

A common myth is that children with autism cannot be assessed reliably with intelligence tests. Eighty-one percent of the speech-language pathologist and 55% of the school psychologist respondents believed this myth to be true. Neither group had any respondents who believed that, with proper treatment, most children having autism would eventually outgrow the syndrome.

Both groups displayed misconceptions when identifying the necessary diagnostic components of autism. Forty percent of the school psychologists identified incorrect components. Out of this 40%, 46% did not list age of onset as a required component when diagnosing autism. Fifteen percent stated that a child diagnosed with autism must have normal development in the first few months of infancy. Furthermore, 39% did not list repetitive and stereotyped patterns of

behavior as a required diagnostic component. Forty-three percent of the speech pathologists incorrectly identified diagnostic components. Forty-three percent of this group believed that a child must have normal development for the first few months of infancy, 34% did not list age of onset, 11% did not list repetitive and stereotyped patterns of behavior, and 6% listed mental retardation as a required diagnostic component.

Both groups of professionals are likely to function in the position as a member of a team that has to make educational decisions for a child with autism. Therefore, these groups need to possess knowledge about essential educational interventions that should be a part of the autistic child's education. Although most children with autism will need a behavioral modification plan implemented, not all will need a strict operant plan. However, 47% of the speech pathologists and 35% of the school psychologists thought that a strict operant behavioral modification plan was necessary for all children with autism. Both groups displayed adequate knowledge in educational interventions that pertained to self-contained classes, visual teaching techniques, and social skills training. They did not indicate that a self-contained class with other students having autism or autistic-like characteristics was needed for every child with autism. Over 70% of both groups agreed that visual-teaching techniques and social skills training

were essential educational interventions.

Overall, the only area where school psychologists and speech-language pathologists differed with regards to their level of knowledge in a given area was in identifying sensory disturbances as a common characteristic of autism. Seventy-nine percent of speech-language pathologists correctly answered this question versus 60% of the school psychologists.

School psychologists were much more likely to recognize that children with autism can be assessed reliably with intelligence tests. However, speech-language pathologists were more likely to agree that pragmatic language difficulties exist in all individuals with autism.

When making a differential diagnosis of autism, on average, school psychologists rated the decision as being "somewhat difficult," whereas on average speech-language pathologists had "quite a bit" of difficulty making a differential diagnosis. Table 3 and 4 summarize the respondents mean rating as well as the disorders that they found difficult to differentiate from autism.

Table III.

Mean Ratings for Difficulty Making a Differential Diagnosis on a Scale of 1-8

Group	Mean	SD	Interpretation
Speech Path.	5.2	2.1	"Quite a bit" of difficulty
School Psych.	4.4	1.7	"Some" difficulty

In a fill-in-the-blank section that allowed the respondents to list disorders that made differential

diagnosis difficult, 14% of speech pathologists and 4% of school psychologists identified pervasive developmental disorder (PDD), and 8% of school psychologists listed Asperger's disorder.

Table IV.

Disorders Identified as Being Difficult to Differentiate From Autism

Disorder	School Psy. (5)	Speech Path. (%)
Mental Retardation	19	18
Developmental Lang. Dis.	44	24
Rett's Syndrome	21	22
Childhood Schizophrenia	40	31
Hyperlexia	21	47

The major conclusions which can be drawn from the survey responses are that both the Illinois school psychologist and speech-language pathologist respondents harbor misconceptions regarding incidence, age of onset, prevalence of mental retardation with autism, diagnostic components, assessment with IQ tests, and the need for a strict operant behavioral modification plan. School psychologists were more likely to disagree with sensory disturbances being highly specific to autism. In addition, fewer school psychologists responded correctly to a question pertaining to the phonology of individuals with autism. This difference between the two groups of professionals could be due to the speech pathologists' training in language disorders. Both school psychologists' and speech pathologists' responses reflect the misconception that autism is more rare than it actually is. However, the

incidence level can be easily taught as a matter of research-based statistics. Both groups tended to view individuals with autism as less cognitively impaired (e.g., less often mentally retarded). The danger of this misconception lies in its potentially harmful effect on relationships between adults and children with autism. Overly high expectations can easily lead to situations of frustration for both child and adult.

It was also apparent that both groups experienced some confusion with the required diagnostic components of autism. To ensure an accurate diagnosis, these professionals must be made aware of the essential components needed to make a diagnosis of autism.

The degree to which the specific results of the present study are applicable to other samples of school psychologists and speech-language pathologists is difficult to determine. Consequently, in order to evaluate the generalizability of these findings, replication with samples representing wider geographic distributions is highly recommended. A survey of special education teachers would serve an important function in that these professionals are charged with educating most children with autism.

These limitations notwithstanding, this study demonstrates that certain misconceptions about autism persist in school psychologist and speech-language pathologist professionals, and moreover, that the two groups

hold different views regarding specific aspects of autism. Continued efforts should be undertaken with the goals of keeping abreast of continuing education and enhancing communication and cooperation between these two groups of professionals.

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Appendix A

Age: _____ Sex: ☐ Male ☐ Female

What is your present position? _____

How long have you been in your current position? _____

What is your highest degree held? (please check one)

- ☐ M.A. / M.S.
☐ Specialist
☐ Working on doctorate
☐ Ph.D or Ed.D

Have you received any formal training in or information about children with autism? _____ If yes, where did you receive this training, and how extensive was it? _____

Within the past year, approximately how many children with autism have you worked with in a professional capacity? _____

Would you like more opportunities to be in-serviced about autism?
☐ YES ☐ NO

How comfortable are you in diagnosing and making programming decisions for children with autism?

1	2	3	4	5	6	7	8
very			moderately		slightly		very
comfortable			comfortable		comfortable		uncomfortable

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CHECKING THE APPROPRIATE BOX:

- 1) Autism occurs in approximately:
 - ☐ 50 out of every 10,000 births
 - ☐ 1 out of every 15,000 births
 - ☐ 2-5 out of every 10,000 births
 - ☐ 15 out of every 10,000 births
- 2) Autism usually develops within the first _____ of life:
 - ☐ 12 months
 - ☐ 2 years
 - ☐ 3 years
 - ☐ 5 years
- 3) Autism is five times more common in girls than boys:
 - ☐ TRUE ☐ FALSE
- 4) Less than 50% of individuals with autism have some degree of mental retardation:
 - ☐ TRUE ☐ FALSE
- 5) Autism is a neurobiological disorder which may have many different causes:
 - ☐ TRUE ☐ FALSE
- 6) Sensory disturbances are highly specific to autism:
 - ☐ TRUE ☐ FALSE
- 7) The following are **required** components needed to make a diagnosis of autism (check **all** that apply):
 - ☐ Impaired social interaction
 - ☐ Normal development in the first few months of infancy
 - ☐ Repetitive and stereotyped patterns of behavior
 - ☐ Mental retardation
 - ☐ Age of onset before 36 months
 - ☐ Impairments in communication

- 8) Children with high functioning autism are typically unable to sustain more than a simple social relationship:
☐ TRUE ☐ FALSE
- 9) Children with autism who speak usually show abnormal phonology:
☐ TRUE ☐ FALSE
- 10) Difficulty with pragmatic language exists in all individuals with autism regardless of their intellectual level:
☐ TRUE ☐ FALSE

Indicate whether or not the following are **essential** educational interventions for a child with autism:

- ☐ TRUE ☐ FALSE A strict operant behavioral modification plan is needed.
- ☐ TRUE ☐ FALSE A self-contained class with other students having autism or autistic-like characteristics.
- ☐ TRUE ☐ FALSE Emphasis on visual teaching techniques.
- ☐ TRUE ☐ FALSE Curriculum focus on social skills training.

11) Children with autism cannot be assessed reliably with intelligence tests: ☐ TRUE ☐ FALSE

12) With the proper treatment, most children having autism will eventually outgrow this syndrome:
☐ TRUE ☐ FALSE

13) How much difficulty do you have making a differential diagnosis of autism?

1	2	3	4	5	6	7	8
little or none		some		quite a bit		a great deal	

Which of the following disorders are difficult for you to differentiate from autism? (Check all that apply):

- ☐ Mental retardation ☐ other _____
- ☐ Developmental language disorders
- ☐ Rett's syndrome
- ☐ Childhood schizophrenia
- ☐ Hyperlexia

Appendix B

School Psychologists' Identifying Information

Location	Age	Sex	Yrs.Experience	Frm.Trn.	Chld.Per Year	Comfrt.in Diag.
60195 Hoffman Est	26	F	1	Y	0	3
61701 Bloomington	38	F	1	Y	0	1
62568 Taylorville	25	F	1	N	0	4
61615 Peoria	25	F	1	Y	0	7
61704 Bloomington	45	F	2	N	0	7
60175 St. Charles	46	F	2	Y	0	7
62040 Granite City	26	F	2	Y	1	7
62353 Mt. Sterling	46	F	2	Y	4	3
60468 Peotone	37	F	2	Y	0	2
60302 Oak Park	34	F	2	N	1	7
60540 Naperville	49	F	2	Y	1	6
61704 Bloomington	39	F	2	Y	0	4
62401 Effingham	26	F	2	Y	2	3
60076 Skokie	57	F	2.5	Y	0	6
Norris City	36	M	3	Y	5	3
62341 Hamilton	38	F	3	Y	4	1
60458	32	M	3	N	3	6
60031 Gurnee	39	F	3	N	12	6
60410 Channahon	30	F	4	Y	8	3
60435 Joliet	47	F	4	Y	2	3
60638 Chicago	45	F	4	Y	1	4
60449 Monee	56	F	5	N	4	4
60089 Buffalo Grv	53	F	5	Y	2	3
61614 Peoria	47	F	5	Y	4	3
60041 Ingleside	31	F	5	Y	1	3
62025 Edwardsville	63	F	5	Y	6	2
60044 Lake Bluff	55	F	6	Y	7	2
62034 Glen Carbon	40	F	6	Y	6	4
61081 Sterling	56	F	6	N	6	1
62223 Belleville	31	F	6	Y	1	6
61571 Washington	41	M	6	N	2	3
60085 Waukegan	30	F	7	N	0	7
62326 Colchester	46	F	7	N	3	4
62675 Petersburg	48	F	7	Y	1	7
61350 Ottawa	42	M	8	N	1	7
62234 Collinsville	41	F	10	Y	3	5
61821 Champaign	52	F	10	N	4	3
61008 Belvidere	40	F	10	N	1	8
60083 Wadsworth	43	F	11	Y	7	3
60465 Palos Hills	55	F	12	Y	15	7
60091 Wilmette	49	F	12	Y	10	2
62833 Ellery	44	F	13	Y	0	4
62448 Newton	56	F	14	Y	3	4
60016 Des Plaines	44	M	14	Y	2	3
60134 Geneva	40	F	15	Y	10	8
60423 Frankfort	43	M	16	Y	0	8
60435 Joliet	53	M	17	Y	0	2
62243 Freeburg	44	M	17	Y	2	3
62024 E.Alton	43	F	18	N	2	4
61801 Urbana	50	F	19	Y	3	6
60510 Batavia	45	M	20	Y	2	4
62896 W.Frankfort	51	M	23	Y	0	2
61341 Marseilles	48	M	24	Y	3	4
60050	45	F	24	Y	8	7
60203 Evanston	47	F		Y	2	4

Appendix C

Speech-Language Pathologists' Identifying Information

<u>Location</u>	<u>Age</u>	<u>Sex</u>	<u>Yrs.Experience</u>	<u>Frm.Trn.</u>	<u>Chld.Per Year</u>	<u>Comfrt.in Diag.</u>
62360 Payson	46	F		Y	3	1
61614 Peoria	42	F	1	Y	2	4
60440 Bolingbrook	33	F	1.5	Y	6	3
60014 Crystal Lake	60	M	2	Y	0	6
60510 Batavia	59	F	2	Y	0	4
62568 Taylorville	48	F	2.5	Y	0	7
60004 Arlington Hts.	37	F	3	N	0	3
60008 Rolling Meadows	43	F	3	Y	3	8
60108 Bloomingdale	34	F	5	N	2	6
61920 Charleston	41	F	5	Y	3	3
61761 Normal	34	M	5	N	0	6
60010 Barrington	49	F	5.5	N	5	2
60061	40	F	6	N	1	6
60062 North Brook	41	F	6	N	1	5
60175 St. Charles	45	F	6	Y	3	7
62704 Springfield	32	F	6	Y	10	3
62447 Neoga	30	F	6	Y	0	8
62930 Eldorado	47	F	7	N	2	3
61920 Charleston	47	F	8	Y	3	6
60025 Glenview	50	F	8	Y	3	6
60560 Yorkville	50	F	8	N	0	6
61856 Monticello	30	F	8	Y	0	7
61821 Champaign	47	F	8	Y	1	6
61761 Normal	31	F	8.5	Y	1	7
61265 Moline	38	M	9	Y	0	3
60022 Glencoe	50	F	9	Y	2	6
61606 Peoria	33	F	10	N	0	7
61761 Normal	44	F	10	N	1	7
60614 Chicago	51	F	10	Y	15	3
61115 Machesney	47	F	11	Y	3	3
60178 Sycamore	54	F	11	Y	2	1
61611 E. Peoria	36	F	12	Y	0	8
60154 Westchester		F	13	Y	5	3
60515 Downers Grove	46	F	13	Y	4	4
60302 Oak Park	58	F	15	Y	5	3
60025 Glenview	49	F	15	N	2	7
60120 Elgin	??	F	15	N	0	7
61701 Bloomington	48	F	15	Y	3	7
62301 Quincy	41	F	15	Y	1	6
60901 Kankakee	39	F	16	Y	0	3
61604 Peoria	45	F	16	Y	1	8
61032 Freeport	46	F	16	Y	2	6
60060 Indian Creek	45	F	17	Y	1	4
61821 Champaign	52	F	17	Y	4	7
62521 Decatur	44	F	18	Y	12	3
60137 Glen Ellyn	44	F	20	N	1	6
61761 Normal	55	F	20	Y	2	3
60435 Joliet	44	F	20	Y	3	6
60430 Homewood	43	F	21	Y	2	1
61614 Peoria	46	F	23	Y	1	5
61615 Peoria	45	F	22	N	0	8
62704 Springfield	55	F	24	Y	0	8
60411 Chicago Hts.	48	F	24	Y	2	4
62269 OFallon	49	F	27	Y	1	6
61866 Rantoul	54	F	27	N	0	8
61821 Champaign	49	M	27	N	0	3
61821 Champaign	53	F	27	Y	0	6
60629 Chicago	73	F	20	N	0	8
61615 Peoria	55	F		N	0	8