AN EXAMINATION OF MIDDLE SCHOOL STUDENTS' REPORTED KNOWELDGE OF AUTISM: USING ANALYSIS TO INFORM INCLUSIVE EDUCATION

by

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(Under the Direction of Jonathan Campbell)

ABSTRACT

Middle school students differ in their knowledge and understanding of autism. Researchers have shown that knowledge of a disability contributes to peoples' attitudes towards those with disabilities, which in turn relates to peoples' behaviors towards others with disabilities such as autism. Within the context of public schools, one characteristic in an inclusive classroom by which to measure the effectiveness of the inclusion process are the reported behavioral intentions and attitudes of general education students towards peers with disabilities such as autism. Increased opportunity for socialization is a hypothesized byproduct of inclusive education; however, when students express negative attitudes through their actions towards peers with autism, positive social models for the students with disabilities are less likely to occur.

Therefore in the current study, 1,004 middle school students were surveyed regarding their awareness and understanding of autism. Of the 1,004 students surveyed, 471 participants reported having heard of autism and then provided a response to the open-ended question: "What is autism?" Students' open-ended responses were coded to develop themes that represented the kinds of responses provided by students. Through systematic analysis of responses, conclusions

about how middle school students describe their understanding of autism are presented. In addition, recommendations for interventions to improve attitudes towards peers with autism are outlined based on the themes identified in the analysis. The goal of the current study is to provide a more thorough understanding of the ways in which students express their knowledge of autism. By presenting an analysis of how students express their understanding of autism, I argue that findings can contribute to the development of improved intervention alternatives for general education students.

INDEX WORDS: Autism, Inclusive education, Attitudes

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CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Public school students with disabilities such as autism are being educated increasingly in inclusive settings (Ebersold, 2003; Harris & Handleman, 1997; Odom, 2000). One of the goals of inclusion is to provide opportunities for social interaction with classmates (Burack, Root, & Zigler, 1997; Cooper, Giffith, & Filer, 1999). However, negative attitudes held by typically developing peers towards students with autism spectrum disorder may lead to negative interactions or limit opportunities for social interaction. Therefore, important factors for successful inclusive education to consider are the attitudes of general education students towards peers with disabilities. Historically, attitudes toward children and adolescents with disabilities have been shown to be negative (e.g., Gordon, Tantillo, Feldman, & Perrone, 2004; Nowicki & Sandieson, 2002).

In order to better understand general education students' negative attitudes towards peers with disabilities, a basic understanding of attitudes is necessary. Attitudes can be considered based on their three components: affective, behavioral, and cognitive. The cognitive component of attitudes includes facts, beliefs, and stereotypes about the object. Facts are pieces of information with actual truth. Beliefs are convictions of facts that may or may not be upheld by truths. Stereotypes are generalizations about a member of a group based on membership in that group (i.e., age, ethnicity, gender, disability). In order to proficiently make decisions about new people, stereotypes are employed by people in the decision making process. Categorization of new people based on observable characteristics (e.g.., skin color, aberrant behavior, gender) is necessary for efficient decision making. There are many theories of attitude formation; two such

theories will be discussed: learning theory and cognitive dissonance theory. Attitudes may be measured through direct or indirect methods. The benefits and limitations of each measurement method are discussed with relevant research included. Finally, the debate around behavior-attitude consistency (ABC) will be explored. A historical review of this debate provides context for the presented arguments. In addition, current research is presented to represent the current status of the debate.

After attitudes are discussed, stereotypes are considered next. Stereotypes make up the cognitive component of attitudes in addition to facts and beliefs. Stereotypes are defined as collections of attitudes directed towards a person due to a membership in a group (Taylor, Peplau, & Sears, 2003). Stereotypes are necessary for expedited decision making and information collecting in daily living. If the stereotype consists of negative attitudes, then the stereotype is considered a stigma. Stigmatizing responses (e.g., fear and exclusion, benevolence, and authoritarianism) are hypothesized to arise from negative attitudes that result from the observation of characteristics of a person with a disability (Corrigan & Penn, 1999). Stigmas, also called prejudicial beliefs, may lead to discriminative behaviors, therefore impacting the success of inclusive educational placements for students with disabilities.

A contribution of the current literature review is to present a novel context in which to consider stigmas towards students. Aspects of the stigmatized person's disability that may contribute to stigmatizing responses are considered in the context of students with disabilities. In addition, the impact of stigmatizing responses and methods to change negative attitudes are also reviewed.

Six factors of the disability of the stigmatized person will also be considered: (a) aesthetics, (b) peril, (c) disruptiveness, (d) concealability, (e) origin, and (f) course (Jones et al.,

1984). These six factors were identified by Jones and colleagues through research with adult participants. Connections between these six factors and three stigmatizing outcomes as identified by Corrigan and Penn (1999) are identified and explored. Through research with adult populations as well, Corrigan and Penn (1999) identified fear and exclusion, authoritarianism, and benevolence as three stigmatizing responses directed towards persons with disabilities. The combination of Jones and colleagues (1984) and Corrigan and Penn's (1999) research provides a framework from which stigmatizing responses can be better understood. Through a review of the literature these theories will be applied to child and adolescent populations, and specifically to students with autism.

The impact of stigmas toward children and adolescents is important to consider, although only a limited number of researchers have addressed this topic. The impact of stigmas, or prejudicial beliefs, can be observed in discriminatory behavior (Taylor et al., 2003). Discrimination may be observed in inadequate educational opportunities, poor medical services, or avoidance by community or family members of the child or adolescent with mental disability (Corrigan & Kleinlein, 2005).

Finally, methods for changing stigmas are introduced and discussed. Research in the area of changing stigmas often considers three techniques for altering stigmas: (a) protest, (b) education, and (c) contact (Corrigan & Penn, 1999). Protest occurs when groups or individuals challenge unrealistic and negative depictions of persons with disabilities; however, protest can lead to suppression of thoughts. Suppression has been found to result in strengthened beliefs that, in turn, are more difficult to change (Bargh, 1989; Hasher & Zachs, 1979; Macrae, Bodenhausen, Milnes, & Wheeler, 1996). Research is limited regarding protest for attitude change with children and adolescents; however, in research conducted with adults, protest was found to be an

ineffective method to change attitudes towards persons with disabilities (Corrigan, Edwards, Green, Diwan, & Penn, 2001).

Education as a means to change attitudes towards persons with disability has resulted in mixed findings. Three studies provided an explanation for the disability of a new student in their class (Friedrich, Morgan, & Devine, 1996; Bell & Morgan, 2000; Swaim & Morgan, 2001). All of these studies found that the explanatory information provided about the disabilities did not change the attitude of the general education students. However, in a larger study by Campbell, Ferguson, Herzinger, Jackson, and Marino (2004), combined explanatory and descriptive information about the disability did have a positive impact on the attitude of general education students.

The final method for changing stigmas is through contact with a person with a disability (Clunies-Ross & O'Meara, 1989; Slininger, Sherrill, & Jankowski, 2000). For example, structured contact with a person with a disability has been found to be an effective manner to change student's attitude (Slininger et al., 2000). Structured contact refers to contact between a target student with disabilities and his or her peers in a supervised, cooperative setting such as a physical education class.

Stigmatizing responses can be detrimental to the inclusion process of students with disabilities, and specifically for students with autism. Therefore, one must consider the stigmatizing responses that occur in classrooms today, what their impact is, and how they can be changed.

This dissertation is formatted to adhere to the two paper option. In the first paper the formation, impact, and methods to change stigmas are identified and discussed. In addition, a theory of six factors (Jones et al., 1984) that influence stigmas is presented along with resulting

stigmatizing responses as discussed by Corrigan and Penn (1999). These two theories are combined and applied to students with autism to illustrate possible connections that may guide interventions aimed at improving peers' attitudes towards students with autism. Understanding stigmas may lead to clarification of social interaction between typically developing students and their peers with disabilities, such as autism.

In the second paper, I analyzed data collected through the New Friendship Study. The analysis consisted of qualitative methods of inquiry by using a portion of the responses collected during the study. For the current study, participants generated written responses to the question, "What is autism?" which were subsequently analyzed based on thematic analysis. Students' free responses to the question "What is autism?" provided an avenue to consider what constitutes participants' knowledge of autism. Through thematic analysis, a broader understanding of middle school students' knowledge of autism was obtained and considered.

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CHAPTER 2

THE ROLE OF ATTITUDE IN SOCIAL INTERVATION IN INCLUSIVE EDUCAITONAL SETTINGS

Morton, J.F., & Campbell, J.C. To be submitted to *Focus on Autism and Other Developmental Disabilities.*

Abstract

Education for students with autism often occurs in inclusive classrooms. A goal of inclusion is to provide appropriate social models and opportunities for interaction; however, general education students report negative attitudes towards students with disabilities, such as autism. Negative attitudes may lead to rejection and exclusion of peers in social settings. Therefore, the current review considers attitudes and stereotypes as factors of negative inclusive outcomes for students with disabilities. Based on the Theory of Planned Behavior, two cognitive processes, attitudes and stereotypes, are reviewed. Formation, factors of the observer, and measurement of attitudes are reviewed. Characteristic of a person with a disability as outlined by Jones and colleagues (1984) that impact stereotype development are also reviewed in the context of children and adolescents with disabilities such as autism. Cognitive, behavioral, and affective responses to negative stereotypes may be better understood in the context of the characteristics of the person with a disability. Therefore, characteristics and responses will be reviewed as relate to children and adolescents with autism. Finally, recommendations for intervention to improve general education students' attitudes in inclusive classrooms are discussed.

KEY WORDS: attitude, autism, Theory of Planned Behavior, stereotype

Since 1975 when the Education for All Handicapped Children was initially enacted, all students, regardless of disability, are mandated to be educated in the least restrictive environment possible (EAHC, 1975). This directive has recently been upheld in the 2004 reauthorization of IDEA, titled the Individuals with Disabilities Education Improvement Act (IDEA, 2004). For this reason, inclusive education of students with disabilities such as autism has become an increasingly popular education option (Ebersold, 2003; Harris & Handleman, 1997; Odom, 2000). In fact, the U.S. Department of Education reported that 72% of students with disabilities spend a substantial amount of educational instruction time with nondisabled peers (Kaye, 1997). Due to the increase in students with disabilities receiving some portion of their education in inclusive settings, researchers have been examining the factors contributing to the success of these educational practices. One factor of inclusion success to consider is the attitude of general education students towards their peers with disabilities (Nowicki & Sandieson, 2002).

Recent research has examined the social adjustment of children with various disabilities, such as learning disabilities, psychological disorders, and autism. In general, students from various groups experience social difficulties. For example, a higher percentage of students with learning disabilities (27%) were found to be socially rejected when compared to their general education peers (4%; Frederickson & Furnham, 2004). Understanding that students with learning disabilities are prone to social rejection is important because rejected sociometric status has been associated with problematic long term outcomes for students (Parker & Asher, 1987). Negative attitudes, or stigmas, are components of sociometric status and therefore are important to consider for the long term success of students with disabilities.

A disability is a physical, mental, or developmental impairment that interferes with some area of typical functioning including chronic illnesses (e.g., autism, diabetes, obesity). One group

of students with disability that has garnered increasing public attention is autism, a condition which is defined as a pervasive developmental disorder characterized by abnormalities in social relationships, communication, and restricted and repetitive behaviors (American Psychiatric Association [APA], 2000). Due to legal protections for students with autism, many are being educated in inclusive educational settings. Inclusive education refers to the practice of educating students with disabilities for more than half of their school day with general education students. One of the proposed benefits of educational placement for students with autism in a general education classroom is easy access to social and communicative models (Burack, Root, & Zigler, 1997; Cooper, Giffith, & Filer, 1999). However, negative attitudes, or stigmas, that may exist towards students with autism may hinder the accessibility of appropriate social models within inclusive classrooms. For example, researchers have found that a general negative attitude exists toward students with disabilities (e.g., Gordon, Tantillo, Feldman, & Perrone, 2004; Nowicki & Sandieson, 2002). Nowicki and Sandieson conducted a meta-analysis of 20 research studies from 1990 to 2000 that considered children's attitudes regarding people with physical and intellectual disabilities. These studies were categorized by the type of attitude measure used in the study (with some studies using multiple measures): (a) cognitive, (b) affective, (c) behavioral, and (d) general. Out of the five studies identified to use cognitive measures, all five of the studies found there to be negative attitudes towards people with disabilities. Of the seven studies using affective measures, five of the outcomes of the studies were found to be negative and two of the outcomes were found to be neutral. Out of the six studies that used behavioral measures, four of the outcomes were found to be neutral and two were found to be negative toward people with disabilities. Out of the three studies that used general measures, one study was found to be positive, one negative, and one neutral towards people with disabilities. What Nowicki and

Sandieson's meta-analysis demonstrates is the broad range of attitudes held by school age participants toward persons with physical and intellectual disabilities. Negative attitudes were shown to exist in varying contexts including cognitive, affective, and behavioral components meaning that appropriate social models, as originally desired for students with autism, may not be occurring if general education students foster negative attitudes towards peers with disabilities in educational and social settings (Nowicki & Sandieson).

Not only do students with disabilities face negative attitudes, but there seems to be a hierarchy of negative attitudes based on the type of disability that increases in strength according to the following order: physical disability, intellectual disability, and mental illness. Gordon and colleagues (2004) found support for a hierarchy of preference based on disability type. In this study, college students' willingness to interact with persons with a mental disability, mental illness, or physical disability was compared. Of ten physical disabilities, including diabetes, cancer, paralysis, and multiple sclerosis, 85% of the participants surveyed indicated that they would be willing to be friends with a person with these disabilities. However, only 72% of participants reported willingness to be friends with a person with mental illness, and 69% of participants reported a willingness to be a friend with a person with mental retardation. When the interaction was defined more intimately (i.e., willingness to marry), the percentages dropped to only 4% of participants willing to marry a person with mental retardation and only 13% willing to marry a person with mental illness. In contrast, over 80% of people reported being willing to marry a person with physical disabilities such as arthritis or diabetes (Gordon et al., 2004). Research by Gordon and colleagues demonstrates that participants report a hierarchical preference for disabilities based on the type of disability.

Researchers have found evidence to support the hypothesis that negative attitudes exist towards students with disabilities; these negative attitudes may contribute to the development of negative stereotypes, or stigmas, which, in turn, may result in negative sociometric status for students with autism. Students with negative sociometric status are less likely to have positive social opportunities to interact with general education peers, therefore, eliminating a desired benefit of inclusive education. The purpose of the current review is to examine attitudes and stereotypes in-depth providing necessary information about attitudes and stereotypes in the context of students with autism. In order to further the literature base in the area of peer attitudes, a review of factors contributing to the development of stigmatizing responses of students (i.e., preschool through college age) towards peers with autism was conducted. A general organizing framework of stigma towards students with autism is presented by illustrating connections between characteristics of the stigmatized student (i.e., the student with the disability) and stigmatizing responses (Corrigan & Penn, 1999; Jones et al., 1984).

Definitions of Attitudes, Stereotypes, and Stigmas

An attitude, as defined by Allport (1935), is "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (p. 810). Additionally, an attitude is a summary of a person's evaluations of an object, action, or event which includes a person's knowledge, experience, and societal expectations.

Attitudes can be conceptualized based on the way in which stimuli are categorized. There are three components to the categorization: affective, behavioral, and cognitive (the "ABCs" of attitude). The affective component consist of the person's positive or negative emotions or affects towards a stimuli. The behavioral component considers how a person has acted towards

the stimuli in the past. The cognitive component includes how a person thinks about a stimulus which may include facts, beliefs, and stereotypes (Taylor, Peplau, & Sears, 2003).

Formation of Attitudes

The formation of attitudes has been addressed by a number of theories. Two theories will be discussed here: (a) learning theory, and (b) cognitive dissonance theory.

Learning Theory

In the 1950s, Carl Hovland and his associates developed the concept of Learning Theory as applied to attitude formation (Hovland, Janis, & Kelley, 1953). Learning Theory proposed that attitudes, similar to other habits, were learned through interaction with the environment via associations, punishment, and reinforcement. For example, when a 5-year-old boy meets his kindergarten teacher for the first time, different aspects of the environment will impact his development of attitudes toward his teacher. If the teacher has set up a fun, interactive racetrack in one section of her room, the boy may associate the teacher with fun things and therefore develop a positive attitude about this teacher. In addition, the boys finds that every time he goes to talk to the teacher she gives him a small treat such as a sticker or a piece of candy, therefore, talking to the teacher is reinforced and a positive attitude will persist. However, if the teacher won't let the boy play with the racetrack, the prohibition may be associated negatively with the teacher and the boy may develop a negative attitude of the teacher based on multiple interactions of this sort. Based on these tenets, Learning Theory postulates that through interaction with the environment attitudes are formed.

Cognitive Dissonance Theory

Cognitive dissonance theory, as proposed by Leon Festinger (1957), is an example of a cognitive consistency theory. In all cognitive consistency theories the main assumption is that

there is motivation within a person to find balance and consistency with held beliefs and behavior. Therefore, in cognitive dissonance theory, if there is a discrepancy between a person's attitudes and behavior, the person will try to correct the imbalance in one of three ways. The first way to correct imbalance is for a person to change his or her behavior. For example, an eighth grade girl typically talks to all new students that she encounters in her class, and a new student with a disability enters. Her attitudes towards the new student are uncertainty and fear; however, her behavior in the past has been to talk to a new student. In order to regain balance, the girl may change her behavior by only talking to new students who are in her reading group, but not all new students. Therefore, her behavior has been changed to match her fearful attitude of a peer with disabilities. However, it is not always possible to change behaviors. Therefore, a second method to correct dissonance is to minimize the importance of the dissonance. The girl with a new peer with disabilities may think "It is not a big deal if I don't speak to the student because I am not the only kid in the class. Someone else will speak to him." Finally, the third possible response to dissonance is attitude change. For example, if the girl, who had a negative attitude of a peer with disabilities, may change her attitude to be positive so that it resolves dissonance.

Characteristics of the Observer

Since research has shown that negative attitudes exist towards children and adolescents with disabilities such as autism a review of the literature related to the characteristics of the observer may be helpful in order to understand attitudes. The observer refers to the person that holds the attitude toward another person. Research has shown that factors such as age, gender, and knowledge of a disability contribute to negative attitudes in children and adolescents (e.g., age: Ryan, 1981; Royal & Roberts, 1987; Rosenbaum, Armstrong, & King, 1988; Nowicki and Sandieson, 2002; gender: Rosenbaum, Armstrong, & King, 1998; Nowicki & Sandieson, 2002;

Campbell et al., 2004; knowledge: Corrigan, Edwards, Green, Diwan, & Penn, 2001; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Penn, Guynan, Daily, & Spaulding, 1994).

Age

Age of the observer is important to consider since age relates to cognitive ability and comprehension of complex social stimuli (Ryan, 1981). Findings are inconsistent related to age and negative attitudes. For example, Ryan (1981) found that there was an inverse curve from early childhood to late adolescence regarding attitudes towards persons with physical disabilities. Attitudes increase in favorability from early childhood through adolescence. A decline in favorable attitude towards disabilities occurs during late adolescence and is followed by an increase in young adulthood (Ryan, 1981). Ryan attributed this attitude shift to the development of role-taking ability. She explained that as young children age they acquire the ability to assume another person's perspective. However, during late adolescence, peer pressure and the desire for peer acceptance leads to an increase in negative attitudes towards individuals with disabilities. Ryan further hypothesized that, by young adulthood, education and collegiate experiences have a strong impact on attitude, and positive responses begin to emerge again (Ryan, 1981). Further research has linked age and attitudes; for example, a study by Royals and Roberts (1987) compared attitudes of 3rd graders, 9th graders, 12th graders, and college students towards 20 disabilities including asthma, cancer, diabetes, epilepsy, facial birthmark, mental illness, and mental retardation. Similar to the Ryan study, researchers found that younger participants (i.e., 3rd graders) were significantly less accepting of a hypothetical person with a disability (Royals & Roberts, 1987). When asked, "How much would you like to have this person (with target disability) as a friend?" 3rd graders were significantly less likely to respond positively when compared to older participants.

In contrast, Rosenbaum, Armstrong, and King (1988) reported findings that children's attitudes toward disabilities were not significantly affected by age. This study assessed the attitudes of 8-14 year olds towards others with disabilities. Rosenbaum and colleagues hypothesized a number of reasons for their differing conclusion from Ryan. For example, the limited age range may have reduced the likelihood of observing a significant difference (Rosenbaum, et al., 1988).

Furthermore, a meta-analysis by Nowicki and Sandieson (2002) found inconclusive results on the relationship between age and attitude. Out of fifteen articles meeting criteria for their meta-analysis, four showed a positive correlation between age and attitude, three revealed a negative correlation, and the remainder indicated no relationship. Nowicki and Sandieson went on to attribute the lack of clear results to the wide variety of characteristics of their sample.

In general, researchers have found conflicting outcomes about the relationships between age and attitude toward disabilities. Therefore, practitioners making decisions about inclusive educational placements for students with autism must take into account these inconsistent results and must allocate additional attention to other factors of the general education students (i.e., gender and knowledge of the disability) to better understand attitudes.

Gender

A second characteristic of the observer that should be considered is the gender of the observer. Research has found that girls report more positive attitudes towards a person with disabilities when compared to boys (Rosenbaum, Armstrong, & King, 1998; Nowicki & Sandieson, 2002; Campbell et al., 2004). However, Nowicki and Sandieson (2002) presented their conclusions with the qualifiers that girls were more positive only when: (a) the child with a disability was the same gender and (b) if targets of both genders were presented to each

participant. Rosenbaum and colleagues concluded, “The single most potent and consistent determinant of attitudes about disability is gender (p. 33)”. Further, Richardson (1970) found that girls differed from boys in the type of disability that elicits a positive response. Specifically, girls were more likely to report positive attitudes toward a person with a “functional” disability rather than toward a person with a “cosmetic” disability.

In a study by Campbell and colleagues (2004), 576 general education students were asked to report their behavioral intentions towards a new student with autism. When compared to responses from boys, girls were found to report significantly more positive intentions towards the student with autism after given explanatory and descriptive information about the student with autism.

As research has shown, gender may be an important moderator of attitude. Negative attitudes, including stigmatizing outcomes, may be less likely to occur when females interact with females with disabilities (Nowicki & Sandieson, 2002). This information should also highlight for practitioners that interaction between general education males or females and males with autism may be more likely to result in negative attitudes. Amplifying the importance of this fact is that four out of five cases of autism occur in males (APA, 2000).

Knowledge

Knowledge of a disability moderates attitude toward a person with the disability (e.g., Corrigan, Edwards, Green, Diwan, & Penn, 2001; Corrigan, Green, Lundin, Kubiak, & Penn, 2001; Penn, Guynan, Daily, & Spaulding, 1994). For example, Corrigan, Green, and colleagues (2001) found that college students who reported more intimate levels of familiarity (e.g., observed a person with disabilities on television, live with a person with disabilities) and knowledge of disabilities, were more likely to report fewer negative attitudes towards people

with disabilities in general. In order to apply this research to a child and adolescent population, literature related to the current knowledge level of this population to disabilities will be reviewed.

Knowledge of disabilities. In a study by Magiati, Dockrell, and Logotheti (2002) Greek school children ages 8-11 were asked disability-specific questions in order to measure knowledge of the disability (e.g., "What does it mean if a child is mentally retarded? What difficulties might a mentally retarded child have?" p. 428). The researchers targeted five categories of common disabilities including deafness and blindness, physical disabilities, mental retardation, hyperactivity and autism, and dyslexia. The researchers found that participants were able to describe deafness, blindness, and physical disabilities 88% or more of the time. However, mental disability could only be described 55% of the time, hyperactivity only 12% of the time, and autism 0% of the time. Participants seemed to be more aware of disabilities that were more salient in external features (Magiati et al., 2002). For example, a person who is blind might carry a cane or have a seeing-eye dog; however, a person with autism has a non-remarkable physical appearance. Magiati and colleagues also reported that the students, ages 8-11, seemed to have accurate core knowledge about most of the disabilities; however, there also appeared to be some misunderstanding and overgeneralization about the disabilities in question. For example, irrelevant responses given when asked about mental disabilities included "when they grow up, they will be short; they have tics" (p. 423).

Knowledge of autism. School age children's knowledge of autism has been found to be limited. Magiati and colleagues (2002) found that none of their 79 participants had heard of autism. When asked questions about autism, 82% of the participants responded "I don't know" and 18% gave an irrelevant response. Campbell, Ferguson, Herzinger, Jackson, and Marino

(2004) surveyed 576 3rd through 5th graders and found that only 41 (7.1%) of the participants had heard of autism and none of the 41 children who reported hearing of autism provided a reasonably correct definition of the disorder.

Research with adults has shown that knowledge of a disability decreases the occurrence of negative attitudes (Corrigan, Green, Lundin, Kubiak, & Penn, 2001). This research should be broadened to child and adolescent populations to determine the role in knowledge of a disability to attitudes. Knowledge appears to be moderately thorough and correct about physical disabilities; however, mental disabilities and disabilities such as autism historically are accompanied by a minimal and usually inaccurate knowledge base (i.e., Magiati, et al., 2002; Campbell et al., 2004).

The characteristics of the observer that contribute to attitude formation listed here are not an exhaustive listing. Rather, these factors are important and therefore worthy of review in an attempt to further the knowledge base on the topic of attitudes.

Measurement of Attitudes

In order to understand attitudes, well-designed studies using direct and indirect measurement of attitudes are necessary. Therefore, listed below is a description of six direct methods for attitude measurement and three indirect methods. Each description includes a relevant example from the literature.

Direct Methods

The use of direct methods in measuring attitudes involves informing the respondent about the intent of the measurement or the method of measurement. Six direct method measures are discussed below: (a) opinion surveys, (b) interviews, (c) sociometrics, (d) rankings, (e) adjective checklist, and (f) summated rating scales.

Opinion surveys. Within opinion survey methodology, respondents are asked to report their beliefs, attitudes, and opinions about a topic. Opinion surveys can be conducted in a one-on-one or group setting or via mail. For example, Kortering, Bettencourt, and Braziel (2005) surveyed 410 general education students and 46 students with learning disabilities (LD) about topics related to algebra class including most and least favorite classes and pathways to success. The survey was administered to classrooms of students. The responses of general education students and students with learning disabilities were then compared to draw conclusions such as the helpfulness of interventions.

Interviews. Interviews require direct contact between the respondent and interviewee. In structured interviews a set of questions is presented verbally to the respondent. The interviewee may omit questions or add follow-up questions if necessary. For example, Lewis (1993) used a semi-structured interview format to collect data regarding attitudes of participants' understanding of significant learning disabilities. The interview contained 11 predetermined questions. In this case, the initially established sequence of questions was followed for each interview. Answers to questions were coded and then analyzed. Results showed that participants, ages 7-11 years-old, were likely to report motor and sensory disabilities; however, younger participants were unable to verbalize the difference between significant learning disabilities and sensory disabilities (Lewis, 1993)

Sociometric ratings. Sociometric ratings are designed to represent the attitudes of participants towards a preselected group of people based on a certain criterion (e.g., "Who would you like to have as your best friend?"). For example, Cook and Semmel (1999) employed sociometric rating scales of peer acceptance to measure attitudes towards peers with various levels of disabilities in work and play settings. Participants were given a list of all participating

classmates; all participants had been identified to researchers as having no, mild, or severe disabilities. Participants were then instructed to choose the three people they were most likely to play with and, from the remaining students, the three peers with which they were most likely to work. From the results of the sociometric ratings, attitudes towards peers with no, mild, or severe disabilities could be compared. Cook and Semmel found that students with no disabilities were rated more favorably than students with mild or severe disabilities. Inclusive versus non-inclusive classrooms did make a significant difference on attitudes as well (i.e., students with severe disabilities have more positive attitudes reported in inclusive classrooms than noninclusive classrooms, while students with mild disabilities had more positive attitudes reported about them in noninclusive classrooms).

Rankings. Ranking methods provide a list of usually fewer than 20 words, phrases, or pictures that the respondent must arrange in order of preference. One of the benefits of ranking methods is that since stimuli can be presented using non-verbal techniques (e.g., pictures) young participants who may not be able to read or write can participate more independently than if reading and writing were a prerequisite. For example, Richardson (1970) presented pictures of six children with disabilities such as a hand missing or facial disfigurement to kindergarteners through high school students and their parents. Since the ranking was done with pictures, all the participants, regardless of reading and writing skill level could participate. Participants were then instructed to choose the most preferred picture. This was repeated until all pictures were chosen. Based on the order in which the pictures were chosen, a rank of preference could be ascertained. Richardson found that attitudes towards people with disabilities changed between kindergarten and twelfth grade; furthermore, until the 12th grade, students' attitudes aligned with parental attitudes.

Adjective checklist. An adjective checklist presents up to 300 adjectives (e.g., funny, sad, ugly) from which respondents choose those that best describe the target. Typically, the adjective checklist is presented with no more than 20 choices that have been identified through factor analysis. For example, Campbell, Ferguson, Herzinger, Jackson, and Marino (2004) used the Adjective Checklist to measure cognitive attitudes toward an unfamiliar child exhibiting autistic behaviors by presenting a list of 32 adjective: sixteen negative adjectives such as ugly or stupid and sixteen positive adjectives such as handsome and neat. Participants were instructed to circle all the adjectives that apply to a target student with autism. A total score was determined by subtracting the total number of negative adjectives from the total number of positive adjectives and adding a constant of 20 (Siperstein & Bak, 1977).

S*ummated rating scales.* In summated rating scales respondents are instructed to pick from a small number of possible responses that best indicates to what extent he or she agrees with the statement. Numerical weights are assigned to each response and items are summed to yield a total score. Generally, higher values represent more positive attitudes and lower total values represent more negative attitudes. Plata, Trusty, and Glasgow (2005) used a summated rating scale to measure acceptance of students with disabilities. The authors developed the Interpersonal Relationship Scale (IRS) that contained 18 common school and non-school related activities and participants were instructed to select from 1 of 4 options to describe how likely he or she would be to participate in this activity. For example, a question may ask “Go to a party with my friends” and participants must respond with either “Yes!” “Only if their learning disability doesn’t cause problems,” “Maybe! But I need to think about it,” or “ No! Absolutely not.” Each of the responses is assigned a value and a summative value is determined for each participant.

Limitations of Direct Methods.

The most common systematic error with direct method measurements of attitudes is response sensitization, or when the simple process of responding to the prompts results in transient responses that do not accurately represent actual attitudes. Instead, the transience caused by the response sensitization masks the respondent's true attitude (Antonak & Livneh, 1995). In addition to response sensitization, response styles of the respondent may distort the results of attitude measures. For example, the halo effect refers to respondents reacting in a similar way to items they perceive to be related but actually are not. Similarly, if the respondent responds affirmatively or negatively to almost all questions this is an acquiescence response style or if he or she responds only to the middle options this is considered a middle point response style. An extreme response style occurs when the respondent only endorses the highest or lowest response options. Finally, social desirability bias occurs when the participant responds in a certain way in order to be viewed favorably by the researcher. This is only a limited list of limitations of direct measures of attitudes; however, these are important systematic errors to consider when developing and interpreting measures.

Indirect Methods

Indirect methods to measure attitudes counteract some of the systematic errors observed with direct methods. In indirect measures, direct behavioral observations are taken; however, the respondent does not have direct knowledge or control over his or her response. For example, a participant is shown pictures of same-age peers with physical disabilities. While looking at the pictures the participant's heart rate and galvanic skin response are recorded. Based on the participant's measured heart rate and skin response the researcher can hypothesize about the

participant's attitude toward different disabilities. This is an example of a physiological method to measure attitudes.

Physiological method. Multiple indices can be measured to represent physiological changes including papillary dilation, heart rate, finger-pulse volume, blood pressure, perspiration, salivation, blinking, electromyogram, electroencephalogram, and voice pattern (Antonak & Livnch, 1995). It is difficult to interpret these results since an increase in physiological reaction may mean a positive or negative attitude; historically, an increase in physiological reaction has been interpreted as indicating a negative attitude (Cook & Selltiz, 1964).

Nonobtrusive behavioral observations. Nonobtrusive behavioral observations occur when a participant unknowingly or voluntarily participates in a target behavior in a natural setting. For example, a data collector may observe a busy street corner for two hours to see how many people donate money to a homeless person sitting at the intersection. Nonobtrusive behavioral observations are snapshots of day to day life which can later be analyzed by the researcher. For example, Caro and Derevensky (1997) used nonobtrusive behavioral observation to collect data about interaction between siblings with and without disabilities ages 1-20 years. Researchers observed sibling dyads in their homes and recorded their interactions using the Sibling Interaction Scale. However, the participants were not aware of the function of the observation and the observers remained as far removed as possible during interaction to limit disruption. Caro and Derevensky found that siblings with and without disabilities were similar on their intensity of involvement and activity choice; however, they were found to differ on sentence complexity.

Disguised procedures. Disguised procedures can occur on three different levels (a) the respondent is not told the intention of the study, (b) the respondent is led to believe that he or she has no control over his or her response, or (c) information is given to the respondent to intentionally mislead him or her about the purpose of the study. A misleading characteristic may be emphasized by the researcher to misdirect the focus of the participant. For example, if participants were given two stacks of pictures, one stack with toddlers and one stack with adolescents, the participant may think that the focus of the study is related to age. However, in reality the focus of the study may be on gender but the participant may not attend to the gender characteristic as much as he or she might at other times.

An example of a disguised procedure for attitude measurement in students towards disabilities can be found in McCaughey and Stohmer's 2005 article with undergraduate college students. Participants were asked to list 10 phrases that describe different disabilities including schizophrenia, mental retardation, attention-deficit/ hyperactivity disorder, spinal cord injury, visual impairment, and hearing impairment. Participants were not told that from these phrases, conclusions about their attitudes would be acquired. The result showed that an overwhelming majority of participants chose to describe these disabilities in negative ways.

Attitude-Behavior Consistency (ABC)

The construct of attitude has been long considered a vital part of social psychology and, as Allport proposed, the study of attitudes may be the most important contribution made by psychology (Allport, 1935). The relationship between attitudes and behavior has been long debated with research now providing a more detailed explanation of the relationship, 70 years into the discussion. At the core of the debate is whether behavior (i.e., what one does) is related to attitudes (e.g., what one reports). For the first 30 years of the discussion, multiple articles were

published that did not support a relationship between attitudes and behavior (e.g., Berg, 1966; Bray, 1950; Kutner, Wilkins, & Yarrow, 1952). Berg (1966) considered the relationship between reported attitudes toward social minorities and behavioral intentions. This study, similar to other studies conducted at that time (e.g., Bray, 1950; Kutner, Wilkins, & Yarrow, 1952), found that verbal measures did not predict behavior by a social majority towards a social minority (Berg, 1966).

Attitude-Behavior Consistency's Historical Development

Prior to the publication of Ajzen and Fishbein's (1977) seminal review article of the attitude-behavior consistency (ABC) debate, research had found that the connection between attitude and behavior was minimal, if not nonsignificant. In contrast, in Ajzen and Fishbein's (1977) reconceptualization, the authors argued that a person's reported attitude is not a simple, direct factor that contributes to the accurate prediction of behavior. Instead, four factors (i.e., the action, the target, the context of the action, and the time of occurrence) influence the consistency between attitude and behavior (Ajzen & Fishbein). For example, a general attitude about making a charitable contribution may not have much predictive value to the actual behavior of donating. However, by specifying the action (i.e., donating to the Red Cross), the target (i.e., $10), the context (i.e., following a category five hurricane in Florida), and the time of occurrence (i.e., on payday) a more accurate prediction of behavior could be made from a person's reported attitude. Ajzen and Fishbein found that when there was low or only partial correspondence in these factors that 27 out of 27 articles reviewed showed non significant or low significant relationships between attitude and behavior. However, when the factors had a high correspondence, and appropriate measures were used, 26 out of 26 articles were found to have significant predictive validity of the attitude to behavior (Ajzen & Fishbein). This article represented a direction for the

attitude-behavioral consistency discussion that the attitude alone is not the important aspect to consider. In fact, aspects of the attitude and the context of the setting of the hypothesized behavior can increase the predictive validity of reported attitudes.

Theory of Reasoned Action

At the same time as the review article was being written, Fishbein and Ajzen formulated the theory of reasoned action (Fishbein & Ajzen, 1975). This represented further development of the complex factors that influence attitude-behavior consistency. The theory of reasoned action (Ajzen & Fishbein, 1980) endorsed the concept of intentions being the antecedent to a behavior and intentions being influenced by the attitude toward the behavior and the subjective norm (See Figure 2.1). The attitude toward the behavior refers to the perceiver's positive or negative perception of a target. The target can be an action, an object, or a person. Subjective norm accounts for the social factors associated with the target, such as what are valued others' perception of the target? Attitude and social norms influence the intention of an individual person which precedes the occurrence of behavior (Ajzen & Fishbein, 1980). Even though research supported the theory of reasoned action (e.g., Ajzen, Timko, & White, 1982; Manstead & Smart, 1983), this theory did not seem to represent the entirety of the attitude-behavior connection (e.g., Bentler & Speckart, 1979; 1981) therefore further research was conducted to identify missing factors.

Theory of Planned Behavior

As theories continued to be developed that attempted to represent the multiple facets of the attitude-behavior relationship a second theory by Ajzen was presented: the theory of planned behavior (1985). The theory of planned behavior extended Ajzen and Fishbein's (1980) theory of reasoned action by including the concept of behavioral control. The theory of reasoned action

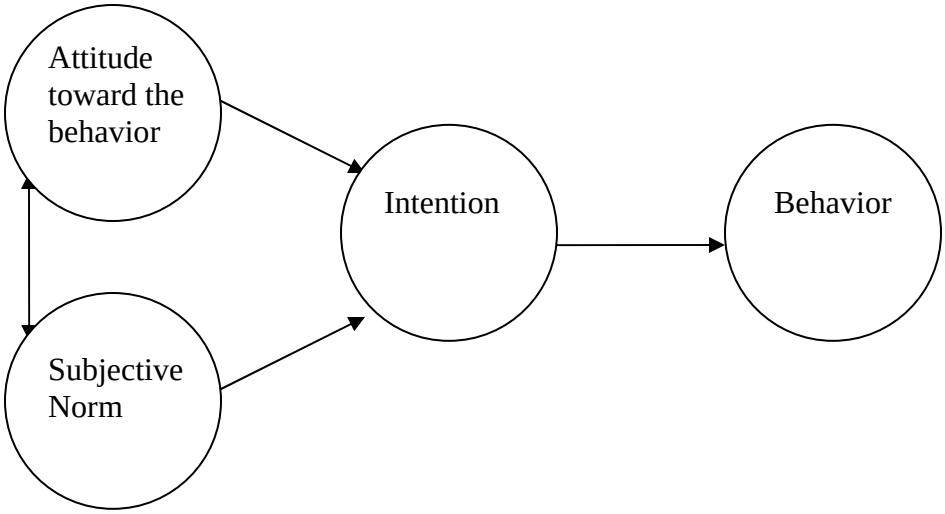

Figure 2.1. Theory of reasoned action (Ajzen & Madden, 1986).

was found to be predictive of a voluntary behavior, only those behaviors that the person has the ability, resources or opportunity to do; however, the theory of planned behavior includes a component of behavioral control that takes into account behaviors that require specific ability, resource or opportunity. These factors contributed to the predictive value of the theory of planned behavior by accounting for factors beyond just intent and identify the importance of behavioral control.

Behavioral control refers to how much control a person feels he or she has over a situation. For example, a student may feel that she has very little control over whether she will be assigned to sit next to a new student in class; however, she may feel that she has more control over whether she will ask that person to be her reading partner. The presence or absence of control over a situation, Ajzen theorized, has a direct effect on both intention and behavior (See Figure 2.2). Behavioral control can, in some cases, be considered a replacement for behavioral intention, if the belief of behavior control is strong enough and the behavior control alone can be a valid predictor of behavior regardless of intention. The theory of planned behavior was determined to account for 27% to 29% of variance in the relationship between intentions and behavior (Armitage & Conner, 2001).

Other Factors of Attitude-Behavior Consistency (ABC)

Meta-analytic research has supported the theory of planned behavior as a good explanation for the relationship between attitudes and behaviors. For example, Armitage and Conner (2001) found that intention and perceived behavioral control correlated moderately with behavior (r = .52). An earlier meta-analysis by Ajzen (1991) found that intention and perceived behavioral control have an average correlation with behavior of r=.51 (n=12). Research beyond

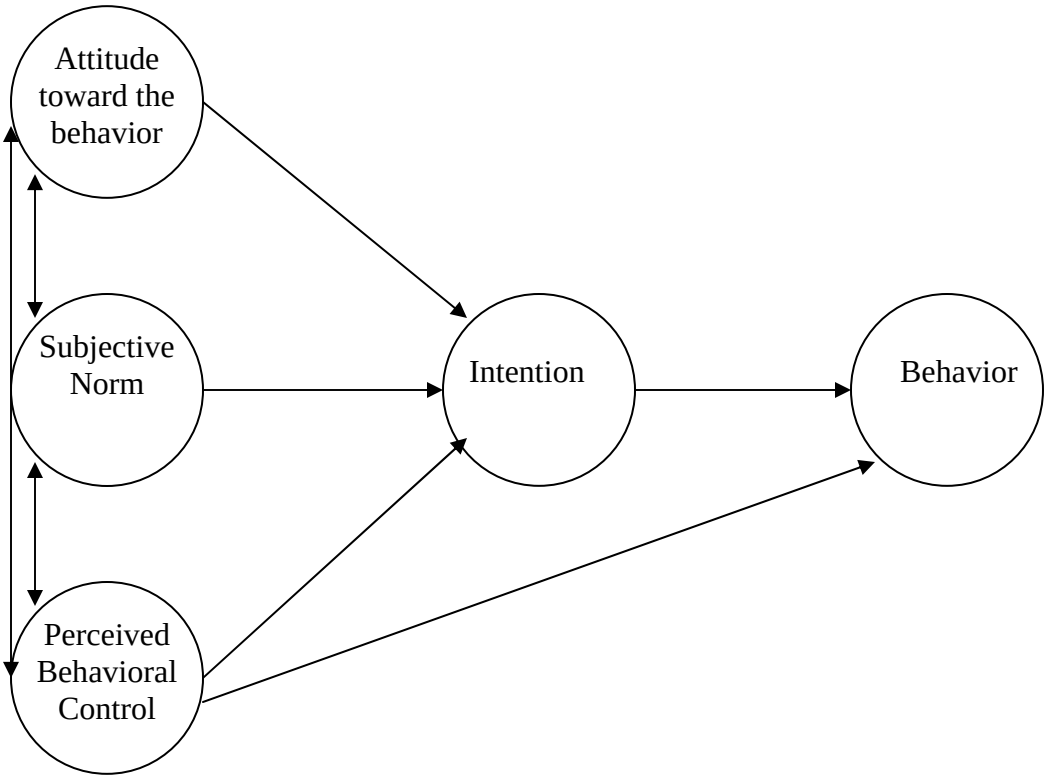

Figure 2.2. Theory of planned behavior (Ajzen & Madden, 1986).

the basic tenets of the theory of planned behavior is being conducted to address other variables of attitude-behavior consistency. Moderators, or a variable that affect an association between two other variables, of cognition-intention and cognition-behavior relations are useful to consider to better predict the relationship between of attitude and behavior (Cooke & Sheeran, 2004). In a 2004 meta-analysis of moderating variables to the theory of planned behavior, Cooke and Sheeran identified seven possible factors: (a) accessibility, (b) temporal stability, (c) direct experience, (d) involvement, (e) certainty, (f) ambivalence, and (g) affective-cognitive consistency. Initially it seems that many of these factors may correlate with one another. However, using confirmatory factor analysis, Krosnick and colleagues (1993) found that a single-factor model did not adequately represent all seven factors. Exploratory factor analyses were conducted and no more than three factors were found to load on any one factor, however, these were inconsistent findings (Erber, Hodges, & Wilson, 1995; Prislin, 1996). Therefore, there is a need for further research in this area and at this time the factors cannot be determined to be representing common constructs; therefore, they should all be considered separately.

Accessibility refers to the strength between an attitude and the behavior. Accessibility is usually measured by latency between the reported attitude and the actual behavior. Through meta-analytic techniques, Cooke and Sheeran (2004) found higher attitude-behavior consistency was observed when the attitude was more readily accessible or if the attitude had been recently accessed.

Temporal stability in attitudes, or consistency across time, generally leads to more stable behavior when compared to unstable attitudes. Participants who received direct experience with a topic related to an attitude reported higher attitude-behavior consistency when compared to indirect experience with a topic. Involvement with a product or topic also correlates with the

attitude-behavior consistency. For example, Verplanken (1989) found that participants who reported high involvement with nuclear energy topics, that their behaviors were more consistent with their initial reported attitudes about nuclear energy than participants who did not report involvement with nuclear energy.

Certainty is a single item measure such as “I intend to vote for/ against Presidential Contender Z.” Not unexpectedly, research supports the fact that participants with more certainty (i.e., “I intend to vote for Candidate Z.”) show stronger attitude-behavior consistency when compared to participants with a low certainty. Similar to certainty is ambivalence. As often as people have certainty for a topic ambivalence may also arise about the topic (i.e., “I should invite all my classmates to my birthday party, but I am scared to be around Tina because she flaps her hands when she gets excited.”). Therefore, this factor takes into account both the positive and negative attitudes toward a topic. Those participants with low ambivalence or fewer negative thoughts were more likely to report higher attitude-behavior consistency than when compared to participant with high ambivalence (Cooke & Sheeran, 2004).

Finally, affective cognitive control, or agreement between feelings and thoughts, may also affect predictive validity of attitude-behavior relationship. In order to determine affective cognitive control researchers determine the difference between cognitive and affective attitude measures. Those participants with higher affective cognitive agreement were found to have higher attitude-behavior consistency when compared to those participants with low affective cognitive agreement (Cooke & Sheeran, 2004).

Research has only begun to review additional possible moderating factors of the attitude-behavior consistency. However, research to this point has supported that participants scoring

high on these factors (low on ambivalence) would have more predictive validity in related attitude-behavior consistency.

Summary of Attitude-Behavior Consistency and Theory of Planned Behavior

The Theory of Planned Behavior postulates that attitude towards a behavior, perceived behavioral control, and subjective norm somewhat predict observable behavior or behavioral intention which leads to observable behavior (See Figure 2.2). In comparison to early research (e.g., Berg, 1966; Bray, 1950; Kutner, Wilkins, & Yarrow, 1952) that did not support a predictive relationship between attitude and behavior, Ajzen and Madden proposed a theory that accounts for multiple factors (i.e., attitude, perceived behavioral control, subjective norms, intention) in the attitude-behavior relationship.

A possible application of the Theory of Planned Behavior is to the social interaction of students in inclusive classrooms. Research has shown that negative attitudes exist towards students with disabilities such as autism (Gordon, Tantillo, Feldman, & Perrone, 2004; Nowicki & Sandieson, 2002); therefore, this can be assumed to be a preexisting challenge to successful social inclusion of students with disabilities (Milich & Landau, 1984; Swanson & Malone, 1992). Modification of negative attitudes may result in positive behavioral intentions and therefore observable behavior change in inclusive classrooms.

The Link between Stereotypes and Attitudes

The Theory of Planned Behavior predicts how a person's attitude toward an object impacts behavioral intention. Attitudes, as discussed earlier, can be considered based on their three components: affective, behavioral, and cognitive. The cognitive component of attitudes includes facts, beliefs, and stereotypes about the object. Facts are pieces of information with actual truth. Beliefs are convictions of facts that may or may not be upheld by truths. Stereotypes

are generalizations about a member of a group based on membership in that group (i.e., age, ethnicity, gender, disability). In order to proficiently make decisions about new people, stereotypes are employed by people in the decision making process. Categorization of new people based on observable characteristics (e.g.., skin color, aberrant behavior, gender) is necessary for efficient decision making. For example, a student observes a new classmate body rocking, finger flicking, and not looking the teacher in the eye. The student may immediately categorize the new student as being a slow learner based on what he knows about people who display those behaviors. The current student also makes the generalization that the new student will not be successful in math class. This assumption is based on the observable characteristics of the new student and is an example of category-based processing, or a stereotype (Fiske & Neuberg, 1990). Category-based processing is quick and involuntary. The current student will not seek out additional information on the new student, since he has easily categorized him into the category of a slow learner. However, if the new student exhibits an unexpected behavior, such as earning a high grade on a math quiz, the current student will be forced to reconsider his categorization of the new student. This would be done using attribute based processing (Fiske & Neuberg, 1990). With attribute based processing, other characteristics of the student will be considered such as speed to complete math problems and volunteering to answer questions. This processing technique is more arduous and cognitively demanding and therefore is used when there are violations of a stereotypic expectation. Since category-based processing, or stereotyping, is an efficient way to comprehend and react to a new person, category based processing is necessary for efficient and appropriate socialization. If a person only used attribute-based processing, too much time would be wasted collecting information about individual characteristics and opportunities for social interaction would be lost. However, since stereotypes

are sometimes negative they can result in discrimination and prejudiced behavior. Therefore, factors that contribute to the occurrence of a negative stereotype, a stigma, should be considered.

Stigma

A stigma may be demonstrated through prejudicial behavior (i.e., stigmatizing responses) towards a peer based on the peer's membership in a group. Three examples of stigmatizing responses were identified by Corrigan and Penn (1999) towards individuals with severe mental illness in research with adult populations: (a) fear and exclusion, (b) benevolence, and (c) authoritarianism. These three responses include behavioral (i.e., exclusion), affective (i.e., fear), and cognitive (i.e., authoritarianism and benevolence) responses towards people with a disability (Corrigan & Penn, 1999).

In the current review of the literature, six factors of the stigmatized (i.e., the student with a disability) will be reviewed based on their impact on the three stigmatizing responses identified above. Specifically, the concealability, course, disruptiveness, aesthetics, origin, and peril of the disability of the stigmatized will be reviewed with respect to the stigmatizing responses of fear and exclusion, benevolence, and authoritarianism.

Factors of the Stigmatized

Dimensions of the stigmatized, or the person with a disability being stigmatized, are also important to consider in order to better understand stigmatizing responses. For this literature review, children and adolescents between the grades of preschool and undergraduate college with disabilities, such as autism, make up the stigmatized population (now referred to as students). Certain dimensions of the student's disabilities may contribute to the occurrence of stigmatizing responses by their peers. Jones and colleagues (1984) identified six dimensions of disabilities that impact the occurrence of stigma. These six dimensions are the following: (a)

concealability, (b) course, (c) disruptiveness, (d) aesthetics, (e) origin, and (f) peril (see Table 2.1).

Concealability is defined as how obvious the disability is to the perceiver. Some disabilities, such as mental illnesses, are not easily observed and, therefore, have high concealability. When a disability is more easily concealed, there is less chance of a stigma developing (Jones et al., 1984). A study by Richardson (1970) presented six examples of children with different types of disabilities: (a) a child with no physical handicap, (b) a child wearing braces and crutches, (c) a child in a wheelchair, (d) a child with a facial disfigurement, and (e) a child with obesity. Participants reported the most positive attitudes towards the nondisabled child and the child with a leg brace. These disabilities are more concealable than the conditions of an obese child or a child in a wheelchair, which were ranked the least likeable. One conclusion of this study is that when a disability is more difficult to conceal, the likelihood of negative attitude increases.

Course refers to whether the stigmatizing condition is reversible over time and if it has an impact on the person's life expectancy. A temporary physical injury requiring use of a wheelchair will most likely elicit less negative stigma than a life-long condition such as Down Syndrome. For example, Center and Ward (1984) conducted a study with 85 six through sixteen year olds diagnosed with cerebral palsy, a chronic disease. Of these 85 participants, 40% reported difficulties with social acceptance from peers. Negative attitudes about the participants' disabilities impacted their social integration into regular education classrooms (Center & Ward, 1984).

Disruptiveness refers to how much external behavior from the person with a disability impacts the interaction between the disabled and nondisabled person. For example, Williamson

and Cullingford (1998) surveyed 254 adolescents about topics including self-reported disruptive behavior, truancy, and their social acceptance. Participants that reported higher rates of disruptive behavior had a significantly poorer chance of social acceptance. This study supports the connection presented by Jones and colleagues (1984) that disruptive behavior leads to stigmatizing outcomes.

Next, *aesthetics* refers to the level of attractiveness perceived by the observer. A disability that elicits an instinctive reaction of disgust is more likely to be stigmatizing. In the Richardson (1970) study discussed earlier, the disabilities that were closer to the face (i.e., facial disfigurement and obesity) were more likely to elicit negative attitudes from peers. These disabilities can be considered to negatively alter the aesthetic appeal of the individual.

Origin is important when considering stigmatizing responses. If the stigmatized person were considered responsible for the disability, a greater stigmatizing response would be expected. If the responsibility of the disability could be placed outside of the control of the stigmatized person, such as paralysis due to a hit-and-run car accident, there would be less stigmatization. In a study by Redpath and Linden (2004), 96 university students were surveyed regarding their attitudes about a person with a brain injury. Participants were told that the brain injury was due to either an organic event (i.e., brain hemorrhage) or self-initiated (i.e., a fight). Participants reported significantly more negative attitudes towards the person with a self-initiated brain injury when compared to the organic cause.

The final dimension of stigma is *peril,* or the feeling of danger or threat from the stigmatized person. Corrigan and colleagues (2005) surveyed 303 adolescents by presenting four vignettes containing either (a) a peer with mental illness, (b) a peer with mental illness due to a brain tumor, (c) a peers with alcohol abuse or (d) a peer with leukemia. Participants were asked

to describe in their own words the peer presented in the vignettes. Results found that those students who described the peer as dangerous were more likely to report discriminatory attitudes toward that person (Corrigan et al., 2005).

The six dimensions of stigma identified by Jones and colleagues (1984) provide a foundation to better understand factors contributing to stigmatizing responses in children and adolescents. In order to understand more about stigma in children and adolescents, the factors as identified by Jones and colleagues (1984) will be reviewed in connection with Corrigan and Penn's (1999) three stigmatizing outcomes. This research will be considered in the context of children and adolescents, specifically students with autism.

Stigmatizing Responses

Using research with an adult population, Corrigan and Penn (1999) identified three possible outcomes of stigma: (a) fear and exclusion, (b) authoritarianism, and (c) benevolence. These three outcomes are resulting behaviors, cognitions, and/or emotions felt by the perceivers that are directed towards the person with a disability. Since this research was conducted with an adult population, these outcomes need to be considered and reviewed as applied to a child population. Therefore, factors contributing to these three outcomes will be considered using child research as applicable (Refer to Figure 2.3).

Fear and Exclusion

The stigmatizing responses of fear and exclusion refer to (a) the feeling that a person with a disability should be feared and (b) the behavioral response to avoid that person (i.e., exclusion). Research has shown that students with disabilities, such as behavioral and learning disabilities, are more likely to be socially rejected by their classmates in peer nomination measures when compared to typically developing peers (Milich & Landau, 1984; Swanson & Malone, 1992).

Table 2.1. Definitions and outcome of characteristics of a disability (Jones et al., 1984).

Characteristic of a Disability	*Definition of Characteristic*	*Impact of Characteristic on Stigmatizing Attitudes*
Concealability	-How obvious are the characteristics of the disability to the observer?	-The more concealable a disability, the less likely that a stigmatizing attitude will develop.
Course	-Is the disability reversible over time?	-If a disease is considered to be a life-long disease, there is more likelihood of a stigmatizing attitude to develop.
Disruptiveness	-To what extent do external behaviors from the person with a disability impact interpersonal interaction?	-The more disruptive the behavior is; the more likely a stigmatizing attitude is to develop.
Aesthetics	-How physically appealing does the observer perceive the person with a disability to be?	-The more attractive a person is, the less likely they are to be stigmatized against.

Characteristic of a Disability	*Definition of Characteristic*	*Impact of Characteristic on Stigmatizing Attitudes*
Origin	-How did the person with a disability acquire the disability?	-The more responsible an observer perceives a person to be for the onset of their disability, the more likely a stigmatizing attitude will develop.
Peril	-Does the observer feel threatened by the person with a disability?	-If the observer feels threatened by the person with a disability, the likelihood of a stigmatizing attitude increases.

application of Jones and colleagues' (1984) factors of stigma provide for a better understanding of the stigmatizing outcome of fear and exclusion. The factors of aesthetics, peril, disruptiveness, and concealability are all important to consider in the response of fear and exclusion (Refer to Figure 2.3).

The influence of aesthetics on the stereotypic response of fear and exclusion is clear. If the person with the disability is considered to be attractive, there will be less likelihood of a stigmatizing response of fear and exclusion (Hanna, 1998). In a study by Hanna (1998), 188 adolescents, ages 11-15, were surveyed about friendships at summer camp. Hanna found that physical attractiveness was a strong predictor of social acceptance and those students rated lower on physical attractiveness were less likely to achieve peer acceptance when compared to peers rated higher on physical attractiveness.

Similarly, peril, or fear for one's own safety due to contamination or dangerous behavior, may also cause feelings of fear and exclusion (Kent, Cartwright, & Ossorio, 1984; Gordon, et al., 2004; Royal & Roberts, 1987). In relation, observing disruptive behavior, such as aggression or uncontrollable behavior, exhibited by a peer with a disability may lead to segregation and exclusion of the disabled student from peer interaction (Brockington, Hall, Levings, & Murphy, 1993; Gray, 2002; Juvonen, 1991; Royal & Roberts, 1987). In a study by Royals and Roberts (1987), researchers found that participants with epilepsy, a disability that can be perceived as disruptive and perilous by observers, can lead to fewer social interactions and more exclusion by school age students. Finally, the less concealable a disability is, the more likely it is that a behavioral response of fear and exclusion will occur towards the student with a disability (Gray, 1993, 2002; Long, Woods, Miltenberger, Fuqua, & Boudjouk, 1999). In a study by Long and colleagues, 108 undergraduate college students were asked to view one of two videos. The

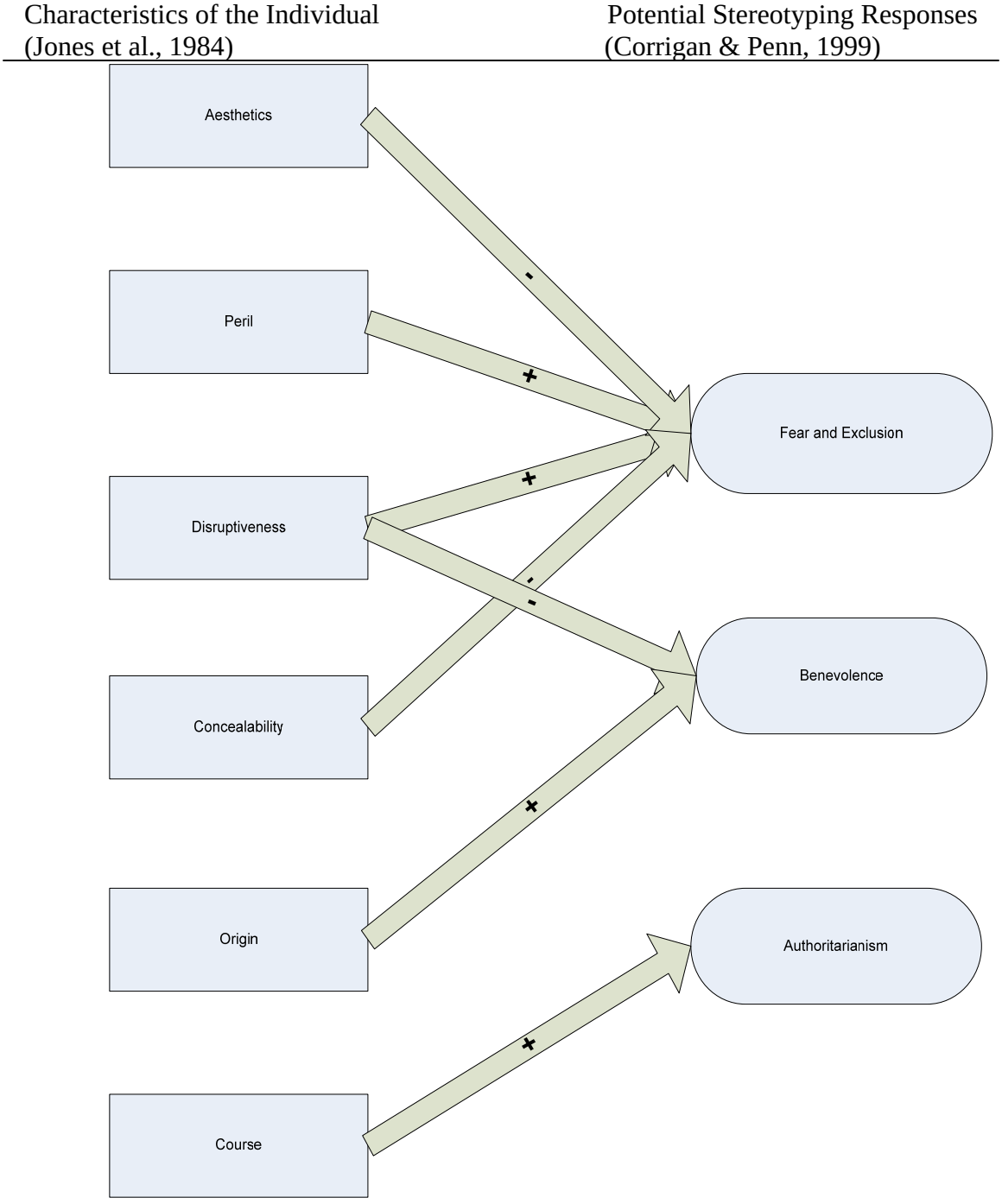

Figure 2.3. The characteristics of an individual's disability that either increase or decrease the potential stereotyping responses of the observer.

videos presented an actor portraying a person with mental retardation either presenting or not presenting observable habit conditions (i.e., motor tic, vocal tic, trichotillomania, and fingernail biting). Attitudes between the two groups were compared and those participants that viewed the videos with the habitual behaviors were more likely to exclude the actor from social opportunities (Long et al., 1999). These findings support the conclusion that the less concealable a disability is the more likely it will be that a stigmatizing outcome of exclusion will occur.

Benevolence

Benevolence is a stigmatizing response of perceiving a person with a disability as childlike and naïve (Corrigan & Penn, 1999). Factors of a disability that may lead to this stigmatizing response of benevolence include origin and disruptiveness. If the origin of a disability can be contributed to an occurrence outside of the child's control, such as contracting AIDS through a blood transfusion, the perceiver may be more likely to want to care for the peer with disabilities (Muinonen, Suominen, Validmaki, Lohrmann, & Peate, 2002). Muinonen and colleagues (2002) conducted a study with 171 youth between the ages of 13 and 17 regarding attitudes towards people infected with HIV. More positive attitudes were reported by participants when the person was reported to have acquired HIV through a blood transfusion (i.e., outside of their control) versus a person who was reported to have acquired HIV through intravenous drug use (i.e., due to an action within the control of the person). In addition, disruptive behavior, such as throwing items, kicking desks, or knocking over trashcans, may decrease feelings of benevolence towards a student with a disability (Juvonen, 1991). In a study by Juvonen, urban 6^{th} graders were asked to discuss their willingness to provide social support to disruptive classmates. These included benevolent actions such as helping him or her with class work. Those

classmates that were ranked higher on disruptive behavior had the lowest score of likelihood for benevolent support.

Authoritarianism

Authoritarianism refers to a feeling by an observer that another person cannot care for himself or herself; instead the observer feels that he or she must take care of the other person by making important decisions for him or her (Corrigan & Penn, 1999). The factor of course has been found to contribute to the stigmatizing response of authoritarianism.

A study by Alizadeh and Andries (2000) considered the relationship between a chronic disability (ADHD) and parenting style (i.e., authoritative versus authoritarian). Authoritative parenting style employees a democratic decision making process when interacting with their children. Authoritarian parents make decisions for their children without explanation. Similar to how Corrigan and Penn (2000) describe authoritarianism, a stigmatizing response, authoritarian parents feel that their child is unable to make their own decisions and that the parent must be the decision maker.

In the study by Alizadeh and Andries (2002), 130 students with a mean age of 9 and a diagnosis of ADHD and 120 students also with a mean age of 9 without a diagnosis of ADHD were given consent to participate. Through administration of standardized measures, researchers found that parents were more likely to use an authoritarian decision making procedure versus an authoritative decision making procedure if their child was diagnosed with ADHD. The reverse is true for students without a diagnosis of ADHD. Parents of students without a diagnosis of ADHD were more likely to use an authoritative parenting style. This study supports the hypothesis that the chronic course of ADHD may impact the stigmatizing response of authoritarian attitudes toward a child with this disability.

Moving from the general to the specific, application of these factors of the stigmatizer and stigmatized to the particular disability of autism provides opportunity to review and further understand stigmatizing responses in children and adolescents. A better understanding of stigmatizing responses may contribute to a more successful inclusion process for students with autism.

Autism: Stigmatizing Responses

Research on the attitudes of general education students towards peers with autism is limited. Therefore, the application of Jones' six factors of stigma and Corrigan and Penn's (1999) three stigma outcomes provides a starting point to understand stigmas directed towards students with autism. Since autism is a disorder characterized by social deficits, the peer context is important to consider. Through a review of applicable literature, a blueprint of factors contributing to stigmatizing outcomes was constructed (See Figure 2.4). Articles were selected for inclusion from the PsycLit and ERIC at EbscoHost search engines. The following terms were entered in the search engines: course, aesthetics, peril, disruptiveness, concealability, origin, fear, exclusion, benevolence, and authoritarianism. In addition, synonyms of these terms were also searched. Results with participants between the grades of preschool and undergraduate college students were included.

Fear and Exclusion

As presented earlier, aesthetics, peril, disruptiveness, and concealability are factors to consider in the stigmatizing response of fear and exclusion towards persons with disability in general. These factors may hold true specifically for children with autism as well. Students with autism often look like typically developing children (Gray, 2002). They do not have external physical characteristics to identify a disability. Therefore, based on the hypothesis presented in

this paper, peers would be less likely to exclude and fear a peer with autism since he or she looks typical.

Next, students with autism do tend to display disruptive behaviors such as body rocking, aggression, hand flapping, and echolalia (APA, 2000). When peers observe these behaviors, the resulting behavior from the general education peer may be fear and exclusion (Koegel, 1998). Not only are these behaviors disruptive, but they might also cause feelings of peril or threats to personal safety. Therefore, a stigmatizing attitude of fear and exclusion may develop towards a student with autism who has disruptive behaviors. Furthermore, some students with autism may be able to conceal their disability by camouflaging communication difficulties by pretending to be studious and shy. However, for some students with autism, disruptive behaviors, such as body-rocking and hand flapping, make it difficult to conceal their disability (Klin, Volmar, & Sparrow, 1992) resulting in an increased probability of the occurrence of a stigmatizing response of fear and exclusion.

A stigmatizing response of a feeling of fear or a behavioral response of avoidance is detrimental to the goal of socialization from an inclusive educational placement. Access to typically responding social partners and observation and interaction in typically occurring social interactions are goals of inclusive education placements (Burack et al., 1997); however, if the stigmatized response of avoidance occurs, then this goal of inclusion is not met. The factors of autism that increase fear and exclusion are important to consider and to counteract through classrooms interventions when possible.

Benevolence

Disruptive behavior and origin of the disability have been identified as contributing factors to the stigmatizing response of benevolence, or a feeling that a person with the disability

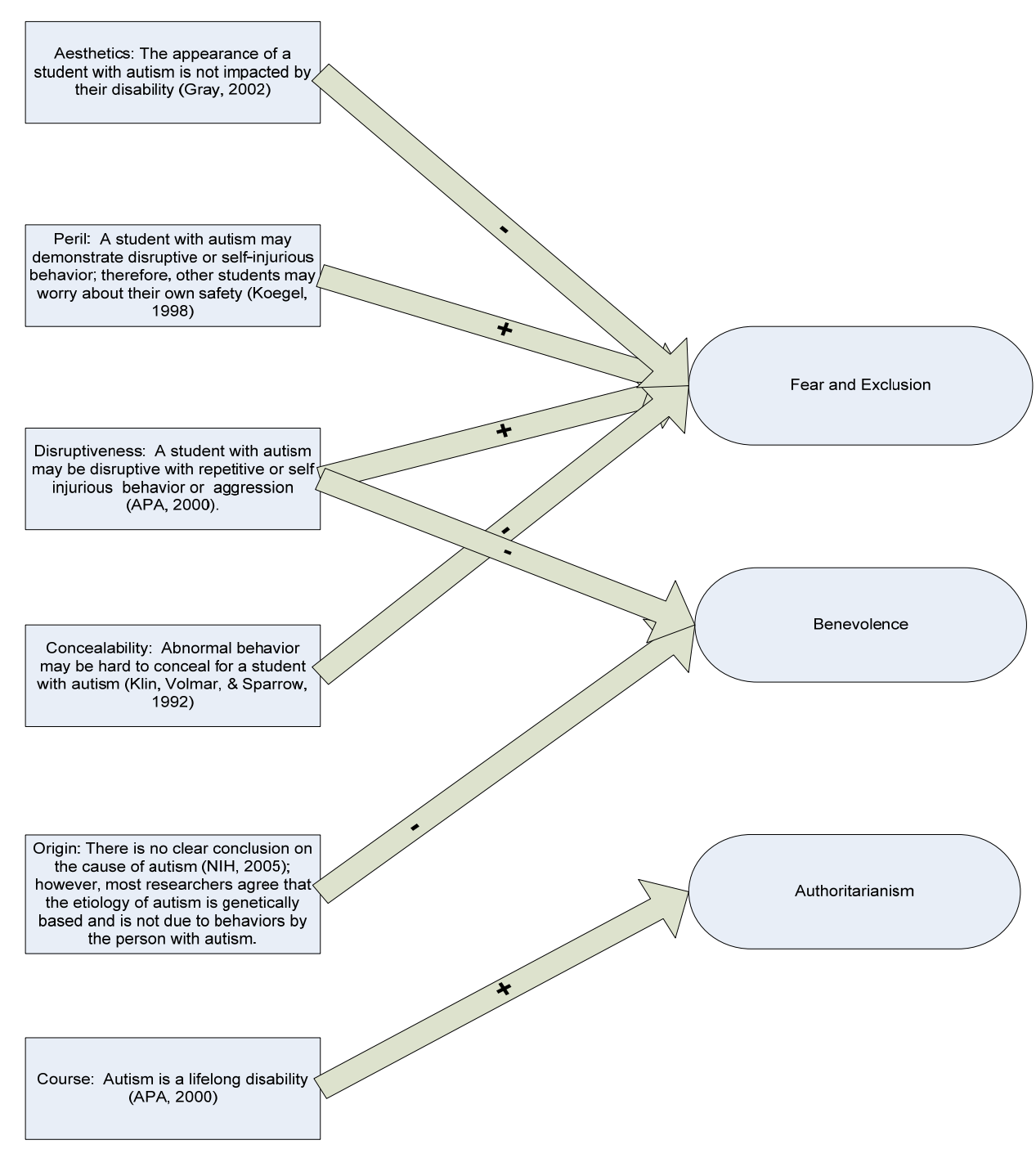

Figure 2.4. Application of the characteristics of a student with classic autism to Jones et al. (1984) factors and the resulting stereotypic responses as identified by Corrigan and Penn (1999).

is childlike and naïve. Disruptive behavior of a student with autism may lead to a decrease in peers' benevolent attitude. A peer may be less likely to want to help a disruptive student with autism because of behaviors such as body rocking, aggression, or self-injurious behavior.

Researchers continue to search for a single etiology of autism; however, at this point there is no clear cause of autism (NIH, 2005). Most researchers do agree that the etiology of autism is genetically based (Bonoro, Lamb, Barnby, Bailey, & Monaco, 2006). Therefore, this factor, as identified by Jones and colleagues (1984) would not be expected to impact attitudes held by general education students. However, the possibility of incorrect beliefs of the etiology of autism must be considered. Based on social attribution theory, which considers human tendencies to hypothesize about the reasons for others' behavior, two different types of theorized etiologies of autism should be considered (Weiner, Perry, & Magnusson, 1988). If the general education student assumes that the etiology of autism is within the control of the student with autism, than the general education student will most likely feel anger and very little pity towards the student with autism. If the general education student believes that the source of the autism was outside of the control of the peer with autism, there are more likely to be feelings of pity and benevolence (Weiner et al., 1988). At this time, no research has been identified that considers general education students' beliefs regarding the cause of autism. More research in this area is necessary.

Students with autism often have difficulty socializing with typically developing peers. Furthermore, stigmatizing attitudes held by typically developing peers, such as feelings of benevolence, may limit a student with autism's exposure to opportunities such as developing life skills or academic skills. Instead, peers may feel pity towards the student with autism, completing these tasks for him or her, not allowing practice opportunities for the student with

autism. Even though a feeling of benevolence is not as negative of a stigmatizing outcome as a feeling of fear or a behavioral response of exclusion, benevolence may be detrimental to the individualization of a student with autism.

Authoritarianism

Course is an important factor to consider in the stigmatizing response of authoritarianism. As described above, course refers to whether the stigmatizing condition is reversible over time and if it has an impact on the person's life expectancy. Autism is a chronic, life-long disability (APA, 2000). About 25% of people diagnosed with autism also suffer from seizures and a majority of cases suffer from some level of mental retardation (APA, 2000). Due to these factors a shortened life span is expected for persons with autism (Pickett, Paculdo, Shavelle, & Strauss, 2006). Since autism is a chronic disability with a shortened life-span, an increase in feelings of authoritarianism towards a peer with autism may occur.

A successful inclusion process of a student with autism may not occur if feelings of authoritarianism develop. Authoritarianism is similar to benevolence in that typically developing peers may assume that a student with autism needs to be given directions on how to perform tasks. This may limit the opportunities for typical social interactions between a student with autism and his or her peers. Authoritarianism may also limit a student with autism's opportunities to develop self-sufficiency and independence.

Students initially observe peers with disabilities according to the six characteristic outlined by Jones (refer to Table 2.1) which may result in the emotional response of stigmatizing attitudes of fear and exclusion, benevolence, and authoritarianism (Corrigan & Penn, 1999; Jones et al., 1984). Further research is needed in this area to thoroughly understand child and adolescent stigmatizing responses. Research addressing the impact of stigma on students is also

necessary in addition to strategies that would most effectively reduce that impact. Such research is important to the welfare of both typically developing students as well as those with disabilities. Since inclusive educational placements have become a popular educational alternative for students with disabilities, these students face increased exposure to negative attitudes (Campbell et al., 2004; Plata, Trusty, & Glasgow, 2005; Roberts & Lindsell, 1997). Therefore, successful inclusion of students with disabilities may depend on a fuller understanding of stigmas in children and adolescents.

Impact of Stigmatizing Responses

Once stigmas, or negative stereotypes, develop, it is important to consider their impact. Once a negative emotion is attached to a stereotype, the stereotype is considered a stigma or prejudice (Taylor et al., 2003). Prejudice, a cognitive and affective response, may lead to negative behavior, or discrimination (Crocker, Major, & Steele, 1998). Discrimination may result in numerous inequalities including inadequate educational opportunities, poor medical services, or avoidance by community and family members of children and adolescents with mental disabilities (Corrigan & Kleinlein, 2005).

An additional way in which to consider the impact of stigmas is based on the function of the stigma. The function of a stigma highlights what the stigmatizer gains from implementing the prejudice. Tajfel (1981) considered the four functions of stereotypes in adults: (a) to justify negative behavior, (b) to clarify boundaries between groups, (c) to enhance self-image, and (d) to provide guidance in unfamiliar situations. Since all of the previous research on stereotypes has been conducted with adults, additional data are needed in order to understand better the impact of stigmas on children with disabilities such as autism, as well as on their typically developing peers within an inclusive educational setting. The impact of a stigma can be considered as

discrimination, or something that a stigmatizer gains. Stigmatizing outcomes, fear and exclusion, benevolence, and authoritarianism, can be thought of as the basis for prejudice. The cognitive responses of fear, benevolence, and authoritarianism and the behavioral response of exclusion, lead to discrimination of students with disabilities within inclusive educational settings. The functions of stigmas, as identified by Tajfel (1981), provide a secondary lens through which stigmas can be considered as well.

Impact of Stigmatizing Responses towards Students with Autism

The outcome of stigmas can be negative for students with autism. As Jean-Paul Bovce (2000), an author with autism, describes, living with autism can lead to limitations in where he was allowed to live growing up and what type of school he attended. He wrote in detail about the challenges that he had to face due to his diagnosis of autism (Bovce, 2000). Similarly, Temple Grandin (2005), a well-known animal researcher and person with autism, discussed in an autobiographical best selling book the episode of being removed from her home school and having to attend boarding school for students with emotional and behavioral disturbances due to her disruptive behaviors associated with autism. Both Grandin and Bovce were limited in their choices for educational and living placement due to their diagnosis of autism and associated behaviors.

However, educational opportunities are changing since the Education for All Handicapped Children Act of 1975. This policy has been reauthorized as IDEA 1997 and IDEA 2004. IDEA and IDEA mandates that all students, regardless of disability, be educated in the least restrictive setting possible. This means that more students with autism are being taught in general education settings. However, the stigmatizing responses of fear and exclusion, benevolence, and authoritarianism may impact students with autism through the development of

prejudice and discrimination. Dr. Grandin (2005) and Mr. Bovce (2000) both discussed exclusion from typical education settings. In addition, authoritarian decision-making may have occurred blocking Grandin and Bovce from participating in their own educational placement decisions. Since stigmatizing responses lead to discrimination, it is important to consider methods to change stigmatizing responses of fear and exclusion, benevolence, and authoritarianism.

Methods for Changing Stigmatizing Responses

Once negative attitudes in the form of stigmatizing responses have been identified, methods for modification of the stigma are important to consider. Research in the area of modifying stigmatizing responses often focuses on three techniques: (a) protest, (b) education, and (c) contact (Corrigan & Penn, 1999). The process of changing stigmatizing responses through these three avenues will be reviewed.

Protest. One method researchers have considered to reduce stigma towards children and adolescents with mental illness and physical disabilities is through protest. Protest occurs when, for example, advocacy groups contact media outlets about negative depictions of a person with a physical disability or when a store chain is avoided due to discriminatory treatment of people with mental illness. Protest has been effective in reducing stigmas based on racial identity or national origin. However, as discussed by Corrigan and Penn (1999), protest leads to suppression, where people are not comfortable expressing their negative attitudes. Yet, the external actions of less stigmatizing behavior may be masking the actual feelings of stigma. In fact, a "rebound" effect may occur due to the cognitive process of suppression resulting in the thoughts becoming stronger and more difficult to change (Bargh, 1989; Hasher & Zacks, 1979; Macrae, Bodenhausen, Milnes, & Wheller, 1996). A study by Corrigan and colleagues (2001)

found that protest was an ineffective technique for changing adults' attitudes toward the mentally ill when compared to education and contact. These findings demonstrate the need to further consider the role of protest in child and adolescent attitude change.

When considering the six factors of a disability that influence the occurrence of a stigmatizing response as identified by Jones and colleagues (1984), the technique of protest does not address any of these factors specifically. In fact, the more sensational and generalist use of protest does not usually address specific factors of an individual's disability. In contrast, education and contact as a method of attitude change provide opportunities for individual interventions focusing on the specific factors of a disability.

Education. The impact of education on negative attitudes towards children and adolescents with disabilities is inconsistent. Potter and Roberts (1984) found that descriptive and explanatory information provided regarding a mildly observable chronic illness did not increase acceptance of the disabled child. Furthermore, research on the topics of Tourette syndrome (TS), obesity, and autism have found no significant effects of education on changing attitudes of general education students towards peers with disabilities (Friedrich, Morgan, & Devine, 1996; Bell & Morgan, 2000; Swaim & Morgan, 2001). All three of these research studies presented the information about the disability through a videotaped script immediately following a short video clip of the disabled child. In contrast, Campbell and colleagues (2004) found that combined explanatory and descriptive information about the child with autism, in fact, did make a difference in the reported attitudes of typically developing students. In this study, as in the others, the child with autism was presented via videotape and information immediately followed the video clip. A major difference between these four studies is the sample size surveyed by Campbell and colleagues. With a sample size close to 900 subjects, the statistical power was

greater in order to identify differences between the effects of combined explanatory and descriptive information and other types of information (i.e., explanatory information only, descriptive information only, and no information).

Education about a disability, such as autism, provides opportunities to inform typically developing peers about the origin and course of the disability. Campbell and colleagues (2004) presented explanatory information about a new student with autism entering a general education classroom. The explanatory information explained that autism was a problem in the brain that makes social interactions difficult. Campbell and colleagues found that the combination of explanatory information and descriptive information highlighting similarities between the new student with autism and current students resulted in the most positive effect on students' attitudes. Educational interventions also provide an opportunity to explain that autism is a life-long disability and that the etiology of the disability has not been clearly identified as this point.

A second avenue for providing education about a disability is by using a commercially available program such as Kids on the Block developed by Barbara Aiello (Dietl, 1982). This research based program provides educational presentations to help the integration of students with disabilities into regular education classrooms. Currently there are 1600 Kids on the Block programs around the world, made up of 35 specially designed programs and over 42 puppets representing a variety of disabilities and situations (e.g., autism, multiple sclerosis, cancer, AIDS).

Researchers have documented mixed outcomes regarding the effectiveness of this particular program. Using a sample of 749 second and fifth grade students, Schumacher, Leibowitz, and Furst (n.p.) found significant improvement in reported attitude of general education students towards a person with a disability at both post-test and follow-up when

compared to the control group who did not watch the Kids-on-the-Block presentation. Significant increases across the 2nd and 5th grades were also found. The authors did not specify whether the participants were randomly assigned by classrooms to treatment and control conditions, therefore caution must be employed when analyzing the results of this study.

In contrast, in a study by Rosenbaum, Armstrong, and King (1988), the Kids on the Block program was compared to direct contact between a child with a disability and a typically developing peer. Direct contact was defined as an already existing buddy program. Sixty-six 4th through 7th graders participated. Three different conditions were considered: (a) a buddy program alone, (b) the Kids on the Block program alone, and (c) the two interventions combined. The buddy program alone was the most effective intervention for improving attitudes toward a peer with a disability when compared to the other two options. The Kids on the Block program in conjunction with the buddy program showed a significantly lower improvement rate. The Kids on the Block program alone had the same impact as no intervention at all (Rosenbaum, et al., 1988).

Criticisms of the Kids on the Block program include the fact that disabled children are presented in this intervention with a happy demeanor and with good self-esteem. However, this is not how all children with disabilities behave, which may not appropriately prepare the nondisabled student. Also, the Kids on the Block program does not teach the nondisabled children how to behave with disabled peers since interaction does not occur, simply education (Rosenbaum, et al., 1988). These criticisms have been addressed by the creator of Kids on the Block, Barbara Aiello. Aiello says that Kids on the Block is, “Not the world as it is…the world as it should be” (Dietl, 1982). Kids on the Block allows nondisabled students to observe and learn from puppets representing disabled and nondisabled peers in a controlled environment.

Showing the typically developing students a perfect representation of the child with a disability may alter the child's attitude toward an actual disabled child joining their class in the future. However, research results have been inconsistent in this finding (i.e., Schumacher, Leibowitz, & Furst, n.p.; Rosenbaum, Armstrong, & King, 1988). Factors from Jones and colleagues (1984) that could be incorporated into the Kids on the Block program include the origin of the disability and the course of a disability.

Contact. A third way that attitude change may occur is through contact with persons with disabilities (Clunies-Ross & O'Meara, 1989; Corrigan, Green, Ludin, Kubiak, & Penn, 2001; Kolodziej & Johnson, 1996; McDonald, Birnbrauer, & Swerissen, 1987; Slininger, Sherrill, & Jankowski, 2000). Slininger and colleagues considered the impact of contact between typically developing students and their peers with severe disabilities. Gender of the typically developing student and structured versus non-structured interaction were found to significantly impact attitude change. The attitudes of boys in the structured contact group improved significantly more when compared with the attitudes of boys in the unstructured contact group. Attitudes held by female participants were not found to improve significantly; the authors attributed this finding to the positive attitudes that the girls held in the beginning and, therefore, little room for improvement was possible (Slininger et al., 2000).

Contact theory. The research by Slininger and colleagues (2000) was based in contact theory. Contact theory contends that interaction between a child with a disability and the target child will improve attitudes of the target child toward the child with disabilities (Allport, 1954). Students who are educated in inclusive education settings are more likely to have positive attitudes toward children with physical disabilities when compared to those in non-inclusive settings (Acton & Zarbatany, 1988; Archie & Sherrill, 1989; Bennett & Rowe, 1996; Clunies-

Ross & O'Meara, 1989; Rees, Spreen, & Harnadek,, 1991; Tripp, French, & Sherrill, 1995). Clunies-Ross and O'Meara (1989) applied the ideas of contact theory to attitude modification of general education students towards peers with intellectual disabilities. Through disability simulations, shared projects, and group activities with successful outcomes, contact with peers with disabilities appeared to improve general education students' attitudes toward disabled peers. At a three-month follow-up, researchers found that positive attitude change was maintained (Clunies-Ross & O'Meara, 1989).

A study by Tripp, French and Sherrill (1995) compared the reported attitudes of students in a physical education class without peers with disabilities verses a physical education class including students with disabilities. Students in the inclusive class reported more positive attitudes towards students with behavioral disabilities than students from the segregated school. This may be due to the fact that students in the inclusive class had contact with these students and therefore were less fearful of their own safety, or peril, due to previous history with their disabled peer. In this instance, contact may have reduced a feeling of peril. However, due to a lack of detail in the participant description of the behavioral difficulties, this conclusion is only speculative.

Stigmatizing responses may impact the effectiveness of inclusive classrooms for students with disabilities such as autism. Negative attitudes do exist toward students with disabilities, and changing stigmatizing responses as much as possible may be an effective intervention for educators working with students with autism. In addition, considering the six factors of a disability that contribute to stigmatizing responses may be a useful basis for formulating successful interventions.

Students with autism are being educated more frequently in general education classrooms (Ebersold, 2003; Harris & Handleman, 1997; Odom, 2000). This can provide opportunities to learn from peers; however, preexisting attitudes toward students with autism may make the inclusion process more difficult for these students. Methods to change the existing attitudes include protest, contact, and education. Research generally supports the use of education and contact in one-on-one situations, with protest being used effectively with larger groups such as media targets or consumer groups. Incorporation of areas for intervention for a student with autism were identified earlier in this review, including information about course of the disability, etiology of the disability, origin of autism, disruptive behaviors due to autism, and possible feelings of peril due to these behaviors.

Negative stereotypes, a component of the cognitive aspect of attitudes, occur in schools and classrooms every day. Based on Ajzen and Madden's (1985) Theory of Planned Behavior, attitudes lead to behavioral intention which leads to observable behavior. Negative stereotypes may therefore result in negative attitudes and decrease the intention of general education students to interact with students with disabilities such as autism. An inclusive classroom is intended to provide appropriate social models for children with autism; therefore, negative stereotypes may directly undermine the effectiveness of this commonly used educational practice. Consideration of the characteristics of autism based on the combined theories of Jones and colleagues (1984) and Corrigan and Penn (1999) may provide a useful method for conceptualization of autism to apply to development of interventions to improve stereotypes. Education of general education students regarding the course, etiology, and behavior of peers with autism, may decrease the likelihood of negative stigmas such as fear and avoidance, benevolence, and authoritarianism

from occurring. In addition, contact with students with autism may facilitate positive attitudes towards peers with autism due to a better understanding of inappropriate or unusual behaviors.

Future Research

Based on the current review of literature related to attitudes about and stigmatizing responses toward students with autism, many future research questions have been identified. First, research using surveys should be employed to determine the current attitudes of general education students towards peers with autism. This would be a starting point to better understand stereotypes, which influence attitudes ultimately impacting behavior. With this type of research a stronger foundation of attitudes towards students with autism could be developed leading to more appropriate and effective interventions. Interventions could be used to improve social interactions between general education students and students with autism through social skills groups or classroom interventions. In addition, this literature review has identified a dearth of research related to stigma development in student populations. Consideration of stigmatizing responses based on Jones and colleagues (1984) and Corrigan and Penn factors of stigmatizing responses is a potential starting point for this research. Research should begin by addressing the connections between the characteristics of the individual and the stigmatizing responses, such as the relationship between disruptive behavior and the stigmatizing response of fear and exclusion. Similarly, the relationship between the perceived origin of a disability and feelings of benevolence towards that person deserves empirical study.

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CHAPTER 3

AN EXAMINATION OF MIDDLE SCHOOL STUDENTS' REPORTED KNOWELDGE OF AUTISM: USING ANALYSIS TO INFORM INCLUSIVE EDUCATION

Morton, J.F., Campbell, J., & Roulston, K. To be submitted for publication to *Focus on Autism and Other Developmental Disabilities.* .

Abstract

Middle school students differ in their knowledge and understanding of autism. Researchers have shown that knowledge of a disability contributes to peoples' attitudes towards those with disabilities, which in turn relates to peoples' behaviors towards others with disabilities such as autism. Within the context of public schools, one characteristic in an inclusive classroom by which to measure the effectiveness of the inclusion process are the reported behavioral intentions and attitudes of general education students towards peers with disabilities such as autism. Increased opportunity for socialization is a hypothesized byproduct of inclusive education; however, when students express negative attitudes through their actions towards peers with autism, positive social models for the students with disabilities are less likely to occur.

Therefore in the current study, 1,004 middle school students were surveyed regarding their awareness and understanding of autism. Of the 1,004 students surveyed, 471 participants reported having heard of autism and then provided a response to the open-ended question: "What is autism?" Students' open-ended responses were coded to develop themes that represented the kinds of responses provided by students. Through systematic analysis of responses, conclusions about how middle school students describe their understanding of autism are presented. In addition, recommendations for interventions to improve attitudes towards peers with autism are outlined based on the themes identified in the analysis. The goal of the current study is to provide a more thorough understanding of the ways in which students express their knowledge of autism. By presenting an analysis of how students express their understanding of autism, I argue that findings can contribute to the development of improved intervention alternatives for general education students.

Students with disabilities, such as autism, are being educated in general education classrooms more often today than in the past (Ebersold, 2003; Harris & Handleman, 1997; Odom, 2000). In response to this trend in educational placement, researchers have attempted to identify factors that make the inclusion process successful for both the students with autism and their peers. Since autism is, at its most basic level, a social disability that also includes abnormalities in communication, and restricted and repetitive behaviors (American Psychiatric Association [APA], 2000), the effect of inclusive classrooms on the social development of children with autism is an important factor by which to measure the success of inclusive education. Researchers have hypothesized that one of the benefits of educating children with autism in general education classrooms is the provision of social models and increased opportunities for social interaction (Burack, Root, & Zigler, 1997; Cooper, Griffith, & Filer, 1999). However, social interaction among general education students and students with special needs may be inhibited or avoided if students express negative attitudes towards their peers with autism due to their social disability. Such negative interactions among students may eliminate the possible benefits of social interactions among all students in inclusive classrooms. Since research has been shown to support the relationship between attitudes and behavior (Cooke & Sheeran, 2004), further research examining the attitudes of general education students towards peers with autism is warranted.

Research has shown that students may express negative attitudes towards persons with disabilities through the observable behaviors of fear, exclusion, and social dominance. Outcomes from these negative stereotypes may include reduced opportunities for social interaction, employment opportunities, and interpersonal relationships (Corrigan & Penn, 1999). One explanation for negative attitudes towards persons with disabilities is based on six different

characteristics of the disability (Jones et al., 1984). Based on the work of an expert panel convened to review the topic of stigma, Jones and colleagues (1984) presented a conceptualization of the adult general public's attitudes towards persons with disabilities based on the following characteristics of the disability: (a) aesthetics, (b) peril, (c) disruptiveness, (d) concealability, (e) origin, and (f) course (see Jones et al., 1984 for further information). Generally, Jones suggested that negative attitudes, or stigmas, can be conceptualized based on these characteristics of the disability. Therefore, a person with autism may look typical, may be disruptive throughout the day, may not be able to conceal his or her disability due to the disruptive behavior, and may make peers fearful of danger. Based on these characteristics, researchers would expect stigmatizing attitudes to exist towards a student with autism. However, few direct surveys of typically developing students have been conducted to verify whether negative attitudes exist towards students with autism. Additionally, this information could be used to provide guidance for appropriate interventions to improve the learning experience for all students in inclusive classrooms.

Attitudes and Behaviors

An attitude is a summary of a person's evaluation of an object, action, or event that includes personal knowledge, whether accurate or not, and experience. Through research conducted with 218 undergraduate students, a sample of the general public has been found to hold negative attitudes towards persons with disabilities (Gordon, Tantillo, Feldman, & Perrone, 2004; Nowicki & Sandieson, 2002). A disability is a physical, mental, or developmental impairment including chronic illness (e.g., autism, diabetes, obesity) that interferes with some area of typical functioning. Through a meta-analysis of 20 studies, Nowicki and Sandieson (2002) found that in the majority of research reviewed that children, ages 3-13, reported negative

attitudes towards persons with physical and intellectual disabilities. However, there is limited research in the area of attitudes toward autism. By comparing the results from pre and post intervention surveys, Campbell, Ferguson, Herzinger, Jackson, and Marino (2004) found that within a sample of 576 elementary age children that cognitive and behavioral attitudes were more negative towards a student with autism when compared to attitudes toward a typically developing student.

When general education students express negative attitudes towards students with disabilities, it is important for educators and practitioners to consider methods to change students' attitudes in a positive direction. One possible method to change students' attitudes is through education. Education can provide accurate information about a disability that can dissuade inaccurate or incomplete beliefs. In studies of education as a method for attitude change, mixed outcomes for its effectiveness have been found (Potter & Roberts, 1984; Friedrich, Morgan, & Devine, 1996; Bell & Morgan, 2000; Swaim & Morgan, 2001; Campbell et al., 2004)). Below relevant articles are reviewed associated with this conclusion.

Researchers have compared three main types of educational information: (a) a medical explanation of the disability (i.e., explanatory information), (b) how the child with the disability is similar to general education peers (i.e., descriptive information), or (c) a combination of both descriptive and explanatory information (Bell & Morgan, 2000; Bell & Morgan, 2000; Campbell et al., 2004; Friedrich, Morgan, & Devine, 1996; Swaim & Morgan, 2001). Potter and Roberts (1984) found that descriptive and explanatory information provided to 1st and 3rd-4th graders regarding a mildly observable chronic illness did not increase acceptance of the disabled child. Furthermore, research on the topics of Tourette syndrome (TS), obesity, and autism have found

no significant effects of education on changing attitudes of general education students towards peers with disabilities (Friedrich, et al., 1996; Bell & Morgan, 2000; Swaim & Morgan, 2001).

In contrast, Campbell and colleagues (2004) found that combined explanatory and descriptive information about the child with autism, in fact, did make a difference in the reported attitudes of typically developing students. Similarly, Bak and Siperstein (1987) found that in a survey of 80 4^{th}-6^{th} graders that the attitudes of general education students improved following the presentation of descriptive information about a peer with mental retardation. However, none of these studies analyzed responses from open-ended questions about autism. Instead, data were analyzed from word lists or Likert scale options. Likert scales and word lists can limit participants' options since the participant must select from preset options. An open-ended question allows for participants to formulate their own responses thereby not placing artificial limitations on responses. The additional information provided to researchers can lead to a better understanding of participants' knowledge of and attitudes towards autism.

The purpose of the current study is to describe and analyze middle school students' self-reported attitudes towards autism. The study builds on the research by Campbell and colleagues (2004) by providing an opportunity for free responding to the question, "What is autism?" Initially, responses were coded based on the accuracy of each response using diagnostic criteria from the DSM-IV TR (2000). However, following further review, a more thorough understanding of the data seemed possible. Participants' responses were observed to follow a number of patterns including describing autism as a list of symptoms, listing causes of autism, and in some cases, listing how they learned about autism. These and other categories, provided information about the participants' methods of conceptualizing autism (Bogdan & Biklen, 2003). By identifying common topics used by participants, patterns of responding within the group as a

whole were described. Teachers, practitioners, and researchers could use this information about general education students' current knowledge and attitudes towards people with autism and develop appropriate interventions to change both knowledge and attitude.

In the current study, middle school students were asked as part of a larger study if they had heard of autism, and if so, to define it. Upon further review of the responses, a data set of interest was recognized, therefore leading to two viable research questions:

1. How do middle school students report their knowledge of autism and what does this indicate about their attitudes toward autism?

2. What descriptive methods are used by middle school students to define the concept of "autism"?

Methods

Participants

Participants were 1,004 students, 419 boys (42%) and 584 girls (58%) (1 not reported) from 98 regular education classrooms within three public middle schools in Northeast Georgia. Three-hundred ninety-six (39%) 6^{th} graders, 294 (29%) 7^{th} graders, and 314 (31%) 8^{th} graders participated in the study. Ages of the students ranged from 11.17 to 15.58 years (M = 13.06 SD = 0.92). Children's self-identified race was as follows: African-American, 44.1%; Caucasian, 46.2%; Other, 9.5%, Hispanic/ Latino, 6.2%; and Asian-American, 2.7% (11.2% not reported). Socio-economic information was not collected for each child; however, Georgia Department of Education (2005) data indicated that the sample was comprised of a low socio-economic group as evidenced by the high percentage of students eligible to receive free or reduced-price lunch (*Mdn* = 55.85%; range 45% - 62% for schools).

The study was approved by university and school districts' Institutional Review Boards. Children were recruited through a parental informed consent form sent home from school with each eligible child. In order to participate, children also provided assent prior to data collection. Participation rates across the 98 classrooms ranged from 4% – 90% (*M* =40.72%; *SD* =20.01) with an overall participation rate of 40.79% (i.e., 1,004 of 2,461 possible participants).

Procedures

Experimenters worked in two-member teams for data collection. After securing children's assent to participate in the study, participants reported demographic information (e.g., grade, age, birth date, gender, etc.). After completing the demographic section, the participants answered a question: "Have you heard of autism?" They were instructed to circle the appropriate answer: "Yes" or "No." If "yes" was the answer, the participant was instructed to write what he or she thought autism to be. Students were told "Put down your pencils when you are finished."

Next, the Knowledge of Autism (KOA) questionnaire was administered to all participants (See Appendix A). The ten-item true-false author developed questionnaire was read aloud. Participants were instructed to respond to the best of their ability and not leave any question unanswered.

Of the 1,004 students with permission to participate in the study, 471 reported having heard of autism. One-hundred seventy three (41%) of the boys participating and 297 (51%) of the girls participating reported having heard of autism. These students came from three schools with 42% of the total sample of participating students from school A, 39% of students from school B, and 50% of students from school C reported having heard of autism**.** Ages of the children ranged from 11.17 to 15.58 years (*M* = 13.06 *SD* = 0.92). Children's self-identified race

was as follows: African-American, 41.2%; Caucasian, 41.4%; other, 9.6%, Hispanic/ Latino, 3.4%; and Asian-American, 4.0%. Of the students with permission to participate in the study, 146 (36%) of 6th graders reported having heard of autism, 150 (51%) of 7th graders reported having heard of autism, and 175 (56%) of 8th graders reported having heard of autism. Students who reported having heard of autism were found to be demographically similar when compared to the original participant sample.

Measure

Knowledge of Autism. (KOA). The Knowledge of Autism (KOA) is a 10-item scale developed by the authors to measure participants' knowledge of autism prior to the intervention with 10 true-false questions such as "Students with autism often have a difficult time looking at other people" and "If someone has autism, it only lasts for about a week." One point was awarded for each correct response with a maximum of 10 points. The KOA is presented in Appendix A.

Analysis

The accuracy of each score was initially scored with participants earning between 0 and 3 points in 0.5 intervals. Accuracy was determined using the DSM-IV TR (2000) diagnostic criteria of autism. Nonspecific descriptions of autism (e.g., autism is a disability) earned half a point while identification of autism as a either a communication, social, or behavioral problem earned one point. After consideration of the limited information provided by this scoring technique a coding system designed to categorize all responses based on common elements within the responses was created. Inductive reasoning or "working the data of specific cases to a more general conclusion" (Schwandt, 1997, p. 69-70) was applied to the analysis at this point. The previous deductive phase of analysis, or the accuracy analysis using the DSM-IV TR,

applied an accepted organization of the concept of autism to the responses. The next phase of analysis employed inductive reasoning allowing categories within the data to become apparent. Organization of the data this way allowed for themes and trends within the data to be identified and for the responses to be reduced to a manageable data set.

After individual responses were coded based on common themes within the data, generalizations of the trends within the response set were considered. This information led to suggestions for interventions to address observed trends within the responses possibly leading to negative attitudes, which have been found to lead to stigmatizing responses in research conducted with adults. These responses may include avoiding a person with autism, being fearful of a person with autism, or not allowing a person with autism to participate in making decisions related to his or her life (Corrigan & Penn, 1999).

Validity

In qualitative research the validity of the analysis is considered of primary importance as described by Hammersly (1990): “By validity, I mean truth: interpreted as to the extent to which an account accurately represents the social phenomena to which it refers” (p. 57). The internal and external validity of the analysis considers whether the findings and interpretations for interventions from the current study are representative of the data analyzed and of the larger population represented. Since the data were collected from three middle schools within two different school systems only a limited amount of triangulation of data was achieved. However, with a large sample size some degree of generalization could be assumed. In addition, examination from two additional researchers confirmed the results of the coding system. Any coding discrepancy was discussed with the primary researcher and the reviewer and a consensus was reached based on the operational definitions of the themes.

Findings

Themes

Based on analysis of all responses, themes were identified within the data set by looking for similar topics (e.g., communication deficits, social deficits, physiological explanation of autism, source of information, educational setting) and/or the presence of inaccurate information. The categories identified were: (a) symptoms including, for example, communication and socialization problems (see Appendix B), (b) physiological explanation for autism (see Appendix C), (c) general problems (see Appendix D), (d) incorrect answers (see Appendix E), (e) source of information about autism (see Appendix F), (f) educational setting (see Appendix G), and (g) evaluative responses (see Appendix H). From the categories, sub-categories, such as core symptoms and peripheral symptoms, were identified. Core symptoms refer to the primary characteristics of a disability, while peripheral symptoms are those characteristics of a disability that are frequently related to a disability, but are not required to make a diagnosis. These groups were not necessarily coded as mutually exclusive categories. For example, a response may contain a reference to a symptom of autism, the physiological explanation of autism, and an incorrect statement about autism. Therefore, this response would be coded under theme A, B, and D. Some categories fell into exclusive groups, such as specific symptom versus general symptom. In total, twelve categories were identified (Table 3.1).

Socialization Problems

Sixty-five participants highlighted socialization problems in their descriptions of autism. The DSM-IV TR identifies multiple non-verbal social symptoms that may be observed in the behavior of a person with autism including poor eye contact, irregular posturing, and unrelated gesturing (APA, 2000). In addition, social behavior exhibited by a person with autism may not

Table 3.1 Categories of Participant Responses including Definitions and Frequency

Category	**Definition**	**Example**	**Number of answers**
Symptoms			
Socialization Problems	Specific description of socialization problems referencing how they “act different,” go in their “own world” or “ have social problems.”	“I think it is where a person is nervous a lot and can't look at someone in the eye.”	65
Communication Problem	Specific description of communication problems including “repeating what is said to them,” “can’t speak,” and “trouble talking.”	“A kind of disability where a person has trouble communicating and is [sic] their own world.”	49
Restricted Repetitive Behavior	Specific description of difficulty breaking a routine or repeating a behavior.	“When a person has to go by an exact schedule every day. They usually are very smart in a certain area.”	6

Category	Definition	Example	Number of answers
Mental Processes: General	Identification that autism is part of the brain, mental disability.	"It is a disorder that can affect a person mentally."	78
Mental Processes: Specific	Specific description of autism affecting mental processing such as learning and attention.		
a. Learning Problems	"Slow learners," cognitive problems, or learning problems.	"It is when a person has slower ways of learning or understanding."	104
b. Smart/ Gifted	Highly intelligent, smart in one area, "smart"	"Autism is usually associated with giftedness. If you have autism then your brain functions differently. You related to your environmently [sic] differently than other people."	18
c. Problems with Focus and Concentration	"problems focusing," difficulties paying attention.	"A mental disability that causes you to not be able to pay attention or follow directions."	9

Category	**Definition**	**Example**	**Number of answers**
Physical Disability	Identification of a physical problem that may be specific (e.g., “seizures,” “problem walking”) or general (e.g., “physical problem”).	“Where children can't control their own muscles”	33
Unique Abilities	Above average performance in one area such as music or technology.	“Yes, some people learn slower than you. Sometimes they can hear a song and they can go play it on an instrument.”	8
Physiological explanation for autism	Response specifically identifying a cause for autism, that autism is something you are “born with,” or that autism has no cure.	“I have heard of it and I am not sure what it is but I think it is a type of disease that you are born with.”	60
General problems	Non-specific description autism as a disability or disorder.	“A disability that happens to some people”	75

Category	**Definition**	**Example**	**Number of answers**
Incorrect Answer	At least part of the statement is not related to autism or provides inaccurate information.	“It is a disease that I think makes your body age faster than your mind.”	29
Source of information about autism	Identification of person or media outlet that first provided information about autism; person with autism.	“I don't really know what it is but this kid on extreme makeover had it.”	6
Educational Setting	Identification of educational setting for a person with autism.	“I think it is a disease that person that makes them act strange and they have to be in special education.“	6
Evaluative	A statement that expresses an opinion, in this case, specifically about a person with autism (e.g., special, wrong, "deserves", just...); the opinion can be positive or negative.	“yes, I am not quite sure what autism is but it is very sad”	36

Category	Definition	Example	Number of answers
Miscellaneous	Not enough information was given to categorize this response into a category; no response; answer left blank	"I have heard of it, but I don't know what it is."	72

be age appropriate and often times lack reciprocity. Responses by participants in the current study refer to characteristics of poor socialization such as “doesn’t want to go outside and make friends” and “they stay by themselves.” Only two participants described a person with autism as being shy; however, eight responses included a description that a person with autism is in his or her “own world.” The most common words in the current data set used to describe a socialization problem in a person with autism were “social” and “act.” Both of these words are related to observable behaviors. Therefore, middle school students that describe people with autism as “acting different” are reporting what they feel to be salient differences in behavior. Many of these general education students may benefit from educational interventions to explain why a person with autism is acting a certain way; educational intervention may lead to acceptance and understanding of social differences between students with and without autism.

Below is an example of a response from the current data set that refers to socialization problems in the description of autism. The example is followed by further analysis of the response to provide more detailed understanding of the participant’s knowledge of autism.

Q: “What is autism?”

A: “Autism is a mental disorder making the person very deeply involved in there [sic] own world. It does not mean there [sic] stupid, but id [sic] does mean that there [sic] very unsocial.”

This response by a 7th grader starts with a very general designation that autism means that someone has a disability; then he or she goes on to name symptoms useful to identify autism such as being in their “own world” and being “very unsocial.” The respondent is careful to point out that a person with autism is not stupid; he or she is just socially withdrawn. The respondent chose to talk about “autism” as a general person by using a plural pronoun (i.e., they) instead of

describing autism as a particular single person (i.e., he or she). This response defends people with autism by saying “they are not stupid,” but it distances the description from the respondent by referring to “them” instead of to one particular person.

The participant that provided this response earned credit for eight out of ten correct answers on the KOA. The average score for participants who had heard of autism was 8.48 (*SD*=1.29) (*z*= -0.37; 36%). The z-score provides a standardized comparison of individual KOA scores based on the average score of the larger group and the standard deviation from the mean (z= (individual score – population mean) / population standard deviation). The larger group is assumed to have normally distributed scores; the percentage reported after each *z* score references the percentage of participants that scored lower on the KOA measure than the target individual.

Based on the conclusions from this response, general recommendations for intervention can be made. Education about the positive aspects of people with autism may help to improve that attitude of middle school students who describe autism in terms of a social disability using negative descriptors (e.g., “weird”, “wrong”, “bad”).

Communication Problems

Forty-nine participants referred to communication problems when describing autism. The most frequent words used to describe communication problems were “talk” (*N*=16) and “communicate” (*N*=13) for example, a person with autism has a “difficult time communicating” or “they can’t talk well with others.” Communication is one of the three main symptom clusters identified by the DSM-IV-TR for a diagnosis of autism. Therefore with 10% of participants who reported having heard of autism including details about communication in their response, the

salience of this symptom can be considered. An example of a response containing a reference to communication difficulties is analyzed below.

Q: "What is autism?"

A: "I believe that it is when someone has a mental handicap or disorder where it is difficult for them to communicate their thoughts and feelings, and they are very sensitive and sometimes can be violent in a way."

This 8th grade respondent lists symptoms including difficulty communicating "their thoughts and feelings", being "sensitive", and "violence". This symptom list is related to two primary criteria of an autism diagnosis by identifying (a) communication difficulties and (b) socialization problems. Reference to violence is descriptive of an associated feature of autism when self injury and aggression are sometimes observed in children with autism.

When considering this participant's KOA (10 out of 10; z=1.18; 87%) a more complete representation of the participant can be created. This participant is above average in his or her knowledge of autism. He or she chose to demonstrate knowledge of autism by highlighting both social and communicative difficulties. In addition, the assumption that people with autism are sometimes violent demonstrates a fear and uncertainty about this population. In this case, educational intervention may not be as important as providing structured contact with a person with autism. Through contact with an individual with autism, this participant may be able to learn that usually people with autism are not violent and that they share similar characteristics such as favorite activities or snacks.

Restricted / Repetitive Behaviors.

A third category for diagnostic criteria in the DSM-IV-TR is restricted or repetitive behaviors (APA, 2000). These symptoms may be displayed through unusually intense

preoccupation with a certain topic, routine, or parts of an object. Severe rigidity and persistence to a nonfunctional activity are also observed with some people with autism. In addition, some people with autism engage in stereotypical hand or body movements such as finger flicking or body rocking. An overarching theme for this category of behavior is the intensity and rigidity of the behavior. A student with autism may become agitated and upset if not allowed to complete a routine such as eating lunch in a certain way. These behaviors may seem unusual to peers, yet they are often characteristic of autism. However, only six participants described autism including reference to restricted and repetitive behaviors. For example, two participants referenced people with autism having to use "schedules." Below is a response that contains reference to restricted/ repetitive behavior followed by an analysis based on the theme of restricted behavior.

Q: "What is autism?"

A: "Autism is a mental disability were [sic] the patient thinks differently and doesn't like to do new things and keep a constant schedule."

This 7th grader identified the general concept that autism is a disability and discussed the additional component that people with autism "keep a constant schedule." In this case, social and communication problems were not identified specifically; instead the participant chose to focus on the rigidity of behavior with not trying new things. This participant answered 9 out of 10 questions correctly on the KOA (z= 0.40; 66%).

The negative impact of restricted and repetitive behaviors to social opportunities in inclusive classrooms can be considered as it relates to this response. For example, if a child in a class "doesn't like to do new things" classmates may be less likely to invite him or her to participate in social or recreational activities. This missed social opportunity eliminates an intrinsic component of inclusive education. However, education about the reason for social

rigidity by a person with autism and contact with persons with autism who successfully socialize may result in improved attitudes.

Mental Processes: General

Seventy-eight responses contained a general reference to autism being a problem with mental processes. This theme differs from the General Problem category, because the Mental Processes: General theme includes identification that autism is within the brain or a mental disorder. For example, fifty four participants used the word "mental" in their response to include references as such "mental disability" or "mental illness." Thirty-two responses identified autism as a problem with the "brain." Most of these responses did not include specific information about autism. Below is a typical example from the Mental Processes: General theme.

Q: "What is autism?"

A: "Autism is where a person has a mental disability."

For this example the KOA score was 6 out of 10 (z= -1.92; 3%). Based on responding in the KOA and the open-ended question, this participant has incomplete knowledge of autism. This participant identifies autism at its most basic level of a mental disability; however, additional details were not given to define autism. A student with this type of incomplete knowledge of autism may benefit from learning more details about autism such as the core deficits in socialization, communication, and restricted behavior.

Mental Processes: Specific

Some responses went beyond identification that autism is a mental disorder and stated that autism affects a specific mental process such as a learning or attention. In this theme, most responses focus on autism as a learning problem; however, some responses included references to learning strengths. Each sub-category is discussed separately below.

Learning Problems

One-hundred and four participants referenced autism as a learning problem. This theme contained the largest number of responses. The DSM-IV TR (APA, 2000) does not define autism based on cognitive ability, therefore; the perception of participants that autism is a learning problem is informative for appropriate intervention.

Q: "What is autism?"

A: "Autism is a mental illness where students have a very difficult time communicating, talking, moving, etc. as well as an extreme difficulty learning."

This 6th grade respondent chose to list symptoms that he or she associated with autism in order to answer the question "What is autism?" This respondent answered 10 out of 10 true/ false questions correctly on the Knowledge of Autism (z= 1.78; 87%). These symptoms (difficulty communicating, talking, moving, and "extreme difficulty learning") address two characteristic areas identified in the DSM-IV-TR: communication and stereotypic patterns of behavior. The respondent identifies specifically that communication is difficult for people with autism. Another characteristic identified by this respondent is that a person with autism has problems moving. This is a broad description of a symptom of autism. Problems moving may refer to stereotypic movement patterns such as finger flicking or body rocking that sometimes occurs in persons diagnosed with autism.

In addition, the respondent identifies a secondary characteristic of autism that some, but not all, persons diagnosed with autism have learning problems. In fact, this respondent goes so far as to describe a person with autism as having "extreme difficulty learning," meaning that the problem is more than just a slight one; it could be assumed that it would negatively impact the person with autism's overall cognitive performance if he or she suffered from "extreme difficulty

learning." A general education student with this type of perception of autism may benefit from contact with and educational interventions about a new peer with autism. Specifically, interaction with and observation of a peer with autism who is successful with learning may provide an avenue for attitude change.

Smart/ Gifted

In contrast to learning problems, eighteen participants associated autism with gifted abilities. Ten of the eighteen participants described people with autism as being "smart," while five participants chose to talk about people with autism as "gifted." These responses often included conjunctions connecting two contrasting statements about autism such as "slow learners but very smart in one area." Below is an example of a response that is considered to be part of the smart/ gifted theme.

Q: "What is autism?"

A: " I've heard of autism from other people and all of them said that they couldn't really explain it. I think its when people are gifted in a specific area but at the same time are really slow."

This response provides information about the participant's familiarity with the word "autism;" yet, incomplete knowledge of the details of autism. The participant states that he or she has talked to "other people" about autism; therefore, the reader assumes that more than one person has talked to this participant about autism and that in general, these people are not knowledgeable of autism. The one area of autism that this participant is familiar with is regarding cognitive ability. The participant addresses variation in ability with strengths in some areas and weaknesses in others. This participant went on to earn credit for 8 out of 10 correct

answers on the KOA (z= -0.37; 36%). Additional educational intervention about autism may help this participant to feel more confident about his or her knowledge of autism.

Problems Focusing and Attending

Nine participants described autism as a problem "focusing" or "paying attention." Only one out of the nine responses chose to describe autism only as a concentration problem. This signifies that to these participants that autism is a group of symptoms including problems paying attention. An example of a response containing reference to an attention problem is listed below.

Q: "What is autism?"

A: I'm not exactly sure what autism is but I believe it is a mental problem that is devolped [sic] at birth and affects how you act around others and help well you focus, or your attention span

In this response, uncertainty of the accuracy of their response is expressed at the beginning of the response by the participant saying "I'm not exactly sure what autism is.." however, the same participant went on to earn 10 out of 10 points on the Knowledge of Autism questionnaire (z= 1.78; 87%). The participant also demonstrated knowledge about the physiological explanation of autism ("developed at birth") and that autism is a social disability ("affects how you act around others"). This response demonstrates knowledge of one of the core deficits of autism; however, it does not mention communication problems or repetitive behaviors. Therefore, interventions to provide information about the other aspects of functioning affected by autism would be necessary for this person.

Physical Disability

Physical disability is a general category that includes responses referring to movement problems or physical deformities. Responses that referred to a repetitive behavior as a type of

movement problem were not included in this category; rather, these responses were included under the more specific category of restrictive / repetitive behaviors. Thirty-three participants chose to describe autism as a physical problem. However, physical problems are not a core symptom of autism as identified by the DSM-IV-TR (APA, 2000). Some core problems may be interpreted as physical problems since the behavior is being demonstrated through gross or fine motor repetition (i.e., hand flapping, finger flapping). This demonstrates an area worthy of education to modify students' understanding of autism. A response from this category is listed below.

Q: "What is autism?"

A: "Autism is a disorder that affects the brain. Autism makes it difficult for a child to learn "normally" and understand things/ concepts. With autism, it is difficult to move your limbs (fingers) well."

A movement problem is identified in this response by an 8th grade participant. Autism is determined to be the reason that fingers and limbs cannot move well. This response may be referring to stereotypic behaviors such as finger flicking or hand flapping. These movements may cause a person with autism to look like he or she does not have control of his or her body. This response contains two different themes: learning problems, and physical problems. A group of symptoms was used by this respondent as a "checklist" for identifying autism. When given the KOA measure, this participant earned 10 out of 10 points (z=1.18; 87%) indicating that he or she was knowledgeable about autism.

Unique Abilities

Eight of the 471 participants who reported having heard of autism described autism as a person with unique abilities. For example, respondents referred to people with autism as "smart

at technology," "very smart in one area," or able to play a song after hearing it only once. It is not uncommon for people with autism to have splinter skills, or uneven ability across domains (APA, 2000). Unique abilities are considered associated features of an autism spectrum disorder. Since a small percentage of participants from the current sample referred to unique abilities within autism, it may be assumed that this characteristic of autism is not attended to as much as other dimensions such as communication or socialization problems. Listed below is an example of a participant who referred to a unique ability in describing autism.

Q: "What is autism?"

A: "Yes, some people learn slower than you. Sometimes they can hear a song and they can go play it on an instrument."

This response by a 6th grader consists of two categories: (a) learning problems and (b) unique abilities. Unique abilities such as musical talent, excelling at technology or math, and calendar calculation are characteristic that occur in some people with autism; however, the occurrence of splinter skills is not a diagnostic criterion for autism. This participant's KOA score was 8 out of 10 (z=-0.37; 36%) demonstrating that 64% of participants earned a higher score on the Knowledge of Autism measure than this participant. Therefore, this participant may benefit from additional education about the core symptoms of autism.

Physiological Explanation of Autism

Instead of listing only symptoms of autism, sixty participants referred to the physiological explanation of autism. These responses identified autism as "something you are born with," something you can't "cure," and a "birth defect." Currently, scientists have not identified what causes autism, but, generally scientists agree that autism is genetically based (Bonoro, Lamb, Barnby, Bailey, & Monaco, 2006). Scientists have debated whether or not the

presentation of childhood vaccinations especially around the age of 24 months contributes to the occurrence of autism. Some laypersons and scientists believe, since multi-dose measles-mumps-rubella vaccinations were preserved using thimerosal, a substance that metabolizes into ethymercury, that ethylmercury exposure led to autism. However, research has not supported this hypothesis in any substantial way (Taylor, 2006). Others suggest that cumulative exposure to environmental mercury (e.g., via dental amalgams; fish) may contribute to the expression of autism. Five participants in the current data set attributed autism to mercury exposure. Below is an example of a response containing reference to the physiological explanation of autism followed by a discussion of the qualitative analysis.

Q: "What is autism?"

A: "That they were born with a disability with maybe to [sic] much mercury that gone into the baby's blood stream when their mom is pregnant."

This response by a 6th grader starts with a general reference of a disability; therefore, the respondent categorizes autism as someone who is different from birth. Instead of describing symptoms to define autism, this respondent chose to describe autism based on the possible physiological explanation. In this example, the respondent is connecting a person with autism (i.e., a baby) with his or her mother and something that happened to the mother while pregnant, causing the child's autism. Since the respondent did not indicate who was responsible for the mercury poisoning, the reader cannot assume the intent; however, the respondent does indicate that the etiology of autism is not the child's fault. This may result in more positive attitudes towards a person with autism since the locus of control would be outside of the person with autism.

Further analysis of the data set reveals that 5 of the 90 participants that referred to etiology of autism in this response made reference to mercury poisoning exposure as the cause of autism. Four of these five responses were from the same classroom and the fifth was from the same school. Therefore, there is evidence to support the hypothesis that a group of students from this school was exposed to controversial information about autism.

General Problems

Seventy-five participants did not provide specific information about autism. Instead, they only identified autism as a "disability" (*N*=45) or a "disorder" (*N*=22). This theme only captured general responses; therefore, any response that contained symptom-specific information was categorized in a different theme (e.g., communication problems, socialization problems, restricted/ repetitive behavior). Responses included in this theme signified only a basic understanding of autism with opportunity for educational interventions about autism. Below is a typical example of a response from this category.

Q: "What is autism?"

A: "Atism [sic] is like a disability that a person is born with. This does not mean that they are retarted [sic] it means they are just well I'm not sure I do know they are just like us just with a disability."

This response is a general, non-specific answer to the question, "What is autism?" given by a 6th grade participant. No symptoms of autism are provided by this respondent. In fact, a "disability that a person is born with" and autism "does not mean that they are retarded" are the basic components of this description of autism. When compared to the DSM-IV TR definition of autism the respondent does not address any of the major parameters of the diagnosis of autism (i.e., communication, socialization, or restricted and repetitive behaviors). Instead, the

respondent focuses on secondary characteristics of the disability (i.e., etiology and cognitive functioning). This response represents only general knowledge of autism and does not touch on the critical characteristics of the disability in any way. However, this respondent answered 9 out of 10 KOA questions about autism (z=0.40; 66%), showing that the participant was able to answer questions in a true/ false method, but was unable to come up with detailed information for an open-ended question. Incomplete knowledge may be indicated here since the participant did not know enough about autism to answer an open ended question, but could eliminate incorrect answers in true/ false responses. Participants who designated autism as a disability or a disorder may benefit from additional, specific education intervention about the basic characteristics of autism.

Incorrect Answers

Twenty-nine responses contained incorrect information. For responses to be considered incorrect, the information could not be related to a comorbid condition such as a learning disability. Of the 29 responses containing incorrect information, 18 of those responses were unrelated to the actual definition of autism (e.g., “I think it means a big building where people work”). These responses demonstrated inaccurate knowledge about autism or lack of comprehension of the term altogether. The remaining 9 responses were related in someway to autism; however, some portion of the response spoiled the accuracy of the entire entry (e.g., “It is a neural disorder. My sister has it. It can lead to ADD in adults. People who have autism will act strangely and have a hard time answering questions”). This response is accurate in that the respondent highlights the social difficulties for a person with autism; however, autism is not associated with attention deficit hyperactivity disorder in adults. In fact, ADHD and autism, by definition, cannot be comorbid conditions, in that the diagnostic criteria for either would rule out

the other (APA, 2000). These responses support educational interventions about autism to provide additional information about the disorder.

Source of Information about Autism

A small group of students identified who had told him or her about autism or about a personal contact with a family member with autism. These respondents are important to consider because they identify some of those participants who have had personal experience with autism and therefore may have a different perspective influencing how they define the disability. Three of six responses identified a family member (i.e., cousin, sister, self) as having autism. On average these 3-4 sentence responses were some of the longest responses and they contained detailed, albeit sometimes inaccurate, information. An example from this theme is listed below.

Q: "What is autism?"

A: "It affects your brain. It's like you go off into your own world. My cousin has it."

This response, by an 8th grader, mainly describes the social difficulty that arises when a person with autism withdraws into him or herself. This participant earned credit for 8 out of 10 responses in the KOA measure; indicating an average level of knowledge of autism (z= -0.37; 36%). In this case having a family member with autism does not correlate with an above average knowledge of autism. Therefore, educational interventions for family members of people with autism may be important. This middle school student has a basic understanding of the social disorder that is autism; however he or she does not know additional specific information about autism. This highlights the need to educate family members especially about the characteristics of autism.

Educational Setting

Students with autism are being educated in inclusive (i.e., students with autism are educated in general education classrooms more than half the day) and mainstreamed classrooms (i.e., students with autism are educated in general education classrooms for some part of the day), in addition to self-contained classrooms. Since the Individuals with Disabilities Education Improvement Act of 2004 requires that students are educated in the least restricted environment possible, students with autism are being seen more frequently by their peers in general education classrooms. For general education students this may be a possible salient characteristic by which to define a peer. However, with only 1% of respondents (6 participants) including information about educational placement in his or her responses, this theme does not appear to be a common characteristic by which distinction is made. One of the responses is discussed below to provide a more thorough understanding of the response.

Q: "What is autism?"

A: "I think it is a disease that person [sic] that makes them act strange and they have to be in special education."

The response, by an 8th grader, included a general categorization that autism is a "disease" that affects the behavior of a person. Socialization and communication would be affected by someone acting "strange." The second half of this statement refers to someone in special education. This participant received credit for 8 out of 10 correct responses (z= -0.37; 36%) on the KOA measure, indicating average knowledge of autism. An intervention emphasizing contact between students with autism and general education students may provide a beneficial experience to expand the knowledge of participants such as this one.

Evaluative

Some of the responses seemed to express approval or disapproval of some portion of autism. Evaluative responses are not necessarily moral judgments (e.g., "The painting is pretty;" is evaluative but "The boy is nice;" is a moral judgment.). However, when using evaluative responses, the respondent has chosen not to limit his or her response to a purely descriptive nature. The evaluative responses are important to consider separately due to what characteristics of autism that may be highlighted. Words considered to be evaluative in nature include "wrong," "special," "normal," "just," and "different" due to the author's perception of additional social meaning in these words. In addition, any responses making a judgment about a person with autism (e.g., they deserve to be loved) was included. Thirty-six responses or 7.6% of participants who reported having heard of autism included an evaluative component to their response. Seventeen responses contained negative evaluative responses including the phrases "not normal," "wrong," "opposite of regular people," and "different." Eighteen responses contained positive evaluative responses including the phrases "special" "not stupid," "they can succeed," and "not dumb." Examples of a positive and a negative evaluative response are listed below.

Q: "What is autism?"

A: "I think it when something is wrong with you."

This is an example of a negative evaluative response given by a 7th grader. In this response no general description of autism is given; instead, a negative evaluation is made of autism. This response may demonstrate an uncertainty as well as incomplete knowledge of autism. In labeling someone with autism as being different or "wrong," this response makes autism an undesirable category compared to people without autism. This response earned a KOA score of 9 (z= 0.40; 66%). It is possible that this respondent chose to not include additional information he or she may have about autism in the open-ended response. It is possible that

intervention to increase knowledge of autism may lead to fewer negative evaluative statements. A possible intervention for students with this type of negative, but incomplete, knowledge of autism would be education and contact with students with autism.

Below is an example of a positive evaluative response.

Q: "What is autism?"

A: "I think autism mean [sic] a special person that can do different things."

This is a similar example of an evaluative response given by an 8th grader; however, this response is more positive about autism. There is only one reference to a general description of autism in that people with autism "can do different things." However, similar to the negative evaluative response, this positive evaluative response contrasts people with autism against those without autism, highlighting differences instead of similarities between people with and without autism. In addition, this response earned a relatively low KOA score of 7 (z= -1.14; 13%). Therefore, 87% of participants earned a higher score on the KOA. It is possible that intervention to increase knowledge of autism may lead to a higher score of a KOA measure and fewer polarizing statements. Due to the interpretation of this response, education, but even more importantly, contact with people with autism to show common abilities with peers, would be an effective intervention to increase knowledge.

Phrasing

Themes can be identified by word choice; however, the phrasing used in a response identifies additional information about autism. Conjunctions were common grammatical techniques used by participants in their responses. Consideration of the function of conjunctions provides the current analysis with additional understanding of response formations. Some responses listed by participants included grammatical conjunction such as *and, but,* and *or.*

Grammatical conjunctions are words that connect elements in a sentence. For example, “and” can connect two nouns (e.g., “physical and mental”), two verbs (e.g., “learn and understand”), or two independent clauses (e.g., “sometimes they hear a song and then they can play it on an instrument”). Twelve percent of participants used the conjunction “but” in their responses. Twenty-one percent of participants used the conjunction “and” in their responses and 7% of participants used “or.” Conjunctions can help to organize multiple ideas on a topic. For example from the current data set, “It is not a disability or a disease but something that some children are born with.” *But* is used to connect two separate ideas in this case and demonstrates contrasting ideas within the response. The participants want to emphasize that autism is not a disability; instead the etiology is based on something out of the persons’ control. This response demonstrates empathy towards a person with autism since the respondent identified that autism is not caused by the person.

Another common function of a conjunction found in the current data set is to specify that the participant has heard of autism, but did not know the definition. Forty percent (i.e., 23 of 58) of participants who used “but” as a conjunction in their response did so to emphasize that they did not know the definition of autism. Responses that used conjunctions signify that the respondent have multiple ideas about the topic of autism. By the participant providing connections between these ideas, better organized responses were submitted by the participants.

Discussion

In the current study middle school students’ responses to a question, “What is autism?”, were coded based on themes and phrasing followed by thematic analysis of responses. The major premise of this study was to determine the current knowledge level of middle school students regarding autism. From these findings recommendations for intervention to modify knowledge

about autism can be made. Students with disabilities such as autism are being educated in general education classrooms more frequently today than in the past. Therefore, the attitudes of general education students towards peers with autism have an impact on the effectiveness of inclusion classrooms. Establishing the knowledge base of typical middle school students about autism provides a starting point to develop appropriate interventions to modify the knowledge.

Findings from the current study prompt a number of important observations: (a) 16% of students who said that they had heard of autism had only a basic concept of autism as a disability (n=75) , (b) 15% of students who said they had heard of autism reported no information at all (n=72), (c) 69% of students who reported having heard of autism provided specific information about autism (n=325), (d) the most common descriptor of autism is a learning problem (22%, n=104), and (e) only 6% of students gave some type of incorrect information in their response, These observations provide a mixed picture of middle school students' knowledge of autism. Forty-seven percent of the overall sample of middle school students reported having heard of autism. The information provided by that 47% provides a starting point to better understand middle school students' knowledge of autism.

Some aspects of this information in general are positive, for example, over two-thirds of students reported knowledge of autism knew an important detail of autism such as it is "a type of disease you are born with" and it's when they "can't look at someone in the eye." Many participants knew multiple details about autism, thus demonstrating that knowledge of autism is increasing in a middle school population when compared to previous research (Magiati, Dockrell, & Logotheti, 2002). However, negative conclusions about students' knowledge of autism can also be drawn as well -- such as few students (*N*=98) demonstrated knowledge of the core symptoms of autism and many students (*N*=29) had incorrect or no reportable (*N*=72)

knowledge of autism. For example, one area to clarify is that autism is a social disability, not a cognitive disability. The largest group of participants in the current study identified autism as a learning problem; however, cognitive ability is not part of the diagnostic criteria for autism. Comorbidity with mental retardation occurs in about 75% of individuals diagnosed of autism; however, mental retardation is not caused by autism, instead by some other factor. Incomplete and incorrect knowledge of a disability may lead to confusion and misunderstanding with interacting with a person with the disability, In order to reduce incorrect and incomplete knowledge of autism specific interventions based on education and contact may be helpful to address some of the deficits in knowledge as reported by participants.

The current thematic analysis provided an overall direction for social interventions between children with autism and general education students. Based on the diversity of responses, both educational and structured contact interventions may be necessary to fully address the variability of autism knowledge at this time. Individual participants demonstrated more need for contact than education or for education over contact; however, no responses warranted excluding one or the other interventions. Therefore, in order to develop large scale interventions to address both the positive and negative trends in the current knowledge level, a combination of contact and education is necessary.

Educational Intervention

Education of the core symptoms of autism may help to increase the knowledge of typically developing students. For example, Campbell and colleagues (2004) compared different types of educational interventions provided to general education students about a new peer with autism. The researchers found that combined explanatory and descriptive information about the child with autism made a difference in the reported attitudes of typically developing students.

Explanatory information highlighted that autism was a problem in the brain that makes social interactions difficult. Descriptive information accented similarities between the new student with autism and current students, resulting in the most positive effect on students' attitudes. These two components combined were found to be more effective in attitude change than descriptive information alone. The current study identifies deficits in students' knowledge to be in the core symptom area of the definition of autism; therefore, providing information that autism is a social disability with core deficits in communication and socialization in addition to restricted and repetitive behavior will increase the presence of accurate information about autism. This will also help to decrease variability in the quality and amount of information known by students about autism.

Structured Contact Intervention

Direct contact with students with autism may be another effective intervention to change knowledge and therefore attitudes toward peers with autism. Slininger and colleagues (2001) considered the impact of contact between typically developing students and their peers with severe disabilities. Gender of the typically developing student and structured versus non-structured interaction were found to significantly impact attitude change. The attitudes of boys in the structured contact group improved significantly more when compared with the attitudes of boys in the unstructured contact group. Attitudes held by female participants were not found to improve significantly; the authors attributed this finding to the positive attitudes that the girls held in the beginning and, therefore, little room for improvement was possible (Slininger et al., 2000). The Slininger study highlights the necessity for structured contact intervention. Structured contact refers to adult directed interactions in a controlled setting. Therefore, contact interventions should be adult supervised, scheduled, and clearly defined. This interaction can

lead to equally positive outcomes for both the child with autism and his or her peer. The child with autism can observe and engage in appropriate social interactions while the general education student can share positive experiences with a peer with autism.

In the current study, researchers found that knowledge about autism was often based on incomplete facts, such as autism being a learning disability. Through contact with students with autism, peers may be able to learn that students with autism can learn with additional supports and that other factors contribute to autism. Through contact, general education peers would be able to learn about strengths of peers with autism and include these positive aspects in their definition of autism.

Research Methodology and Future Research

For the current study, a combination of inductive and deductive reasoning leading to thematic coding allowed for understanding of middle school students' knowledge of autism. Through understanding what a representative sample of middle school students believe autism to be, interventions to change or increase knowledge can be identified. In addition to knowledge, information such as emotional validation and criticism were important to consider regarding the themes employed by participants.

Thematic coding provided a theoretical basis for the determination of themes throughout the data and organization by which to interpret the data. Follow-up research could occur in one of two avenues. First, semi-structured interviews with a similar population could be conducted to allow the researchers to ask planned and unplanned follow-up questions to address incomplete and vague responses. Trends in responding at times demonstrated a common data source about autism (e.g., mercury poisoning); therefore, follow-up is important to determine if intervention needs to occur with other sources such as teachers, parents, or administrators. A second direction

for research would be to carry out interventions such as those suggested in the current study and see if reported knowledge of autism changed. Furthermore, direct observations of peer interaction with students with autism would provide a better understanding of the relationship between knowledge of a disability and behavior.

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CHAPTER IV: DISCUSSION AND CONCLUSION

In 1975, the Education for All Handicapped Children Act, mandated that students with disabilities be educated in the least restricted environment possible (EAHC, 1975). Since this mandate, the frequency of educational placement for students with disabilities, such as autism, in general education classrooms has increased (Ebersold, 2003; Harris & Handleman, 1997; Odom, 2000). Since the requirement of educational placement in the least restricted environment possible was upheld with the recent reauthorization of IDEA, titled the Individuals with Disabilities Education Improvement Act (IDEA, 2004), the permanence of inclusive education for children with autism has been established.

Researchers have hypothesized that one of the benefits of educating children with autism in general education classrooms is the provision of social models and increased opportunities for social interaction (Burack, Root, & Zigler, 1997; Cooper, Griffith, & Filer, 1999). However, social interaction among general education students and students with special needs may be inhibited or avoided if students express negative attitudes towards their peers with autism due to their social disability. Such negative interactions among students may eliminate the possible benefits of social interactions among all students in inclusive classrooms. Based on the Theory of Planned Behavior (Ajzen & Madden, 1986), intentions and behavioral control are the antecedent to a behavior. Personal attitudes towards a behavior and perceived subjective norm influence an individual's behavioral intention. Therefore, research to better understand attitudes specifically would contribute to better prediction of behavioral intentions and ultimately behavior.

For example, by understanding the attitudes of typical general education students towards peers with autism, better prediction of behavioral outcomes in inclusive classrooms are possible. The current study was designed to establish baseline knowledge of autism in general education classrooms. This information provides critical information from which educational interventions can be developed to modify or increase knowledge of autism, leading to increased positive attitudes towards autism.

Researchers have found that a general negative attitude exists toward students with disabilities (e.g., Gordon, Tantillo, Feldman, & Perrone, 2004; Nowicki & Sandieson, 2002). One concludes from a review of the current literature that girls tend to report more positive attitudes than boys; but only towards another female (Rosenbaum, Armstrong, & King, 1998; Nowicki & Sandieson, 2002; Campbell et al., 2004). Since, 4 out of 5 students with autism are male (APA, 2000), the majority of students with autism are already predisposed to negative attitudes based on their gender. In addition, students were found to have limited knowledge of disabilities in general, and autism specifically (Magiati, Dockrell, & Logotheti, 2002; Campell et al., 2004). Since more knowledge has been found to lead to more positive attitudes (Corrigan, Green, Lundin, Kubiak, & Penn, 2001), a limited knowledge of autism is detrimental to the occurrence of positive attitudes.

Negative stereotypes, a component of the cognitive aspect of attitudes, occur in schools and classrooms every day. Based on Ajzen and Madden's (1986) Theory of Planned Behavior, attitudes lead to behavioral intention which leads to observable behavior. Negative stereotypes may therefore result in negative attitudes and decrease the intention of general education students to interact with students with disabilities such as autism. An inclusive classroom is intended to provide appropriate social models for children with autism; therefore, negative stereotypes may

directly undermine the effectiveness of this commonly used educational practice. Consideration of the characteristics of autism based on the combined theories of Jones and colleagues (1984) and Corrigan and Penn (1999) may provide a useful method for conceptualization of autism to apply to development of interventions to improve stereotypes. Education of general education students regarding the course, etiology, and behavior of peers with autism, may decrease the likelihood of negative stigmas such as fear and avoidance, benevolence, and authoritarianism from occurring. In addition, contact with students with autism may facilitate positive attitudes towards peers with autism due to a better understanding of inappropriate or unusual behaviors.

In order to better understand typical students' knowledge of and attitudes toward autism, a survey of 1,004 middle school students was conducted. The resulting data was analyzed to identify common themes of reported knowledge of autism in an average sampling of students. From the data, general conclusions about middle school students' knowledge of autism were deduced including (a) an increasing number of students have heard of autism when compared to previous studies, (b) the most common descriptor of autism is a "learning problem", and (c) about 69% of participants who had heard of autism can identify at least one of the core characteristics of autism. These findings provide a starting point for which intervention can take place to improve the accuracy and knowledge of autism.

Educational interventions could be used to provide wide scale dissemination of information about autism. Since it is as common for middle school students to have heard of autism as to not, direct educational intervention with recognition of Autism Awareness Days or Disability Awareness Weeks with an emphasis on autism, may help to bring the rate of recognition of autism closer to 100%. Additionally, since the most common descriptor of autism is a "learning problem", interventions to inform students about the true strengths and weaknesses

of autism could also be implemented. This may include both education about autism and contact with students with autism. Through these interventions general education students would be able to learn that instead of students with autism being slow learners, some have average to above average intelligence. Education and contact with individuals with autism may lead to improved knowledge and attitude of general education students towards peers with autism .

Based on the diversity of responses in the current data set, both educational and structured contact interventions may be necessary to fully address the variability of autism knowledge at this time. Individual participants demonstrated more need for contact than education or for education over contact; however, no responses warranted excluding one or the other interventions. Therefore, in order to develop large scale interventions to address both the positive and negative trends in the current knowledge level, a combination of contact and education is necessary.

The interventions outlined above move towards increasing knowledge and improving attitude of general education students towards peers with autism. Inclusive education of children with autism is a practice that will continue to occur; therefore, these improving attitudes and increasing knowledge may lead to an improvement in overall quality of education in these classrooms.

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Appendix A

Knowledge of Autism Questionnaire

What is Autism?

We would like to know what you know about autism. Please answer the following questions using true or false. If you believe the statement is true, please circle **T**. If you believe the statement is false, please circle **F**. Even if you are not sure of the answer, please answer all the questions as best as you can.

T F 1. If someone has autism, it only lasts for about a week.

T F 2. Students with autism often have a difficult time looking at other people.

T F 3. Autism does not affect a person's brain.

T F 4. Students with autism cannot do normal activities that other people can do, even with help from another person.

T F 5. Students with autism sometimes repeat what is said to them.

T F 6. Students with autism sometimes rock back and forth and wave their hands around.

T F 7. Some students with autism might have trouble talking or expressing themselves.

T F 8. Students with autism do not have difficulty changing activities and can easily move from one activity to another.

T F 9. Sometimes students with autism need extra help to learn how to read and write.

T F 10. You can catch autism by spending time with someone who has it, like you can catch a cold.

Appendix B

Symptoms

Socialization

Number	What is Autism? (verbatim response)
1	A disability that doesn't allow someone to interact "normally" with other people.
2	a disability where people make everthing [sic], even the littlest disturbance seem very big (I guess)
3	I believe that autism is a form of disease that makes you not able to engage with other people
4	I think that it is a disorder limiting people from being social.
5	A disability that enables people to organize their thoughts or feelings as well as others.
6	I think that it means shy
7	A mental disability. It sometimes affect [sic] the brain so that you don't act quite like other people. Sometimes it's harder to make friends.
8	autism is a person who has trouble staying on task and they kind of go of into the own fantasy world and are oblivious to what is around them.
9	My mom told me autism is some type of disease wear you can go and like can't get control of yourself. You can't really look at people either.
10	Autism is a mental disorder making the person very deeply involved in there own world. It does not mean there stupid, but id does mean that there very unsocial.
11	When somone [sic] has autism I think it's when they kind of like to be alone all the time. They are more friends with people like their parents or friends.
12	Autism is a social disease that affect's a person's brain.
13	It is a type of dissability [sic] in which people might cry and make noise and move around uncontrollably
14	how you act towards another person
15	doesn't want to go outside or make friends. Like that

16 it is a disease where you have social problems. People say that mercury is the cause of it, but no one is sure

17 a mental disease where people have trouble functioning around other people

18 a person with a disability that affects the way they act

19 I'm not exactly sure what autism is but I believe it is a mental problem that is devolped [sic] at birth and affects how you act around others and help well you focus, or your attention span

20 it's when someone cant get along and yell or scream for no reason

21 Autism is a brain damage. It makes the person act, look weird. They are oppistes [sic] of what regular people are

22 Autism is probably when certain children act a different way like weird way

23 Autism is a brain disorder that makes children have learning and social disabilities

24 It is where someone is kind of trapped inside themselves. Most of the time they stay by themselves, or when they can't control what they're doing

25 Autism is when someone is shy and doesn't know what to do or how to fit in

26 I have heard of autism, but I'm not positive what it is. All I know is that these people learn and act differently from others

27 I think it is where a person is nervous a lot and can't look at someone in the eye.

28 Kids that have little social skills and they learn differently.

29 I think autism is when a person has trouble interacting with others.

30 It is a type of disorder kids and adults can have and it iffects [sic] how you act around other people.

31 When a kid or adult has a problem with other people and have trouble seeing things they also are very emotional.

32 It is where people get a disease that messes up their minds according to their social life, however, they can be very smart.

33 It is a mental disorder that affects how you think or act.

34 A case of social disabilities ranging from moderate care of it to a severe case.

35 Autism is like the person is in there own world. Autism like a disability in the mind.

36 Autism is where someone is in their own "little world." That’s all I basically know. I don't know a lot.

37 It's difficult to ineract [sic] with others.

38 I think autism is when a person sees stuff and can't stay on task and stares a lot.

39 Autism is a mental disease that a person is born with. It may affect the way the person does something. They might be confused easily and this might affect their social activities.

40 It's a disease in which some kids are extra sensitive [sic] to small things.

41 Autism in general is a mental disability in which a child or adult struggles in multiple areas, yet they are very smart in one area. Usually have low social activity in their age group.

42 It affects your brain. It's like you go off into your own world. My cousin has it.

43 Autism is a disease that affects your brain, and how you act around other people.

44 people who are born with damage in their personality

45 Its when children act different than others something is wrong with your brain

46 I think it is a disease that person that makes them act strange and they have to be in special education.

47 I think it is when someone can not speak or communicate as the average person can. It's also like when someone is smart at technology for example but can not understand emotions.

48 I believe that it is when someone has a mental handicap or disorder where it is difficult for them to commuicate [sic] their thoughts and feelings, and they are very sensitive and sometimes can be violent in a way.

49 when someone has trouble looking at other people and repeats what they hear.

50 A kind of disability where a person has trouble communicating and is their own world.

51 People with autism usually don't respond to questions conversations etc. as quickly as we do. They also don’t relize [sic] other peoples feelings

52 when someone can't control themselves. They talk different, think different, and are different

53 When kids don't knoe [sic]how to or can't act around other people that they don't know. They get fidgety and wild. They also start yelling and waving their hands (feet) sometimes they repeate [sic] what someone says, they need extra help, they sometimes can't speak right, and have trouble going from one activity to another quickly

54 Autism is when you have problems in socializing and communicating in a certain way. 3

55 Not sure, hard to relate to outside world, hard to communicate.

56	I think autism is a kind of disorder where some kids murmur instead of talk. They may say what ever comes to their head and have problems communicating. They may tell you things you don't want to know or repeatedly say things. They are smart and love numbers.
57	A disorder in which you become more to yourself instead of talking to other people,
58	Autism is a mental disorder in which the person, usually a child, has trouble communicating with others. Often, they are lost in another world and don't speak.
59	I think autism is someone who doesn't talk a lot and is very sensitive to a lot of things.
60	children or adults that have no emotions, or children or adults who don't show how they fell. Like they don't respond.
61	Its when a person I tink [sic] has their own world. They also like to do their own thing.
62	people who are slow. They don't react like other people do. They usually have a small I.Q.
63	Kids who learn slower than others, and act differently
64	I think it a mental illness of some sort. The person hides inside him/herself…
65	It is a neural disorder. My sister has it. It can lead to ADD in adults. People who have autism will act strangely and have a hard time answering questions.

Communication

Number	What is Autism? (verbatim response)
1	I think it is when someone can not speak or communicate as the average person can. It's also like when someone is smart at technology for example but can not understand emotions.
2	Autism is a mental illness where studenst [sic] have a very difficult time communicating, talking, moving, etc. as well as an extreme difficulty learning.
3	It is milder than down syndrome. If effects [sic] the brain and is about 5 in a thousand I think. Sometimes the person repeats things or has a funny tone. It is not something to laugh about.
4	Where somebody has a disability where they can't communicate well with other people, I'm not to sure.
5	It's like when the child can understand somethings [sic] but not everything. They can talk a little, but sometimes use sign language.

6	It is a neural disorder. My sister has it. It can lead to ADD in adults. People who have autism will act strangely and have a hard time answering questions.
7	I think it wis [sic] when a person or child cannot comprehend or think correctly. Also, I think it also impears [sic] their speech.
8	I believe that it is when somenoe [sic] has a mental handicap or disorder where it is difficult for them to commuicate [sic] their thoughts and feelings, and they are very sensitive and sometimes can be violent in a way.
9	when someone has trouble looking at other people and repeats what they hear.
10	A kind of disability where a person has trouble communicating and is their own world.
11	autism is a disability that makes it hard to learn or do simple tasks. You may be blind, deaf, have speech problem, or may have a problem paying attention
12	It is disabilities that someone might get when they are born. Sometimes they can't talk or walk
13	People with autism usually don't respond to questions conversations etc. as quickly as we do. They also don’t relize [sic[other peoples feelings
14	when someone has a hard tim [sic] think and they can't talk
15	Autism are [sic] kids or adults that have a disability that effects the brain and it's hard for them to talk or other thing. Sort of like there old but it stuck in a baby mine
16	Sometime the kid ca not move or mite be mute and sometime can not controll [sic] there selfs [sic]
17	when someone can't control themselves. They talk different, think different, and are different
18	I think it is when some one can't control when they speak out. It is a disease
20	when someone can not talk
21	When kids don't knoe [sic] how to or can't act around other people that they don't know. They get fidgety and wild. They also start yelling and waving their hands (feet) sometimes they repeate [sic] what someone says, they need extra help, they sometimes can't speak right, and have trouble going from one activity to another quickly
22	It is someone who is handycaped [sic] and has different abilities can't speack [sic] or walk correctly
23	A person who doesn't communicate very well and doesn’t like new things
24	Kids who can not communicate like others it is hard for them to learn
25	Though I am not as clear on the subject of this particular dissability [sic] than others, I know that it is a mental illness. Some characteristics are that they repeat what is said to them and that it limits their intake of knowledge

at a time, and that they sometimes move their bodies due to autism

26 Kind of sickness. Like they might have trouble talking

27 When someone can not express their feelings toward something or someone.

28 A person who doesn't talk a lot or has trouble responding.

29 A disease in which a boy or girl cannot communicate with others properly.

30 Autism is were [sic] you don't like loud noises and sometimes can't talk.

31 Autism is when you have problems in socializing and communicating in a certain way.

32 I think it is when someone blurts out loud like it is not the time to do it. They can't help what they are saying and when they say it.

33 Not sure, hard to relate to outside world, hard to communicate.

34 Someone who has a problem talking or walking.

35 I think autism is a kind of disorder where some kids murmur instead of talk. They may say what ever comes to their head and have problems communicating. They may tell you things you don't want to know or repeatedly say things. They are smart and love numbers.

36 A disorder in which you become more to yourself instead of talking to other people,

37 I think it’s when people get seizures or they can't talk clearly.

38 A person who is extremely smart in one way more than others but can't communicate the same way as others.

39 I have heard of it. It makes it difficult of children to communicate.

40 Someone who has autism can understand, but they have trouble talking and doing other things which make them frustrated.

41 Autism is a mental disorder in which the person, usually a child, has trouble communicating with others. Often, they are lost in another world and don't speak.

42 I think autism is someone who doesn't talk a lot and is very sensitive to a lot of things.

43 I think it is an illness that causes you to lose your sight, your hearing, and abilty [sic] to speak.

44 It’s a disease that people have from birth. Unable to control themselves at times, to talk properly etc.. Some autistic people are blind. Also have sever [sic] learning disabilities.

45 children or adults that have no emotions, or children or adults who don't show how they fell. Like they don't

	respond.
46	Autism is like if you are deaf or cannot speak
47	I think it is when some one can't control when they speak out. It is a disease
48	Children who don’t learn as quickly as they're supposed to; Have trouble communicating with others.
49	Kids who have trouble commincating [sic] with other peers.

Restricted and Repetitive Behavior

Number	What is Autism? (verbatim response)
1	Autism is a mental disability were the patient thinks differently [sic] and doesn't like to do new things and keep a constant schedule.
2	It is a mental disability that is kind of like down syndrome, It makes you sort of obsessive compulisive [sic].
3	When a person has to go by an exact schedule every day. They usually are very smart in a certain area.
4	A person who doesn't communicate very well and doesn’t like new things
5	When kids don't know how to or can't act around other people that they don't know. They get fidgety and wild. They also start yelling and waving their hands (feet) sometimes they repeate [sic] what someone says, they need extra help, they sometimes can't speak right, and have trouble going from one activity to another quickly
6	I think autism is a kind of disorder where some kids murmur instead of talk. They may say what ever comes to their head and have problems communicating. They may tell you things you don't want to know or repeatedly say things They are smart and love numbers.

Mental Processes: General

Number	What is Autism? (verbatim response)
1	kids with a mental problem
2	I don't know exactly how it effects you but it is a mental disability
3	It is a sickness. Mental challenge?
4	It is about students that have mental problems.
5	It is a disorder that can affect a person mentally.

6 Autism is a mental state were a person is not always able to function correctly. It means to be disabled.

7 a mental disorder that someone is born with

8 autism is when a person is kind of mentally or physically challenged

9 mental retarded person it happens at birth I think

10 I think it is a mental disorder when someone isn't really normal. Like they don't think like other people. And their brain is a little bit different.

11 I think it means when something is wrong with that person and I think it means that there brains are growing slower than ours.

12 It is a mental handicap.

13 a type of brain disorder that makes it harder for some people to do certain things.

14 Autism is a mental disease.

15 Autism is a disease that effects [sic] a person's mind.

16 A disease that mentally challenges someone.

17 Someone told me that autism are in people whos [sic] brain isn't functioning completely or something like that.

18 Autism is something that some people are born with. It can be mental or physical

19 Autism is when a person has some limbs that are not right or something is wrong with their brain.

20 It is a physical and mental disability

21 I think autism is people that have mental or physical problems.

22 when a person has physical or mental disabilities

23 I think autism is when a person has a problem mentally and physically

24 I think it is a mental illness that people are born with,

25 Mental disability that lets someone lead an almost normal life, most are born with it.

26 A series of mental illnesses that are pretty minor and can conquered [sic] over time as their brain develops.

27 Autismm [sic] is a disability (chronic disability) usually having to do with the functions of the brain.

28 I think autism is when someone has something wrong with a side of their brain and they can't do something as well as others.

29 Autism is when there is something wrong with your brain that affects your daily life.

30 It is a disease passed from parents to kids and affect the way your brain functions.

31 I think it is something when everything around you feels like it's crazy and your brain doesn't work properly

32 people who are mentally challenged or they have to work harder than others.

33 people who are mentally challenged

34 a physical/ mental disability

35 a mental disease

36 It is a brain disorder where someone is not functioning at an average or up to standard level in society.

37 I think it’s a disorder that has to do with your brain.

38 Autism is a mental disability that occurs in some people.

39 Autism is any type of mental illness.

40 It is like mentally challenged kids.

41 people who have autism have special needs because their brain don't work the same way that people who don't have autism do

42 Autism is a mental disability that enables a person to control their body/ bodily functions as well as others.

43 Autism is a mental disability

44 I think it is a condition where the person's mental level does not fully devleop [sic] and often is not able to take care of themselves.

45 It is a mental disability

46 It’s a brain condition in which the brain doesn't react normally to its surroundings.

47 Autism is a disorder that affects the brain.

48 When something is wrong in the persons head, or when your cells are not fully grown.

49 A mental disability

50 It is a brain disorder

51 The inability to develop normal mental strengths.

52 Autism is a mental illness. It can be major or minor.

53 Something that affects your brain.

54 Autism is where a person has a mental disability.

55 I think is it having a hadicape [sic]or mental disapleness [sic]

56 a disability that is both mental and physical

57 mental disorder where you need help with things and have some thing wrong with your brain - special ed?

58 A person that mind is different.

59 A mentally disabled disease

60 it is a birth defect in the brain

61 I think autism is a birth defect that effects the brain

62 I have heard of it and I think it is a condition in which you have some sort of mental disability

63 Autism is a brain function disorder

64 It is when someone is mentally ill.

65 A mental disability

66 Autism is usually associated with giftedness. If you have autism then your brain functions differently. You related to your environmently [sic] differently than other people.

67 I think autism is a down-syndorm [sic]. The person who has autism isn't necessarily retarded but that person does have a mental disorder.

68 I think autism is a disorder [sic] in your brain that doesn't allow you to do, think, or respond to certin [sic] things.

69 a mental disease that causes a person's brain to function in a different way and causees [sic] people to process information slower than the normal person.

70 When people are not very smart and they don't know much. And it affects people brains.

71 I think it's when a person is a little on the slow side and has mental disabilities

72 Autism is someone has a mental or physical disability. Either they are extremely smart or not able toprocess things.

73 When someone has a dif. Thinking track as us. (Mental disorder)

74 when a person develops very slowly and doesn't develop somethings [sic] at all. It cripples their brain and they look physically younger.

75 It is where people get a disease that messes up their minds according to their social life, however, they can be very smart.

76 Autism is when you see the world different than others. Also it is when people with autism can focus on one subject and they can succeed.

77 Autism is a mental disorder making the person very deeply involved in there own world. It does not mean there

	[sic] stupid, but id does mean that there very unsocial.
78	I'm not exactly sure what autism is but I believe it is a mental problem that is devolped [sic] at birth and affects how you act around others and help well you focus, or your attention span

Mental Processes: Specific

a. Learning Problems

Number	What is Autism? (Verbatim Response
1	Autism is someone has a mental or physical disability. Either they are extremely smart or not able to process things.
2	The kids that go to our school they look like us but they catch on to things a littl slower than us.
3	when a person is special or retarded
4	I think it's kids who work slowly than others. Just have mental issues.
5	Kids with special needs or learning disabilities
6	Autism to me is a person with special needs, and is not as bright as other people.
7	a mental disease that causes a person's brain to function in a different way and causees [sic] people to process information slower than the normal person.
8	When people are not very smart and they don't know much. And it affects people brains.
9	A disorder some people have that makes them a little "slower" than everyone else.
10	Some sort of learning disorder, don't know for sure
11	you can remember things very well, but you are mildly retarded
12	when you have the mind of a child even when you are older.
13	I know a kid names Stefon that has autism. It maks [sic] him think a little slower and doesn't have good memory.
14	I think it's being retarded or slow minded
15	yes, it means that if you have it you learn a little slower than regular people
16	A disability where they don't understand things as quick as we do and it takes them a longer to.
17	When a person can't do as much as another person. Like how to read and write.
18	type of learning disability

19 some sort of learning disability I think

20 I think autism is a type of learning disability

21 I think it is a learning disability [sic].

22 I believe it is a learning disability when the mind distorts information it is given.

23 It is when a person has slower ways of learning or understanding.

24 Autism is when people have certain disabilities with reading, etc..

25 It is when a person has slower ways of learning or understanding.

26 Autism is when people have certain disabilities with reading, etc..

27 It is disease in which people always feel bad and makes then mot being able to accel [sic].

28 Some one that can not do all the things that u can. They may not work as fast as u do. Or they may just have a disability

29 people who are slow. They don't react like other people do. They usually have a small I.Q.

30 it’s a kind of retardation of some sort or not as bright as others

31 yes, it could mean many things like LD, and others (I think) it kids that have disabilities [sic].

32 someone that is very out sometimes has trouble learning

33 autism is a disability to think like everybody else. I have autism

34 it means that somebody can't think as efficiently as someone else

35 I think autism is when a child has a problem with they way they learn

36 a learning disability

37 Yes, some people learn slower than you. Sometimes they can hear a song and they can go play it on an instrument

38 I think autism is a disability of learning and "catching on" to things

39 It where kids don't comprehend very well with others and they don't learn like we do

40 children who have a disability in learning or has a very hard time learning

41 I think autism is just someone that has a slower thought process

42 I think autism is when people think at a slower pace

43 Autism is a disease that makes you think slower

44 I think autism is the difficulty of learning

45 When certain people are mentally retarded in a way of everyday things, but are still able to take their minds to great heights

46 I think it's when your mind is kind of slow towards somethings [sic].

47 A mental disability that makes you think differently.

48 slow learning, or super learning

49 I think autism is a type of disorder that slows a person's learning or harder for a person to learn. (They can't consentrate [sic] as easily.)

50 I think it means that it takes person longer to learn something than another person.

51 When others have birth defects or learn slower than others.

52 It's when people have a learning disorder.

53 When a person has some sort of disability whether it be a little slower with their mind or other things.

54 Autism is when someone has a difficulty learning or doing day today tasks that people without autism take for granted.

55 I think it is a learning disability [sic].

56 People or children who are special and learn differently. Have a birth defect.

57 Autism is thing that has to do with someone not learning on everone [sic] else's level (maybe higher or lower).

58 Autism is, I think where you are just like everyb ody else except you learn slower.

59 I think its when your mind progress slower than the usealy [sic] people.

60 I think autism is when you are slow at learning or you have a hard time concentrating or understanding.

61 Autism is a condition that you are born with that effects how you learn or do things.

62 A certin [sic] deforminty [sic] in certin [sic] people causing a lower learning process and incapabilities [sic]

63 Kids with special needs or learning disabilities

64 when a person is retarded

65 Difficulty reading

66 Kids who learn slower than others, and act differently

67 A disease that influences the brain and one's learning ability

68 Autism is when someone can't learn new things that easy it takes them a lot more work to do so.

69 when you can't think at a normal level

70 autism is a disorder that makes you learn slower than most people

71 a learning disabiilty [sic] and where your brain does not function normally

72 when a child is a victim of mental retardation, but has a certain area they excel in.

73 A form of brain defect that causes people to learn slower than others.

74 A disease that affects the brain and make a child mentally impaired. These children learn slower than others and are sometimes physically impaired.

75 I think it's a disease that affects the brain. In ways of how fast you can think or respond to something.

76 Autism is a disorder that affects the brain. Autism makes it difficult for a child to learn "normally" and understand things/ concepts. With autism, it is difficult to move your limbs (fingers) well.

77 It's when a person is born with a brain difficulty and they have trubble [sic] thinking like other people.

78 Autism is a disorder with the brain. People with autism don't think or learn as fast as people who don't have it.

79 I think it wis [sic] when a person or child cannot comprehend or think correctly. Also, I think it also impears [sic] their speech.

80 autism is a disability that makes it hard to learn or do simple tasks. You may be blind, deaf, have speech problem, or may have a problem paying attention

81 when someone has a hard tim [sic] think and they can't talk

82 Kids who can not communicate like others it is hard for them to learn

83 Autism to me is a person with special needs, and is not as bright as other people.

84 It’s a disease that people have from birth. Unable to control themselves at times, to talk properly etc.. Some autistic people are blind. Also have sever [sic] learning disabilities.

85 Autism is someone has a mental or physical disability. Either they are extremely smart or not able to process things.

86 Autism is a mental illness where students [sic] have a very difficult time communicating, talking, moving, etc. as well as an extreme difficulty learning.

87 A disorder in the brain, some people who have it are intelligent in some areas, and not so intelligent in other areas.

88 Autism is a mental illness where students have a very difficult time communicating, talking, moving, etc. as well as an extreme difficulty learning.

89	The kids that go to our school they look like us but they catch on to things a littl [sic] slower than us.
90	a disabilty [sic] that someone has, it makes them not as fast as other people.
91	someone who has autism is just a little slower than normal people
92	I think it means kind of handicap or slow. Something is wrong with their brain.
93	I think it's kids who work slowly than others. Just have mental issues.
94	I think it's a disorder in the brain which causes the person to think slow or develop late.
95	I think it's when a person is a little on the slow side and has mental disabilities
96	It's a disorder of the brain that makes the person who has it slower at learning and understanding things.
97	It is a disease where you can be really smart, but your brain is a little slower.
98	it is people who is slower in start
99	I believe it is a learning disability when the mind distorts information it is given.
100	Autism is when you might not be growing up mentally as some of the other kids. It does not mean that they are dumb; just that they might not learn to talk as fast as the other children.
101	It is a disease that effects your learning ability and other parts o your brain.
102	Autism is a brain disorder that mkes [sic] children have learning and social disabilities
103	Autism is a mental illness where students [sic] have a very difficult time communicating, talking, moving, etc. as well as an extreme difficulty learning.
104	A disease that someone has when they are born, that makes them a little slower than others

b. Smart/ Gifted

Number	**What is autism? (verbatim response)**
1	Autism is someone has a mental or physical disability. Either they are extremely smart or not able to process things.
2	Autism is usually associated with giftedness. If you have autism then your brain functions differently. You related to your environmently [sic] differently than other people.
3	It is a disease where you can be really smart, but your brain is a little slower.
4	Autism is when a child is born with a disability that they are to smart in something so it lacks on one of their functions.

5	I think its when people who is very smart they brain so time over processes
6	It kind of like a person that is either disable or very smart but is slow
7	I heard that in a way the person is mentally challenged but very smart
8	When certain people are mentally retarded in a way of everyday things, but are still able to take their minds to great heights
9	slow learning, or super learning
10	It is where people get a disease that messes up their minds according to their social life, however, they can be very smart.
11	When a person has to go by an exact schedule every day. They usually are very smart in a certain area.
12	I think it's people that need help and they have problems with certain things but there [sic] smart. They just have some kind of disease [sic].
13	I've heard of autism from other people and all of them said that they couldn't really explain it. I think its when people are gifted in a specific area but at the same time are really slow.
14	Autism is someone has a mental or physical disability. Either they are extremely smart or not able to process things.
15	I've heard of autism from other people and all of them said that they couldn't really explain it. I think its when people are gifted in a specific area but at th same time are really slow.
16	the study of gifted kids
17	Autism is usually associated with giftedness. If you have autism then your brain functions differently. You related to your environmently [sic] differently than other people.
18	A disorder in the brain, some people who have it are intelligent in some areas, and not so intelligent in other areas.

c. Problems with Attention and Concentration

Number	What is autism? (verbatim response)
1	Autism is a disease that makes kids a little slower or hard to pay attention.
2	A mental disability that causes you to not be able to pay attention or follow directions.
3	It when someone has trouble focusing

4	I think autism is a type of disorder that slows a person's learning or harder for a person to learn. (They can't consentrate [sic] as easily.)
5	I think autism is when you are slow at learning or you have a hard time concentrating or understanding.
6	autism is a disability that makes it hard to learn or do simple tasks. You may be blind, deaf, have speech problem, or may have a problem paying attention
7	I'm not exactly sure what autism is but I believe it is a mental problem that is devolped [sic] at birth and affects how you act around others and help well you focus, or your attention span
8	I think autism is when a person sees stuff and can't stay on task and stares a lot.
9	I don't know excactly [sic]what it is, but my cousin is auticmistic [sic]. A person that is good in some, but very bad in others??? Have problem concentrating???

Physical Disability

Number	What is Autism? (verbatim response)
1	You shake
2	I believe it’s a muscle thing. It comes from problems with your muscles.
3	A disease which makes someone feel bad
4	I think autism is when a person has a problem mentally and physically
5	when a person has physical or mental disabilities
6	I think autism is people that have mental or physical problems.
7	It is a physical and mental disability
8	I'm not really ruse but I think it's a disease that effects [sic] the brain and how people move.
9	When someone has twitches and cannot control some of their actions.
10	Where children can't control their own muscles
11	I think autism is a disease that people get and there normal but it's something different or they don't look normal but they are
12	A disease when your brain malfunctions and sometimes your slower in things than others who don't have autism and you sometimes have physical birth defects, in appearance.

13 Autism is something that some people are born with. It can be mental or physical

14 Sometime the kid ca not move or mite be mute and sometime can not controll [sic] there selfs [sic]

15 It is someone who is handycaped [sic] and has different abilities can't speack [sic] or walk correctly

16 Someone who has a problem talking or walking.

17 I think it's when people get seizures or they can't talk clearly.

18 I think it is an illness that causes you to lose your sight, your hearing, and abilty [sic]to speak.

19 Autism is a brain damage. It makes the person act, look weird. They are oppistes [sic] of what regular people are

20 when a person develops very slowly and doesn't develop somethings [sic] at all. It cripples their brain and they look physically younger.

21 It is disease in which people always feel bad and makes then mot being able to accel [sic].

22 autism is when a person is kind of mentally or physically challenged

23 Autism is someone has a mental or physical disability. Either they are extremely smart or not able to process things.

24 a physical/ mental disability

25 a disability that is both mental and physical

26 a person may sometimes start crying hysterically, screaming, hard for them to see and there bones are very fragile.

27 It is disabilities that someone might get when they are born. Sometimes they can't talk or walk

28 Autism is a mental illness where students have a very difficult time communicating, talking, moving, etc. as well as an extreme difficulty learning.

29 A disease that affects the brain and make a child mentally impaired. These children learn slower than others and are sometimes physically impaired.

30 autism is a disability that makes it hard to learn or do simple tasks. You may be blind, deaf, have speech problem, or may have a problem paying attention

31 It's a disease that people have from birth. Unable to control themselves at times, to talk properly etc.. Some autistic people are blind. Also have sever [sic] learning disabilities.

32	Autism is when people have special needs because they have problems with hearing, seeing bright lights, etc. To them it seems that everything happens at once.
33	Autism is a disorder that affects the brain. Autism makes it difficult for a child to learn "normally" and understand things/ concepts. With autism, it is difficult to move your limbs (fingers) well.

Unique Abilities

Number	What is Autism? (verbatim response)
1	People can't understand what is right and wrong. But they have amazing memories.
2	autism is a disease that your born with. It means that the autistic person excels in one subject
3	A person who is extremely smart in one way more than others but can't communicate the same way as others.
4	Yes, some people learn slower than you. Sometimes they can hear a song and they can go play it on an instrument
5	When certain people are mentally retarded in a way of everyday things, but are still able to take their minds to great heights
6	when a child is a victim of mental retardation, but has a certain area they excel in.
7	Autism in general is a mental disability in which a child or adult struggles in multiple areas, yet they are very smart in one area. Usually have low social activity in their age group.
8	I think it is when someone can not speak or communicate as the average person can. It's also like when someone is smart at technology for example but can not understand emotions.

Appendix C

Physiological Explanation of Autism

Number	What is Autism? (verbatim response)
1	autism is a disease that your born with. It means that the autistic person excels in one subject
2	I have heard of it and I am not sure what it is but I think it is a type of disease that you are born with.
3	A form of brain defect that causes people to learn slower than others.
4	Autism is a disability or handicap people are born with.
5	it is a disease where you have social problems. People say that mercury is the cause of it, but no one is sure
6	Something someone is born with that has different affects that I have seen. It could make them slower than most, but I have an autistic friend who just has a lisp, and although she's a girl, she feels that she is a boy.
7	a birth disorder is some people
8	Autism is a mental disease that a person is born with. It may affect the way the person does something. They might be confused easily and this might affect their social activities.
9	autism is a disease you get from birth if you have to much mercury in you
10	When others have birth defects or learn slower than others.
11	Autism is a birth defect. I don't know what it does but I know that people don't know how it is caused.
12	has to do with pregnant women with to much mercury that came into the babies blood stream
13	Yes, it's a brain defecency [sic] that you have sometimes when you're born
14	people who are born with damage in their personality
15	That they were born with a disability with maybe to much mercury that gone into the baby's blood stream when their mom is pregnant
16	It is disabilities that someone might get when the are born. Sometimes they can't talk or walk
17	I think autism is a disability the people have when they are born, and can't help it if they do something bad by

mistake

18 People or children who are special and learn differently. Have a birth defect.

19 is when a pregnant woman has too much mercury in her body and the mercury goes into the baby's blood stream and it will cause disabilities for the baby

20 A disease that someone has when they are born, that makes them a little slower than others

21 autism is when people are usually born with a deficiency and they are not like others. They are unique in their own away and still deserve to be loved.

22 Autism is a special type of kids. They were born with some kind of birth effect.

23 it is a disease people are born with.

24 Autism is a problem or difficulty some one has, it's something that that person is born with

25 a mental disorder that someone is born with

26 Autism is a disease in the brain that can't be cured.

27 I'm not exactly sure what autism is but I believe it is a mental problem that is developed at birth and affects how you act around others and help well you focus, or your attention span

28 It's kind of like a disease that children get etc..

29 It is a disease passed from parents to kids and affect the way your brain functions.

30 mental retarded person it happens at birth I think

31 Autism is when your born with a disease or a disability they don't know where you got it from and how it was caused

32 yes. I think autism is a problem or disease that people get maybe from their parent's genes. Not sure?

33 it is a birth defect in the brain

34 it is a disease you are born with

35 I think autism is a birth defect that effects the brain

36 Atism [sic] is a like disability that a person is born with. This does not mean that they are retarted [sic] it means they are just well I'm not sure I do know they are just like us just with a disability

37 Autism is a disability that a person has inheritied [sic] by genes. It malfunctions your brains and you can't control

your bodily functions.

38 It's when a person is born with a brain difficulty and they have trubble [sic] thinking like other people.

39 A source told me it was a disease someone is born with.

40 autism is when people are usually born with a deficiency [sic] and they are not like others. They are unique in their own away [sic] and still deserve to be loved.

41 A disease you can't cure.

42 It is a genetic disorder that people get when they are born.

43 A disease when your brain malfunctions and sometimes your slower in things than others who don't have autism and you sometimes have physical birth defects, in appearance.

44 It is a disease that effects [sic] the brain. It is not contagous [sic] and has different stages.

45 It is not a disability or a disease but something that some children are born with. A person will know something and not know how they know it.

46 Autism is a disorder that affects the brain.

47 I think it's a disease that you get when you are born.

48 something that you get from birth when you have one or more disabilities

49 I'm not sure but I think it’s a defect that causes brain damage

50 A type of disorder someone is born with that cannot be treated or taken away

51 It's like a disease or something that you're born with that effects your brain.

52 Mental disability that lets someone lead an almost normal life, most are born with it.

53 Autism sometimes is what your born with. This can cause you to not be able to control yourself sometimes.

54 I think it is a mental illness that people are born with,

55 It’s a disease that people have from birth. Unable to control themselves at times, to talk properly etc.. Some autistic people are blind. Also have sever [sic] learning disabilities.

56 Autism is something that some people are born with. It can be mental or physical

57 Autism is a disorder with the brain. People with autism don't think or learn as fast as people who don't have it.

58 autism is a genetic disorder that slows a human brain into a little or no intelligence being. Or it is a disorder that paralizes [sic] people when they are born.

59 a disease you are born with.

60 Autism is a brain damage. It makes the person act, look weird. They are oppistes [sic] of what regular people are

Appendix D

General Problems

Number	What is Autism? (verbatim response)
1	Special kind of kids that don't be treated like other people.
2	when someone is different like the boy in "The Curious Incident of the Dog in the Nighttime." He doesn't like crowded spaces.
3	autism is when people are usually born with a deficiency [sic] and they are not like others. They are unique in their own away [sic] and still deserve to be loved.
4	Autism is a special type of kids. They were born with some kind of birth effect.
5	it is a disease people are born with.
6	someone that is disable at something
7	A disability a person has.
8	some kind of dissect [sic].
9	Someone who can't do everything like normal people can.
10	A disability that happens to some people
11	my guess is people with problems
12	a disability
13	people that have difficulty
14	Once you are kind of special and are kind of disabled
15	I think it is someone or something that has a disability problem.
16	I think it has something to do with disability
17	I think that they have trouble doing some things that others can do easily. I don’t really remember that much about what autism is.

18 When a person has something different about them then other people have and don't function like them.

19 It's kind of like a disease that children get etc.

20 It's a disability people have.

21 a disability

22 a disability

23 when someone has a disability

24 somebody that is less fortunate and has special needs

25 A special child that doesn't function like normal people.

26 Autism is when someone is disable of doing something

27 I don't really know what it is I've heard of it all I know is that’s it is a disability

28 someone with a disability

29 when you have problems!

30 a disorder

31 Autism is when your born with a disease or a disability they don't know where you got it from and how it was caused

32 yes. I think autism is a problem or disease that people get maybe from their parent's genes. Not sure?

33 it is a disease you are born with

34 Atism [sic] is a like disability that a person is born with. This does not mean that they are retarted [sic] it means they are just well I'm not sure I do know they are just like us just with a disability

35 autism is when somebody is born or developes [sic] problems that makes the slower at doing things

36 I'm not sure but I think it is when children disabilities

37 I am not quite sure what autism is but I know it's a disability

38 I think autism is like when someone has a disabilaty [sic] to do some sort of thing

39 It's like someone who has a disability

40 only know the word and that autism is a disease

41 A certain kind of disorder

42 Need help with stuff that regular people can do and what you can't

43 A disability that some children have, making them not able to do some things

44 Disibilities [sic]

45 Autism is a problem that a person can have

46 People that have plobem [sic] or can't do something as well as other

47 I think autism is when something is wrong with someone

48 I've heard of autism, but I don't remember what it is or what it means. I think it's a disability.

49 I think it is when you have a disability.

50 it’s like a disorder

51 It's a disease I think

52 A disorder

53 I think is a disability

54 A disorder or disability

55 A special need.

56 I think it is a kind of disease that makes a person have a disease.

57 When you have a disorder.

58 a disease

59 Kids with special needs

60 I think autism is when a child has its disabilities. But I don't know exactly what it is.

61 I think autism mean a special person that do different things.

62 Autism is a special disaplate [sic] that some children have.

63 I think autism is a type of special need disease

64 Autism is a disability or handicap people are born with.

65 A child with special needs who can or does need more help than most people with certain tasks.

66 autism- a disability

67 some kind of disability

68 a person that has a problem

69 it is a disability

70 I think it when some things is wrong with you

71 Autism is a problem or difficulty some one has, it's something that that person is born with

72 A disease you can't cure.

73 something that you get from birth when you have one or more disabilities

74 somebody who is less fortunate and has special needs

75 A type of disease-like thing. Kind of like down-syndrom [sic]. A student with autism is usually in a special ed class.

Appendix E

Incorrect Answers

Number	What is Autism? (verbatim response)
1	It is a disease that I think makes your body age faster than your mind.
2	I think it is when your brain makes you hear things and see things differently, so of like mirages.
3	Something is rong [sic] with you I believe you can't remember things.
4	a person may sometimes stary [sic] crying hysterically, screaming, hard for them to see and there bones are very fragile.
5	it is a new person coming to your school
6	I think it is a sickness when you forget things slowly as you get older.
7	I think it means a big building where people work.
8	I think autism means someone who has lost there memory and sometimes forget there name.
9	Autism is when a person, especially seniors, forget ideas. For example, the person with autism will forget my name.
10	It's a sort of disease that causes your functions to be a little slow (I think). People with autism typically look alike in facial features.
11	to hulosinate [sic], to have emagenary [sic] friends, that’s what I think it is.
12	I think autism means making new friends with other people you don't know.
13	I think its when you have troble [sic] writing because your hands get swety [sic] but I don't know anymore
14	autism is a disease you get from birth if you have to much mercury in you
15	is when a pregnant woman has too much mercury in her body and the mercury goes into the baby's blood stream and it will cause disabilities for the baby
16	I really don’t know I think its rasisum [sic]-injustice
17	I think it is a disorder when your brain and muscels [sic] don't function correctly

18	Feeling something
19	Autism is when a person has some limbs that are not right or something is wrong with their brain.
20	I think autism is a down-syndorm [sic]. The person who has autism isn't necessarily retarded but that person does have a mental disorder.
21	Something someone is born with that has different affects that I have seen. It could make them slower than most, but I have an autistic friend who just has a lisp, and although she's a girl, she feels that she is a boy.
22	has to do with pregnant women with to much mercury that came into the babies blood stream
23	It is not a disability or a disease but something that some children are born with. A person will know something and not know how they know it.
24	autism is a genetic disorder that slows a human brain into a little or no intelligence being. Or it is a disorder that paralizes [sic] people when they are born.
25	When a kid or adult has a problem with other people and have trouble seeing things they also are very emotional.
26	I think it is a disease where body parts do not develop properly
27	When something is wrong in the persons head, or when your cells are not fully grown.
28	It is a neural disorder. My sister has it. It can lead to ADD in adults. People who have autism will act strangely and have a hard time answering questions.
29	A disease when your brain malfunctions and sometimes your [sic] slower in things than others who don't have autism and you sometimes have physical birth defects, in appearance.

Appendix F

Source of Information about Autism

Number	What is Autism? (verbatim response)
1	I don't really know what it is but this kid on extreme makeover had it.
2	I don't know exactly [sic] what it is, but my cousin is auticmistic [sic]. A person that is good in some, but very bad in others??? Have problem concentrating???
3	It is a neural disorder. My sister has it. It can lead to ADD in adults. People who have autism will act strangely and have a hard time answering questions.
4	A source told me it was a disease someone is born with.
5	autism is a disability to think like everybody else. I have autism
6	It affects your brain. It's like you go off into your own world. My cousin has it.

Appendix G

Educational Setting

Number	What is Autism? (verbatim response)
1	mental disorder where you need help with things and have some thing wrong with your brain - special ed?
2	I think it is a disease that person that makes them act strange and they have to be in special education.
3	A type of disease-like thing. Kind of like down-syndrom [sic]. A student with autism is usually in a special ed class.
4	spechial edd [sic]
5	It is special ed. Autistic
6	Autism is a mental disability that a few people have in the special ed class.

Appendix H

Evaluative

Number	What is Autism? (verbatim response)
1	A disability that doesn't allow someone to interact "normally" with other people.
2	I think it means kind of handicap or slow. Something is wrong with their brain.
3	I think it means when something is wrong with that person and I think it means that there brains are growing slower than ours.
4	mental disorder where you need help with things and have some thing wrong with your brain - special ed?
5	when you have problems!
6	Autism is a brain damage. It makes the person act, look weird. They are oppistes [sic] of what regular people are
7	yes, I am not quite sure what autism is but it is very sad
8	Autism is probably when certain children act a different way like weird way
9	when someone can't control themselves. They talk different, think different, and are different
10	I think autism is when something is wrong with someone
11	Autism is when there is something wrong with your brain that affects your daily life.
12	I think autism is when someone has something wrong with a side of their brain and they can't do something as well as others.
13	Autism is a disorder that affects the brain. Autism makes it difficult for a child to learn "normally" and understand things/ concepts. With autism, it is difficult to move your limbs (fingers) well.
14	Autism is when a person has some limbs that are not right or something is wrong with their brain.
15	When something is wrong in the persons head, or when your cells are not fully grown.
16	It is a brain disorder where someone is not functioning at an average or up to standard level in society.
17	I think it when some things is wrong with you
18	Autism is when people are born smart, but they know it.

19	Special kind of kids that don't be treated like other people.
20	people with special problems
21	autism is when people are usually born with a deficiency and they are not like others. They are unique in their own away and still deserve to be loved.
22	Autism is a special type of kids. They were born with some kind of birth effect.
23	Once you are kind of special and are kind of disabled
24	It is milder than down syndrome. If effects [sic] the brain and is about 5 in a thousand I think. Sometimes the person repeats things or has a funny tone. It is not something to laugh about.
25	Autism is a mental disorder making the person very deeply involved in there own world. It does not mean there [sic] stupid, but id [sic] does mean that there very unsocial.
26	Autism is when you might not be growing up mentally as some of the other kids. It does not mean that they are dumb; just that they might not learn to talk as fast as the other children.
27	when a person is special or retarded
28	I think it's people that need help and they have problems with certain things but there smart. They just have some kind of disease [sic].
29	Atism [sic] is a like disability that a person is born with. This does not mean that they are retarted [sic] it means they are just well I'm not sure I do know they are just like us just with a disability
30	Autism is when you see the world different than others. Also it is when people with autism can focus on one subject and they can succeed.
31	It is where people get a disease that messes up their minds according to their social life, however, they can be very smart.
32	People or children who are special and learn differently. Have a birth defect.
33	I think autism mean a special person that do different things.
34	Autism is a special disaplate [sic] that some children have.
35	I heard that in a way the person is mentally challenged but very smart
36	A series of mental illnesses that are pretty minor and can conquired [sic] over time as their brain develops.