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## Correlates of interest in autism spectrum disorders among social work graduate students

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CORRELATES OF INTEREST IN AUTISM SPECTRUM DISORDERS  
AMONG SOCIAL WORK GRADUATE STUDENTS

A Thesis

Submitted to the Graduate Faculty of the  
Louisiana State University and  
Agricultural and Mechanical College  
in partial fulfillment of the  
requirements for the degree of  
Master of Social Work

in

The School of Social Work

by  
Cassie Dinecola  
B.S., Louisiana State University, 2008  
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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	iv
ABSTRACT.....	v
CHAPTER	
1    INTRODUCTION.....	1
2    REVIEW OF THE LITERATURE.....	7
3    CONCEPTUAL FRAMEWORK.....	25
4    METHODOLOGY.....	28
5    RESULTS.....	35
6    DISCUSSION.....	47
REFERENCES.....	57
VITA.....	63

## LIST OF TABLES

1. Number and Proportion of Participants with Correct Answers ( $N=97$ ).....	39
2. Self-Efficacy and Attitudes toward Working with Individuals with ASD ( $N=97$ ).....	41
3. Pearson's $r$ Correlation Matrix of Self-Efficacy, Interest, and Other Relevant Variables.....	43

## **ABSTRACT**

With autism spectrum disorder (ASD) diagnoses on the rise, there is a growing need for knowledgeable professionals in the field. However, graduate social work students report low interest and negative attitudes toward working with this population, and few social workers enter the field of developmental disabilities. This is the first known study to examine the interrelationships among graduate social work students' knowledge about ASD, self-efficacy in working with individuals with ASD, attitudes toward working with individuals with ASD, formal training in ASD, and contact with persons with ASD. These interrelationships were explained in the context of Social Cognitive Career Theory. The study found that knowledge, formal training, and contact were significantly and positively associated with participants' self-efficacy. Attitudes and contact were found to be positively associated with interest, with attitudes demonstrating a stronger correlation. Implications of these findings for social work education, practice, and research are discussed.

## **CHAPTER 1: INTRODUCTION**

Autism spectrum disorders (ASD) are a group of developmental disabilities (DD) that affect communication, social skills, and behavior (American Psychiatric Association [APA], 2000). ASDs include autistic disorder, pervasive developmental disorder-not otherwise specified (PDD-NOS), and Asperger's disorder (Centers for Disease Control and Prevention [CDC], 2009). ASD remains a mysterious condition because there is no known cause or cure (Simpson, McKee, Teeter, & Beytien, 2007). Recently, the public has rapidly intensified its focus on ASD due to the climbing number of diagnosed children (CDC, 2009).

### **Problem Statement**

With the recent increase in diagnoses, the need for professionals with adequate knowledge and skills to work with individuals with ASD is dire (Mandell et al., 2009). Despite this growing need, social work students report low levels of interest and negative attitudes toward working with individuals with DD, including ASD (Aviram & Katan, 1991; Butler, 1990; Rubin & Johnson, 1984; Werner, 2011), and few social workers enter the field of DD (Whitaker & Arrington, 2008). This indicates a need for research that investigates factors that contribute to students' interest in ASD. The purpose of the current study was to explore interrelationships among knowledge about ASD, attitudes toward working with individuals with ASD, self-efficacy in working with individuals with ASD, interest in working with individuals with ASD, formal training regarding ASD, and contact with individuals with ASD.

### **Definitions of DD and ASD**

This subsection provides the definitions of DD and ASD that are used in the current study. The federal Developmental Disabilities Assistance and Bill of Rights Act of 2000, defines DD as a severe and life-long disability that causes mental and/or physical impairments that occur

before the age of 22. To be considered to have a DD, individuals must have functional limitations in at least three of the following areas: (1) self-care, (2) language, (3) learning, (4) mobility, (5) self-direction, (6) capacity for independent living, and (7) economic self-sufficiency. According to this federal definition, individuals with DD must require special assistance and supports related to their disability. DD include nervous system disabilities, sensory-related disabilities, metabolic disorders, and degenerative disorders (National Institute of Child Health & Human Development [NICHD], 2012). Some diagnoses that fall under the umbrella of DD include Down's syndrome, Fragile X syndrome, phenylketonuria, hypothyroidism, Rett's syndrome, and ASD (NICHD, 2012).

ASD is a group of DD that are characterized by difficulties with social interaction, communication, and behavior. ASD include autistic disorder, Asperger's disorder, and PDD-NOS. In the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)*, these disorders are part of a broader category called pervasive developmental disorders, which also includes childhood disintegrative disorder and Rett's syndrome (APA, 2000). These latter conditions are not included in the classification of ASD because they have other distinct symptoms in addition to impairments in social interaction, communication, and behavior. Recent research has shown that differences in symptoms among autistic disorder, Asperger's disorder, and PDD-NOS are not significant; thus, the current trend is to consider symptoms of these disorders as being on a spectrum rather than compartmentalizing them into separate diagnoses (Jensen & Sinclair, 2002). Hence, professional literature in the area of DD has gravitated toward classifying these disorders as ASD to emphasize this continuum of functioning (National Institute of Mental Health [NIMH], 2008).



## **Prevalence of ASD**

Obtaining accurate estimates of the prevalence of ASD is a challenging task. Over the past 20 years, diagnostic criteria for ASD have become more inclusive, which has skewed tracking of these disorders. Also, the United States has not always had a population-based monitoring system in place for determining the prevalence of ASD (CDC, 2009).

Despite these limitations, in March 2012, the CDC estimated that one in 88 children have ASD, which is a 78% increase in prevalence since 2002 (CDC, 2012). Before the 1980s, CDC (2009) estimated that only approximately one in 2000 children were affected. Approximately 3 to 4 times as many boys are diagnosed with ASD than girls (CDC, 2009).

Scholars debate whether the increase in recent diagnoses is actually due to increased prevalence. For example, researchers concur that the increase in diagnoses is due to a shift toward more inclusive diagnostic criteria (NIMH, 2008). Therefore, children that went previously undiagnosed are now being diagnosed under this new set of diagnostic criteria. Also, increased attention from media and professionals may contribute to the increase in prevalence (NIMH, 2008).

## **Social Work Profession and ASD**

The social work profession has an ethical commitment to serving vulnerable populations, which includes individuals with ASD and their families. Many scholars suggest that social workers are well-suited for working in the field of DD, in general, which includes ASD, due to their unique professional values. This subsection discusses social work values in relation to the profession's ethical responsibility and appropriateness in the field of ASD.

The *National Association for Social Workers' (NASW) Code of Ethics* charges social workers with an ethical responsibility to serve vulnerable populations, especially with regard to

advocacy and promoting evidence-based practices (NASW, 2000). Individuals with ASD have complex academic, vocational, medical, and housing needs; which increase their vulnerability to a myriad of social problems, such as abuse, co-morbid mental disorders, employment problems, and victimization (Cappadocia, Weiss, & Pepler, 2012; Gerhardt & Lainer, 2011; Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005; Simonoff et al., 2008). Further, ineffective and sometimes harmful therapies have emerged that claim to provide immediate and drastic results, leaving persons with ASD and their families vulnerable to scientifically uninformed advice (Hebert, Sharp, & Gaudiano, 2002). Thus, due to the vulnerability of individuals with ASD, social workers are ethically bound to serve this population.

Scholars have emphasized that social workers are equipped with values that greatly benefit clients with DD. For example, the social work profession's commitment to self-determination is especially aligned with ethical practice with individuals with DD (Hanley & Parkinson, 1994). Also, it has been suggested that the strengths-oriented and person-first approach emphasized by social work is critical when working with individuals with DD because such perspectives facilitate highly individualized treatment approaches, which are needed with diverse clients (Malone, McKinsey, Thyer, & Straka, 2000; VanBergejik & Shtayermman, 2005). In addition, social workers are well-suited to practice in the field of DD because they emphasize empowerment, understand the social construction of disability, have knowledge about family systems theory, and are committed to culturally competent practice (Malone et al., 2000; Dababnah, Parish, Brown, & Hooper, 2010).

Social workers' ethical obligation to serve vulnerable populations and commitment to professional values and principles, such as self-determination, empowerment, and cultural competence make social workers ideal professionals for working in the field of ASD. However,

many social work students report low interest in the field of DD (Aviram & Katan, 1991; Butler, 1990; Rubin & Johnson, 1984) and negative attitudes toward working with individuals with ASD (Werner, 2011).

### **Social Work Students' Career Interests**

Despite the growing need for knowledgeable professionals in the field of ASD, no studies have explored interest in working with individuals with ASD among graduate social work students. Most of the literature in social work education focuses on students' interests in general.

Researchers have found that social work students typically are most interested in clinical work with non-chronic populations (Butler, 1990; Rubin & Johnson, 1984; Rubin, Johnson, DeWeaver, 1986). Graduate social work students have reported the lowest levels of interest in working with individuals with chronic problems (Butler, 1990; Rubin, et al., 1986), including older persons (Krumer-Nevo & Weiss, 2006) and individuals with DD (Aviram & Katan, 1991; Krumer-Nevo & Weiss, 2006).

### **Social Cognitive Career Theory**

The current study explored variables related to social work students' interest in ASD by examining the issue through a social-cognitive lens. Lent and Brown (1996) adapted Bandura's traditional social-cognitive theory to the field of career development by creating Social Cognitive Career Theory (SCCT), which purports that one's self-efficacy, outcome expectations, and goals interact to influence career interest. Self-efficacy refers to confidence in one's abilities to complete a task. Outcome expectations refer to one's beliefs or attitudes regarding engaging in certain behaviors, and goals highlight one's intention to engage in practice behaviors. SCCT suggests that self-efficacy and outcome expectations are related to the formation of career

interest, and in turn, this interest promotes the development of goals toward working in one's field of interest.

### **Contributions of the Current Study to the Current Body of Research**

The current study uses a sample of graduate social work students to examine interrelationships among knowledge about ASD, self-efficacy in working with individuals with ASD, attitudes toward working with individuals with ASD, interest in working with individuals with ASD, formal training in ASD, and contact with individuals with ASD. Previous research undertaken with other professional and student samples has not examined all of these variables simultaneously. No studies have explored interest in ASD among a sample of graduate social work students. Thus, the current study contributes to the knowledge base by providing descriptive information about a critical workforce issue.

## **CHAPTER 2: REVIEW OF THE LITERATURE**

The purpose of the current study was to examine interrelationships among graduate social work students' knowledge, self-efficacy, attitudes, interest, formal training, and interest regarding ASD. A review of the relevant literature published since 1975, which is when federal legislation mandating educational mainstreaming became law, yielded 26 studies examining professional knowledge, training, and interest in ASD, along with other related variables. These empirical studies were primarily published in the fields of speech and language pathology, education, psychology, and medicine. Only a few studies exist regarding factors related to interest in ASD among social workers and social work students. This gap in the literature is addressed in this discussion. The review concludes with a summary of the current state of knowledge regarding professional interest in ASD and describes how the current study addressed some of the identified gaps in knowledge in the literature.

### **Knowledge About ASD**

This section discusses empirical studies that have examined knowledge about ASD among professionals and students in a variety of human service disciplines. Demographic information about samples, sampling methods, and research designs of these studies are described. Key findings about knowledge and misconceptions about ASD are discussed.

#### **Teachers' Knowledge about ASD**

Researchers have studied knowledge about ASD among various groups of professionals. One of these groups includes teachers. Stone and Rosenbaum (1988), for example, compared knowledge about ASD between special education teachers ( $n=47$ ) and parents of children with ASD ( $n=47$ ). A comparison group of ASD experts ( $n=22$ ) was used to assess the knowledge of the teachers and parents because the experts' responses were considered representative of

accepted facts about ASD. Experts were defined as professionals who had been directly and extensively involved in research or clinical work in ASD for at least 5 years (Stone & Rosenbaum, 1988). Almost half (48.9%) of the teachers surveyed had participated in specialized ASD workshops. The researchers used Part I of Stone's (1987) Autism Survey to assess knowledge about ASD among the participants. This self-report survey measures beliefs about common misconceptions about ASD, social and emotional characteristics of children with ASD, cognitive characteristics of children with ASD, and other general descriptive characteristics of children with ASD using a 5-point Likert scale (Stone, 1987).

Mavropoulou and Padelidu (2000) expanded on the work of Stone and Rosenbaum (1988) by exploring knowledge about and perceptions of ASD among a convenience sample of Greek regular education and special education teachers ( $N=64$ ), who had at least 5 years of teaching experience. Prior to completion of the survey, the special education teachers ( $n=29$ ) participated in a 20-hour education module on ASD. Mavropoulou and Padelidu (2000) developed an instrument to assess knowledge about ASD, based on Stone and Rosenbaum's (1988) research and other relevant literature, using true-false, ranking, and multiple-choice questions about the etiology of the disorder and general characteristics of children with ASD.

Helps, Newsom-Davis, and Callias (1999) studied knowledge about and training needs regarding ASD by surveying a primarily female convenience sample of regular education teachers ( $n=22$ ), special education teachers ( $n=40$ ), educational support staff ( $n=10$ ), and expert mental health professionals ( $n=10$ ) in England. Building on the designs used in previous research (e.g., Stone, 1987; Stone & Rosenbaum, 1988), Helps et al. (1999) used the experienced mental health professionals as a comparison group to assess knowledge about ASD among the rest of the sample. Helps et al. (1999) created an instrument based on Stone's (1987) Autism Survey to

assess knowledge about ASD by having participants rank how common they thought certain characteristics were associated with ASD using a 6-point Likert scale.

Across these latter studies, investigators found that teachers often believe misinformation about ASD. For example, researchers found that teachers often believe that ASD has an emotional etiology due to poor parenting (Helps et. al, 1999; Mavropoulou & Padelia, 2000; Stone & Rosenbaum, 1988). Mavropoulou and Padelia (2000) further found that teachers believe that the age of onset is much older than that identified within diagnostic criteria specified by the *DSM-IV-TR* (APA, 2000). Additionally, Stone and Rosenbaum (1988) found that teachers experienced difficulty with differential diagnosis, as evidenced by finding that teachers had trouble distinguishing schizophrenia from ASD.

### **Speech-Language Pathologists' Knowledge about ASD**

In addition to teachers, knowledge about ASD has been explored among speech-language pathologists (SLPs). Researchers have investigated knowledge about and training regarding ASD among SLPs due to their predominant role in treating communication deficits of individuals with ASD. For example, Schwartz and Drager (2008) examined knowledge about, training in regard to, and competency in ASD among 67 SLPs from 33 different states. All of the SLPs had worked with at least one student with ASD; however, over half (58.2%) had worked with fewer than 20 students with ASD throughout their careers. Schwartz and Drager (2008) assessed knowledge about characteristics of children with ASD in two sections, one used true-false questions and the other used a self-report 4-point Likert scale. Competency was also assessed using a self-report 4-point Likert scale.

Casella and Colella (2004) conducted a survey with a sample of school SLPs in Connecticut ( $N=82$ ) that was randomly selected from a master list of 990 school SLPs practicing

in the state. The researcher-developed survey used a self-report 4 point Likert scale to assess knowledge about ASD. Other survey questions solicited information about the participants' education level, academic preparation in ASD, clinical preparation in ASD, and work experience with ASD (Casella & Colella, 2004).

These latter studies, along with related research, illustrated that SLPs hold misconceptions about ASD. Researchers discovered that SLPs, like teachers (e.g., Mavropoulou & Padeliadu, 2000), often are unclear about the age of onset of ASD (Schwartz & Drager, 2008; Stone, 1987). Heidgerken, Geffken, Modi, and Frakey (2005) found that SLPs often believe that individuals with ASD are more intelligent than indicated by IQ testing, and Stone (1987) further found that SLPs often believe that IQ testing with individuals with ASD is not possible. With regard to intelligence, Stone (1987) also found that SLPs believed that most individuals with ASD have savant characteristics (i.e., special abilities or talents) and are more socially withdrawn than research indicates is generally true.

### **Healthcare Professionals' Knowledge about ASD**

Researchers have explored knowledge about ASD among professionals in the healthcare arena. Stone (1987) examined knowledge about ASD among a convenience sample of professionals from both the educational and healthcare sectors ( $N=239$ ), including pediatricians ( $n=48$ ), SLPs ( $n=97$ ), clinical psychologists ( $n=42$ ), school psychologists ( $n=52$ ), and experts in the field of ASD (i.e., professionals engaging in research or clinical work in ASD for at least 5 years;  $n=18$ ). Stone (1987) used responses from ASD experts as a standard for evaluating the accuracy of responses from other subsamples. Heidgerken et al. (2005) expanded on the work of Stone (1987) by conducting a similar study using a convenience sample of multiple groups of human service and healthcare professionals. The sample included family practice physicians



( $n=8$ ), pediatricians ( $n=20$ ), neurologists ( $n=5$ ), psychiatrists ( $n=18$ ), clinical psychologists ( $n=16$ ), and SLPs ( $n=8$ ) at Shands Hospital at the University of Florida. Heidgerken et al. (2005) assigned the professionals to groups based on their involvement with individuals with ASD. For example, psychiatrists, SLPs, and clinical psychologists were assigned to the “specialists” group because these professions have frequent exposure to individuals with ASD due to their involvement with treatment of ASD; and family practice physicians, pediatricians, and neurologists were considered “primary providers” because of their limited exposure to individuals with ASD due to their primary role of early identification (Heidgerken et al., 2005). The sample also included a comparison group of expert ASD professionals from the Center for Autism and Related Disorders at the University of Florida ( $n=35$ ). Heidgerken et al. (2005) utilized both Parts I and II of Stone’s (1987) Autism Survey to assess knowledge about ASD. Part II asked participants to differentiate characteristics and symptoms that are required, from those that are merely required helpful, in establishing a diagnosis of ASD.

Studies show that professionals in both the educational and healthcare sectors hold beliefs about information that research indicates is untrue. Stone (1987) found, for example, that pediatricians, clinical psychologists, and school psychologists believed that IQ tests do not render accurate results for individuals with ASD. Like SLPs, pediatricians often believe that individuals with ASD usually have special abilities or talents (Stone, 1987). The latter researcher also found that, similar to SLPs (Schwartz & Drager, 2008) and teachers (Mavropoulou & Padelidou, 2000), pediatricians often hold misconceptions about the age of onset of ASD. Stone (1987) discovered that most pediatricians believed that a lack of speech was a necessary criterion for a positive diagnosis of ASD. Pediatricians considered individuals with ASD to be less interested in social interaction than has been demonstrated in the literature (Stone, 1987).

Investigators have also found that primary providers, including pediatricians, family practice physicians, and neurologists, have difficulty in differentiating ASD from schizophrenia (Heidgerken et al., 2005). Studies also showed that professionals believe that ASD is more common among higher socioeconomic classes (Heidgerken et al., 2005; Stone, 1987).

### **Social Work Students and Professionals' Knowledge about ASD**

Literature regarding ASD knowledge among social workers and social work students is sparse. The current literature search yielded only one study that examined knowledge about ASD among social workers (Preece & Jordan, 2007). This latter exploratory study surveyed a convenience sample of social workers ( $n=20$ ) and social work assistants ( $n=7$ ) from two agencies in England. The sample was primarily female ( $n=19$ ), and the participants' experience with individuals with ASD ranged from 1 to 28 years ( $M=9.4$ ,  $SD=7.4$ ). Preece and Jordan (2007) adapted Mavropoulou and Padelidiu's (2000) Questionnaire on Autism to measure social workers' knowledge about ASD, and these researchers found that social workers held misconceptions about ASD that are similar to those of other human service professionals. For example, similar to studies undertaken with teachers (e.g., Helps et al., 1999; Mavropoulou & Padelidiu, 2000) and SLPs (e.g., Heidgerken et al., 2005; Stone, 1987; Stone & Rosenbaum, 1988), social workers reported erroneous beliefs about the cause of ASD, identifying social causes and poor relationships with mothers as primary etiological factors (Preece & Jordan, 2007). Further, participants in this latter study held misconceptions about age of onset and proper diagnostic procedures, with many believing that neurological exams were necessary for a definite diagnosis. Participants, overall, were unable to identify effective interventions for children with ASD; however, participants were able to accurately describe the primary

characteristics of ASD (e.g., wanting a familiar environment, avoiding changes in routine, and having obsessions; Preece & Jordan, 2007).

A thorough search yielded one scholarly article that studied knowledge about ASD among social work students (viz., Duvdevany, Rimmerman, & Portowicz, 1995). Using a cross-sectional research design, Duvdevany et al. (1995) examined knowledge about and attitudes toward individuals with DD, including ASD, using a convenience sample of 46 social work undergraduate students enrolled in an introductory course on DD at an Israeli university. The sample consisted of primarily women ( $n=41$ ; 89.1%), and the students' ages ranged from 20 to 45 years ( $M=28.5$ ,  $SD=4.6$ ). Over half (53.2%) of the participants reported previous work experience with individuals with DD. Duvdevany et al. (1995) used an instrument that was developed by Roth and Smith in 1983 to measure knowledge about and attitudes toward DD among the general public in Arkansas. The adapted survey instrument asked participants to indicate their agreement (*agree*, *do not agree*, or *do not know*) with a series of statements about mental retardation (i.e., intellectual disabilities), epilepsy, cerebral palsy, and ASD. Duvdevany et al. (1995) also compared their findings to those of Roth and Smith's (1983) general public sample. Overall, Duvdevany et al. (1995) found that social work students, as compared with the earlier public sample, reported a high level of knowledge about DD, in general. However, social work students knew less about ASD than about cerebral palsy and mental retardation.

The current review of the research with teachers, SLPs, pediatricians, and other human service and health professionals indicates that misconceptions and low knowledge about ASD exist among professionals in a variety of disciplines, including social work. These misunderstandings were common regarding etiology (Helps et al., 1999; Mavropoulou & Padelidiadu, 2000; Preece & Jordan, 2007) and age of onset (Mavropoulou & Padelidiadu, 2000;

Preece & Jordan, 2007; Schwartz & Drager, 2008; Stone, 1987). Preece and Jordan (2007) found that social workers reported knowing more about the characteristics of ASD than about evidence-based practices for ASD. However, the literature regarding knowledge about ASD among social workers is sparse, and researchers have yet to examine knowledge about ASD among graduate social work students, which indicates a gap in the literature.

### **Attitudes toward ASD**

This section describes professionals' and students' attitudes toward ASD. The current search yielded numerous studies exploring attitudes in two primary areas: attitudes toward individuals with ASD and attitudes toward working with individuals with ASD. The studies examining attitudes toward individuals with ASD sampled teachers (Park & Chitiyo, 2011) and undergraduate students in education programs (Park, Chitiyo, & Choi, 2010). One study explored attitudes toward working with individuals with ASD among undergraduate students in different human service professions, including social work.

Researchers have explored in-service and pre-service teachers' attitudes toward students with ASD, primarily focusing on teachers' perceptions of inclusive education for students with ASD. Park et al. (2010) examined attitudes toward ASD among undergraduate students majoring in education ( $N=131$ ). The typical student surveyed was female (61.8%) and was between the ages of 20 and 35 years (93.2%). The Autism Attitude Scale for Teachers (AAST) was used to assess the pre-service teachers' attitudes toward students with ASD, with a particular focus on attitudes about the appropriateness of inclusive education for students with ASD (Park et al., 2010). The latter researchers found that students majoring in education had positive attitudes toward inclusive education for students with ASD, as indicated by high scores on the AAST ( $M=4.06$  on a 1-5 scale,  $SD=0.81$ ). Park and Chitiyo (2011) replicated the study by Park et al.

(2010) and found that in-service teachers also have positive attitudes toward students with ASD. Using a primarily female sample of 127 in-service teachers, Park and Chitiyo (2011) reported a mean AAST score of 4.06 ( $SD=0.81$ ), indicating positive attitudes toward the inclusion of students with ASD in mainstream schools.

Duvdevany et al. (1995) surveyed students ( $N=46$ ) in undergraduate introductory social work courses at an Israeli university about their attitudes toward individuals with DD, including ASD, and their attitudes toward individuals with DD living in the community. Using an instrument and data from a previous study (viz., Roth & Smith, 1983), Duvdevany et al. (1995) compared Israeli students' attitudes with those of the Arkansas general public. The researchers found that undergraduate social work students had more positive attitudes toward individuals with DD than did the general public. For example, as opposed to only 31% of the general public, 52.3% of students indicated that they believed individuals with DD should have the same rights as anyone else (Duvdevany et al., 1995). Social work students also had more positive views about community living, as compared with the general public.

The current search yielded only one study that explored attitudes toward working with individuals with ASD. Using a sample of 42 female undergraduate students in human service professions, that included a subsample of social work students ( $n=10$ ), Werner (2011) conducted an elicitation study to identify common attitudes toward working with individuals with ASD. Using qualitative interview data, Werner (2011) identified the attitudes most commonly held by participants. The majority of the students responded that they believed that working with individuals with ASD requires a high level of commitment and can be physically and emotionally draining. Students also indicated that working with individuals with ASD would be frustrating due to the communication deficits of this population, the relatively small increments

of positive behavioral change in clients, and the inability to appreciate long-term results of continuous treatment (Werner, 2011). Another common theme that emerged from students' attitudes was the prevalence of stigma related to working with individuals with ASD. Students shared that they believe that this stigma was related to low knowledge about ASD and lack of educational opportunities related to ASD (Werner, 2011). Among the overall sample of students, the social work subsample endorsed attitudes about stigma more frequently than did students in other specializations (Werner, 2011). Attitudes regarding the ability to help individuals with ASD were also analyzed by Werner (2011). For example, some social work students shared the belief that the benefits of clinical work with individuals with ASD was limited due to communication deficits of this population; whereas students in other programs expressed more positive views about their profession's expertise in helping individuals with ASD (Werner, 2011). Despite the prevalence of negative attitudes, Werner (2011) also found that students also held some positive attitudes toward working with individuals with ASD, as indicated by the beliefs that working with the population was important and that such work provides opportunities for personal and professional development.

Researchers have explored teacher and student attitudes toward inclusion of individuals with ASD in schools and communities. Only Werner (2011) examined attitudes among students in human service professions, which included a small subsample of undergraduate social work students. The latter study showed that undergraduate social work students held less favorable attitudes toward their profession's role in the field of ASD than students in other disciplines; however, social work students also held some positive attitudes, such as believing that practice with individuals with ASD is important work. No studies yielded from the current search of the

literature examined attitudes toward working with individuals with ASD among graduate social work students.

### **Interrelationships among Interest and Related Variables**

The current study examined graduate social work students' knowledge, attitudes, self-efficacy, formal training, contact, and interest regarding ASD. This section of the literature review describes empirical studies undertaken with professionals and students in human service disciplines that have explored interrelationships among these latter variables. In addition to studies in the areas of ASD and DD, this section also describes research that examines knowledge, attitudes, interest, and other variables in the areas of aging and serious mental illness. Information gleaned from these latter fields of practice informs the current study because social work students traditionally report low levels of interest in working with older persons and those with chronic mental illness.

### **Variables Associated with Attitudes**

Research examining correlates of attitudes toward working with various populations has shown that self-efficacy, knowledge, attitudes, and interest are interrelated. In Werner's (2011) study of undergraduate students in various human service professions, attitudes toward working with individuals with ASD were related to perceived knowledge. In a cross-sectional study that sampled graduate social work students ( $N=252$ ), Olson (2011) found that attitudes toward older adults were significantly related to self-efficacy. Using a sample of Portuguese undergraduate students ( $N=460$ ), Goncalves et al. (2011) found a positive relationship between attitudes toward older adults and interest in working with older adults, which included a subsample of 220 social work students. Eack and Newhill's (2008) cross-sectional study showed that social work

students' attitudes toward working with persons with schizophrenia were related to their perceived knowledge about the mental disorder.

In studies examining variables related to social work students' interest in various fields of practice, researchers also found that attitudes were associated with interest (Csikai & Belanger, 2002; Krumer-Nevo & Weiss, 2006). For example, Csikai and Belanger (2002) sampled BSW ( $n=143$ ) and MSW ( $n=33$ ) students to examine the relationship between attitudes toward and interests in various fields of practice, including school social work, children's services, child welfare services, medical social work, substance abuse, mental health, and gerontology. This study showed that negative attitudes, particularly the belief that working in a particular field of practice would be depressing, predicted low levels of interest in that field of practice (Csikai & Belanger, 2002). Using a convenience sample of 521 BSW students, Krumer-Nevo & Weiss (2006) explored the associations between attitudes toward and interest in working with numerous client groups. The latter researchers found that the attitude that working with a client group contributed to professional growth was positively associated with interest in working with a client group. Also, the study showed that students' aversion toward a client group is negatively associated with interest in working with a client group (Csikai & Belanger, 2002).

### **Variables Associated with Coursework**

Coursework has been found to influence students' self-efficacy, attitudes, and interest. For example, Olson (2011) found that the presence of specific gerontology content in the social work curriculum was positively related to students' self-efficacy. Werner (2011) found that coursework in ASD was related to positive attitudes toward individuals with ASD among undergraduate students. Researchers have also found that coursework is positively related to



interest in DD among graduate students in human service professions (Russo-Gleicher, 2008; Viecili, MacMillin, Weiss, & Lunsky, 2010).

### **Variables Associated with Contact**

Studies that have surveyed social work students have shown that personal contact positively influences attitudes toward working with individuals with ASD (Werner, 2011) and schizophrenia (Eack & Newhill, 2008). Previous contact with older adults also has been shown to be related to students' interest in gerontological social work (Goncalves et al., 2011). Viecili et al. (2010) found that psychology graduate students with greater amounts of community-based exposure to individuals with DD reported higher levels of interest in practicing in the field of DD. Elicitation studies with social work students and professionals suggest that formal field experiences may also influence social work students' interest in working in the fields of DD (Russo-Gleicher, 2008) and mental illness (Werrbach & DePoy, 1993).

In sum, previous research that has surveyed various professionals and students has shown that knowledge, attitudes, self-efficacy, and interest are interrelated. Researchers have discovered that attitudes are positively related to self-efficacy (Olson, 2011), knowledge (Eack & Newhill, 2008; Werner, 2011), and interest (Csikai & Belanger, 2002; Krumer-Nevo & Weiss, 2008). Also, relationships among background variables, such as contact and coursework, have been discovered. For example, studies have shown that attitudes are positively associated with coursework and personal contact (Eack & Newhill, 2008; Werner, 2011). Researchers also found that interest was positively related to curriculum (Olson, 2011), general contact (Goncalves et al., 2011), and formal field experiences (Russo-Gleicher, 2008; Werrbach & DePoy, 1993). The current research contributes to this existing knowledge by exploring these variables in relation to ASD among graduate social work students.

## **Limitations of Empirical Studies**

The major limitations of the studies described in this literature review include reliance on cross-sectional designs, threats to generalizability, and measurement issues.

All of the studies that examined knowledge, attitudes, interest, and other related variables used cross-sectional designs. Cross-sectional designs only measure relationships among variables at one point in time (Rubin & Babbie, 2010), thus the reviewed studies have not examined changes in the participants' attitudes, knowledge, and other variables, or how these relevant variables translate into actual practice behaviors and career choices.

In the reviewed studies, generalizability was limited due to the use of non-probability sampling methods (Rubin & Babbie, 2010). Random sampling increases the power of research designs; however, despite its limitations, convenience sampling is often used in social services research due to the impracticality of random sampling (Rubin & Babbie, 2010). All of the reviewed studies, except for one (i.e., Cascella & Collella, 2004), examining knowledge, attitudes, interest, and related variables utilized convenience samples. The use of non-probability sampling methods also compromises the representativeness of a study's sample. For example, the reviewed studies used disproportionately female samples (e.g., Csikai & Belanger, 2002; Duvdevany et al., 1995; Eack & Newhill, 2008; Goncalves et al., 2011; Werner, 2011). While females are representative of students in these fields, the findings from these studies may not be generalizable to male students in these same professions. Also, approximately half of the studies were conducted in countries other than the United States, including England (Helps et al., 1999; Preece & Jordan, 2007), Israel (Duvdevany et al., 1995; Krumer-Nevo & Weiss, 2006; Werner, 2011), Portugal (Goncalves et al., 2011), Canada (Viecili et al., 2010), and Greece (Mavropoulou & Padeliadu, 2000). Thus, there is a relatively small body of literature that can be generalized to

social work students in the United States due to the differences in university systems and social work education in other countries. Another limitation regarding representativeness was that participants in many studies were sampled from only one institution or setting (e.g., Heidgerken et al., 2005; Park et al., 2010; Werner, 2011). Sample size can also limit generalizability (Rubin & Babbie, 2010). Only four studies included over 200 participants (Goncalves et al., 2011; Krumer-Nevo & Weiss, 2006; Viecili et al., 2010), and several studies reported sample sizes with fewer than 50 participants (viz., Duvdevany et al., 1995; Preece & Jordan, 2007; Russo-Gleicher, 2008; Werner, 2011).

In addition to problems with research design and sampling, measurement was an issue. Several studies relied on solely self-report data (Casella & Colella, 2004; Heidgerken et al., 2005; Stone, 1987; Stone & Rosenbaum, 1988), which may affect the accuracy of participants responses because participants are more likely to rate themselves in a socially desirable manner (Rubin & Babbie, 2010). Other measurement issues were related to reliability and validity of the instruments utilized in the reviewed studies. Reliability refers to the degree to which an instrument measures a variable consistently, and validity refers to how accurately an instrument measures the real meaning of a variable (Rubin & Babbie, 2010). Although reliability and validity have been established for Stone's (1987) Autism Knowledge Survey (Campbell, Reichle, & Van Bourgondien, 1996), the measure merely collects self-report data about knowledge. A number of researchers have adapted Stone's (1987) Autism Knowledge Survey to include more objective measures of knowledge, including true-false and multiple-choice questions (viz., Helps et al., 1999; Schwartz & Drager, 2008; Preece & Jordan, 2007); however, the reliability and validity of these adapted versions have not been empirically established. Scales measuring perceived competence (Schwartz & Drager, 2008), attitudes (Duvdevany et al.,

1995), contact (Eack & Newhill, 2008; Schwartz & Drager, 2008; Viecili et al., 2010), and interest (Csikai & Belanger, 2002; Goncalves et al., 2011; Olson, 2007; Viecili et al., 2010; Werrbach & DePoy, 1993) were researcher developed and not tested for reliability and validity.

In sum, the reviewed studies examining knowledge, attitudes, and other variables used cross-sectional designs and small, predominately female, convenience samples of undergraduate social work students. Generalizability to U.S. social work students is further limited due to the use of nonprobability sampling methods and the use of samples from institutions in other countries. Measurement issues, such as the use of self-report data and untested measures, further compromise the rigor of the survey research undertaken with social work and other students.

### **Summary and Implications of the Literature Review**

This section discusses the implications of reviewed research for the current study. Major contributions to and gaps in the current literature will be summarized. Also, the section will describe the expected contributions of the current study to the existing knowledge base about professionals' interest in working with individuals with ASD.

### **Major Findings and State of Knowledge**

This first subsection discusses the major findings that emerged from reviewing the relevant literature about professionals' knowledge, attitudes, self-efficacy, contact, formal training, and interest regarding ASD. The subsection will also identify specific gaps in the literature addressed by the current study.

Researchers have shown that professionals across multiple disciplines hold misconceptions about ASD (Casella & Colella, 2004; Heidgerken et al., 2005; Schwartz & Drager, 2008; Stone, 1987; Stone & Rosenbaum, 1988). In a small study, Preece and Jordan (2007) illustrated that social workers may have similar gaps in knowledge about ASD. In most

studies, researchers measured knowledge using self-report surveys (Casella & Colella, 2004; Heidgerken et al., 2005; Stone, 1987; Stone & Rosenbaum, 1988), which only measured participants' perceptions of their own knowledge. The current study expanded the exploration of knowledge about ASD to graduate social work students, and it used a more objective measure of knowledge with true-false questions.

The corpus of research shows that human service professionals and students generally report positive attitudes toward individuals with ASD. Research regarding social work students' attitudes toward working with individuals with ASD is limited, as only one qualitative study specifically addressed students' attitudes toward working with this population (Werner, 2011). The current study contributes to the knowledge base by using a quantitative approach to describe graduate social work students' attitudes toward working with individuals with ASD.

The search yielded no studies that examined interest in working with individuals with ASD among students and professions in any discipline, including social work. Several studies explored social work students' interest in DD, which includes ASD, in addition to other fields of practice. These latter studies showed that social work students report low levels of interest in working in the field of DD (Aviram & Katan, 1991; Butler, 1990; Rubin & Johnson, 1984). The current study contributes to the knowledge base by measuring graduate social work students' interest in working with individuals with ASD.

In addition, the search yielded no studies that explored the concept of self-efficacy with regard to working with individuals with ASD, which indicates a gap in the literature, although self-efficacy was examined with other populations. The current research bridges this gap by examining graduate social work students' self-efficacy in working with individuals with ASD, using a research-developed scale that is rooted in relevant literature (e.g., Holden, Anastas,

Meenaghan, & Metry, 2002; Pennington, 2005; Schwartz & Drager, 2008; Werrbach & DePoy, 1993).

The literature review suggests that professionals often hold misconceptions about the etiology and symptoms of ASD. Although students and professionals generally hold positive views toward individuals with ASD, students report low interest in the field across studies (e.g., Aviram & Katan, 1991; Butler, 1990; Rubin & Johnson, 1984). The reviewed literature included no studies undertaken with graduate social work students in the area of ASD and no studies at all that examined professionals' self-efficacy in working with individuals with ASD.

### **Concluding Statements**

The social work profession possesses a unique perspective that aligns with practice in the field of DD. With increasing rates of diagnosis of ASD, qualified professionals are needed to serve children and families that comprise this growing population. However, few social workers enter this area of practice (Whitaker & Arrington, 2008). Previous research in the areas of gerontology (e.g., Goncalves et al., 2011; Olson, 2011), mental health (e.g., Eack & Newhill, 2008; Werrbach & DePoy, 1993), and DD (e.g., Russo-Gleicher, 2008; Werner, 2011) suggests that knowledge, attitudes, self-efficacy, formal training, and contact may influence social work students' interest in working with particular populations. The current research contributes to this body of knowledge about graduate social work students by examining the interrelationships among variables regarding ASD.

## **CHAPTER 3: CONCEPTUAL FRAMEWORK**

### **Purpose**

The current correlational, cross-sectional study was undertaken with graduate social work students and it examined the interrelationships among knowledge about ASD, attitudes toward working with individuals with ASD, self-efficacy in working with individuals with ASD, formal training in ASD, and contact with individuals with ASD.

### **Hypotheses**

The current study investigated the following hypotheses:

1. Participants' self-efficacy in working with individuals with ASD is positively related to their knowledge about ASD, formal training regarding ASD, and contact with individuals with ASD.
2. Participants' interest in working with individuals with ASD is positively related to their self-efficacy in working with individuals with ASD, attitudes toward working with individuals with ASD, formal training regarding ASD, and contact with individuals with ASD.

These hypotheses are based on SCCT, which suggests that individuals' personal performance achievements influence self-efficacy. For the current study, knowledge, formal training, and contact represent personal performance achievements. SCCT also hypothesizes that self-efficacy and outcome expectations (i.e., attitudes) are related to career interest (Lent & Brown, 1996).

The current study also aimed to answer the following research questions:

1. Are there differences between foundation- and advanced-year students with respect to knowledge, self-efficacy, attitudes, interest, formal training, and contact regarding ASD?

2. Do differences exist in scores on measures of the relevant variables between students who did and did not report the several types of contact (i.e., field, work, volunteer, personal) with individuals with ASD?

### **Definitions of Key Terms**

This section defines the key terms in the current research study examining self-efficacy and interest in working with individuals with ASD among graduate social work students. The specific instrumentation for measuring key concepts is described in the Methodology section.

#### **Autism Spectrum Disorders (ASD)**

ASD is a group of developmental disabilities, including autistic disorder, Asperger's syndrome, and pervasive developmental disorder not otherwise specified (APA, 2000). Although the *DSM-IV-TR* (APA, 2000) does not categorize these disorders in this manner, this categorization is used in the current study because the term ASD recognizes that autism is a "spectrum" disorder representing a population of people with a wide range of abilities and characteristics (NIMH, 2008). ASDs are characterized by impairments in social interaction; communication deficits; and restrictive activities, interests, and behaviors (APA, 2000).

#### **Knowledge**

Preece and Jordan (2007) used the term knowledge interchangeably with the term understanding. Therefore, in the current study, knowledge refers to the understanding of ASD, including its etiology, symptoms, characteristics, and relevant treatments.

#### **Attitudes**

The current study uses Eagly and Chaiken's (1993) definition of attitude, which describes a person's predisposition to evaluate something favorably or unfavorably. Attitudes toward working with individuals with ASD among MSW students were explored in this study.



**Self-Efficacy**

In general, self-efficacy refers to “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p. 391). In the current study, self-efficacy refers to MSW students’ perceptions of their abilities to intervene effectively with individuals with ASD.

**Interest**

In relevant research, interest has been described as a preference (Krumer-Nevo & Weiss, 2006; Aviram & Katan, 1991) and an intention (Clements, 2008; Werner & Grayzman, 2011). In the current study, interest includes MSW students’ preference for working with individuals with ASD and their intention to practice with clients with ASD upon graduation.

**Contact**

In the current study, contact refers to interactions MSW students reported having with individuals with ASD in field (i.e., internship), paid work, volunteer, and personal settings.

**Formal Training**

Formal training includes coursework that addressed ASD in students’ MSW program and professional workshops centered on ASD issues. Methods of instruction regarding how information about ASD was delivered in MSW courses were also examined.

## **CHAPTER 4: METHODOLOGY**

The purpose of this cross-sectional, exploratory-descriptive study was to examine the interrelationships among graduate social work students' knowledge about ASD, self-efficacy in working with individuals with ASD, attitudes toward working with individuals with ASD, interest in working with individuals with ASD, formal training in ASD, and contact with individuals with ASD.

### **Sample**

The sample included 97 graduate social work students who voluntarily participated in the current research. Participants were recruited from a population of approximately 200 students enrolled in a MSW program at a school of social work in the southeast region of the United States utilizing an availability sampling method. Due to the use of a convenience sample from a single institution, the results from the current study are generalizable to only students with similar educational backgrounds from the southeast region of the United States.

Rubin and Babbie (1993) recommend a sample size of 80 to 100 to obtain an adequate level of power (.83-.86), at a level of significance of .05, to detect a medium effect size (.60). Therefore, the sample size for the current study ensures sufficient power for bivariate analyses of data.

### **Protection of Human Subjects**

The procedures for the collection of data in the current study allowed participants to remain anonymous. The data were collected using a voluntary, self-report survey instrument. Participants did not receive compensation for their participation. Written information about the study was provided at the beginning of the survey. The written script also notified participants that they were providing their informed consent by completing and turning in the survey. No

identifying information was collected, and there was no risk of harm to participants. Thus, this research was granted exemption from Institutional Review Board oversight.

### **Design and Procedure**

The current study utilized a cross-sectional design to determine correlates of self-efficacy and interest in working with persons with ASD among social work students. The researcher pre-tested the survey with 7 social work doctoral students, who were not included in the participant pool, to ensure clarity of items and to obtain an average time for survey completion. The researcher explained the purpose of the current study and the voluntary nature of the pre-testing exercise. The Ph.D. students were instructed to complete the survey, record their start and end times, and then provide written comments regarding the wording of items. The length of time for completing the survey ranged from 7 to 10 minutes. Based on feedback from pre-testing, numerous items on the knowledge and attitude scales were reworded to improve clarity.

After pre-testing, permission was obtained from five instructors to distribute surveys to MSW students in their classes. To reach as many students as possible, the researcher chose to distribute surveys in courses required for graduation from the program. Over a 2-week period during the Spring 2012 semester, the researcher attended seven classes to hand out surveys and describe the purpose of the research project to prospective participants. The participants were instructed to complete the survey outside of class time and to return completed surveys to a designated bin in a common area. The researcher collected surveys from the bin on a daily basis during the data collection period.

### **Measurement**

The current study examined graduate social work students' knowledge about ASD, attitudes toward working with individuals with ASD, self-efficacy in working with individuals

with ASD, interest in working with individuals with ASD, formal training in ASD, and contact with individuals with ASD. The researcher developed scales to measure these variables. The knowledge scale assessed participants' understanding of ASD through questions about symptoms, etiology, prognosis, characteristics, co-morbid diagnoses, and treatments. Self-efficacy was measured with a self-report scale on which participants ranked how confident they felt in their abilities to work with individuals with ASD. Attitudes toward working with persons with ASD were measured using a scale adapted from related research on social work students' interests, which assessed participants' beliefs and perceptions about working with certain populations (Csikai & Belanger, 2002). The formal training section included two questions regarding participants' graduate-level coursework related to ASD and participation in workshops focused on ASD. Contact referred to participants' personal, work, field (internship), and volunteer experiences with ASD, and it was measured using questions designed based on previous research on social work students' contact with persons with schizophrenia (Eack & Newhill, 2008).

### **Instrumentation**

A 65-item, researcher-developed survey, consisting of 7 sections, was used to measure participants' knowledge about ASD, self-efficacy in working with persons with ASD, attitudes toward working with individuals with ASD, interest in working with individuals with ASD, formal training in ASD, and contact with persons with ASD.

#### **Knowledge about ASD**

The knowledge scale consisted of 30 true-false items that assessed participants' understanding of the symptoms, etiology, characteristics, prognosis, co-morbid conditions, and treatments of ASD. The scale was developed based on Stone's (1987) original Autism Survey

and its recent adaptations in the professional literature regarding ASD (Mavropoulou & Padelidiadu, 2000; Schwartz & Drager, 2008; Stuart, Swiezy, & Ashby, 2008; Williams, Schroeder, Carvalho, & Cervantes, 2011). Participants were given three response choices for each item: *true*, *false*, and *don't know*. Correct responses were coded as "1," and incorrect responses were coded as "0." *Don't know* responses were considered incorrect. The total correct responses were summed for a total score. The accuracy of items was confirmed by accepted facts found in recent, professional literature regarding ASD. The possible range of scores was 0 to 30, with higher scores indicating higher levels of knowledge. Knowledge was measured at the ratio level (Rubin & Babbie, 2010).

### **Self-Efficacy in Working with Individuals with ASD**

The 8-item researcher-developed self-efficacy scale measured the participants' confidence in their abilities to work effectively with individuals with ASD. The structure of the scale was based on the Social Work Self-Efficacy Scale (Holden et al., 2002). Participants were asked to rank their confidence in their ability to complete a task related to work with individuals with ASD and their families using an 11-point scale from 0 to 100 (0=*cannot do at all*, 50=*moderately certain can do*, 100=*certain can do*). The tasks on the self-efficacy scale were developed using self-report perceived competence scales used with social work students (Pennington, 2005; Werrbach & DePoy, 1993) and perceived competence scales used with professionals working with individuals with ASD (Schwartz & Drager, 2008). The possible range of scores is 0 to 800; however, these scores were recoded to a scale of 0 to 80. Higher scores on the scale indicated higher levels of self-efficacy in working with individuals with ASD. Self-efficacy was measured at the ratio level (Rubin & Babbie, 2010).

### **Attitudes toward Working with Individuals with ASD**

Attitudes toward working with persons with ASD were measured using an 11-item scale adapted from instruments used by other researchers to assess students' attitudes toward working with specific populations (Csikai & Belanger, 2002; Cummings, Adler, & DeCoster, 2005). Participants were asked to rank their level of agreement with each item using a 6-point Likert scale. The possible range of scores was 11 to 66, with higher scores indicating more positive attitudes toward working with persons with ASD. An example of a reverse-coded item from this scale is, "Working with individuals with ASD would be too demanding." Attitudes toward working with individuals with ASD were measured at the interval level (Rubin & Babbie, 2010).

### **Interest in Working with Individuals with ASD**

The interest scale consisted of 5 items developed by the researcher to assess graduate social work students' interest in working with individuals with ASD upon graduation. The scale was based on survey questions used in gerontological social work research to measure graduate social work students' interest in working with older adults (Cummings & Galambos, 2002; Cummings et al., 2005; Curl, Larkin, & Simons, 2005; Gutheil, Heyman, & Chernesky, 2009). Statements asked about students' interest in working with individuals with ASD and their likelihood of accepting a job working with individuals with ASD upon graduation. Three items assessed participants' interest in working with individuals across specific age groups (e.g., children and adolescents, adults, and older adults). The possible range of scores was 5 to 30, with higher scores indicating higher levels of interest in working with individuals with ASD. Interest was measured at the interval level (Rubin & Babbie, 2010).

## **Formal Training in ASD**

Formal training was assessed using two survey items that measured methods of instruction and workshops attended. The first item consisted of a list of different methods of instruction adapted from relevant research with graduate social work students (Joyner, 2008), and participants were asked to check off items in which they received information about ASD in their graduate-level social work courses. Responses included: *lecture presented by professor, presentation by classmates, group project, assigned readings, course assignments (other than group projects and assigned readings), guest speaker, use of media (e.g., video, audio, etc.), and other*. If the *other* response was selected, participants were asked to specify the method utilized. Each item checked was coded as “1,” and unchecked items were coded as “0.” The scores were summed for a total possible score of 7. Methods of instruction were measured at the ratio level (Rubin & Babbie, 2010).

The second item in the formal training section asked, “How many workshops outside of the classroom have you attended that have focused exclusively on ASD?” This item was adapted from relevant research on professionals’ training in ASD (Schwartz & Drager, 2008). Participants were asked to provide a numerical response to this question. Workshops were measured at the ratio level (Rubin & Babbie, 2010).

## **Contact with Individuals with ASD**

The contact scale included 4 yes-no questions regarding students’ interactions with individuals with ASD in personal, volunteer, field (i.e., internship), and work settings. These questions were developed by the researcher based on relevant research that assessed social work students’ contact with persons with schizophrenia (Eack & Newhill, 2008) and older adults (Cummings & Galambos, 2002; Cummings et al., 2005). Students were provided three response

choices: *yes*, *no*, don't know. *Yes* responses were coded as "1," and *no* and *don't know* responses were coded as "0." The possible range of scores for the scale was 0 to 4, with higher scores indicating higher levels of interest. Contact was measured at the ratio level (Rubin & Babbie, 2010).

Personal contact with persons with ASD was further assessed with an additional item that asked participants whether the personal interactions occurred within the context of a mutually meaningful relationship. Response choices included *yes*, *no*, and *don't know*. However, the latter item was not included in the overall scale score. The item assessing meaningful interactions was not included in the overall score, and it was measured at the nominal level (Rubin & Babbie, 2010).

### **Data Analysis**

Univariate statistics, including mean, median, mode, were used to obtain frequencies and to summarize data (Rubin & Babbie, 2010). Bivariate analyses were conducted to examine relationships among measures of knowledge, self-efficacy, attitudes, interest, formal training, and contact related to ASD. Pearson's product moment correlation coefficient ( $r$ ) was used to examine the relationships among variables measured at the interval and ratio levels (Rubin & Babbie, 2010). Due to the large number of relationships examined, correlations were considered significant when the p-value was at .01 or less, instead of the traditional  $p > .05$  significance cut-off, to ensure that the most significant correlations were reported (Rubin & Babbie, 2010). Independent  $t$ -tests were used to determine group differences between foundation- and advanced-year students and between participants with and without different types of contact with persons with ASD (Rubin & Babbie, 2010). Data were analyzed using the Statistical Package for the Social Sciences™.



## CHAPTER 5: RESULTS

The study sampled graduate social work students to explore interrelationships among knowledge about ASD, attitudes toward working with individuals with ASD, self-efficacy in working with individuals with ASD, formal training in ASD, and contact with individuals with ASD. The study sample consisted of 97 participants, with a response rate of 60%.

### Demographic Characteristics

The sample was composed of primarily white women in their early to mid-twenties. Over three-fourths were female ( $n=84$ , 86.6%), and only 8.2% of the sample was male ( $n=8$ ). Five respondents did not provide data about their gender. Most respondents were Caucasian ( $n=73$ , 75.3%), with the rest of the respondents reporting African-American ( $n=17$ , 17.3%), or other ethnicities ( $n=3$ , 3.1%). Four participants did not provide data about their race and ethnicity. Ages ranged from 22 to 52 years old. The mean age of participants was 26.4 years old ( $SD=1.47$ ), and the median was 24 years old. Two participants did not report their age. All but one respondent reported their year of study, with 57 reporting advanced-year, 39 reporting foundation-year.

### Knowledge

Knowledge about ASD among participants was assessed using a researcher-developed scale consisting of 30 true-false questions regarding diagnosis, characteristics, etiology, and treatment of ASD. The scale was developed based on Stone's (1987) original Autism Survey and its recent adaptations in the professional literature regarding ASD (Mavropoulou & Padelidau, 2000; Schwartz & Drager, 2008; Stuart et al., 2008; Williams et al., 2011). Items were coded as incorrect (0) or correct (1). *Don't know* responses were coded as incorrect (0).

The total scores for the knowledge scale ranged from 0 to 22, with a highest possible score of 30. The mean score for the knowledge scale among all participants was 14.4 ( $SD=4.73$ ), meaning that the average participant answered 48% of items correctly. Table 1 shows the frequency and percentage of correct responses for each of the 30 items from the knowledge scale. With regard to knowledge about treatment, approximately three-fourths of participants (78.4%) knew that there is no cure for ASD; but fewer than 20% knew that injection of secretin (i.e., a hormone used in the digestive process of humans) is not a validated medical treatment, and only two correctly answered the question about facilitated communication (See Table 1). Overall, a total of only 5 items were answered correctly by at least two-thirds of the participants.

### **Self-Efficacy**

Self-efficacy in working with individuals with ASD was assessed using a 6-point Likert scale that prompted participants to indicate how confident they felt in successfully completing eight different tasks related to working with individuals with ASD. The scale's structure was borrowed from the Social Work Self-Efficacy Scale (Holden et al., 2002), and the items were adapted from self-report perceived competence scales used with social work students (Pennington, 2005; Werrbach & DePoy, 1993) and professionals working with individuals with ASD (Schwartz & Drager, 2008). A Cronbach's alpha was computed to assess the internal consistency of the self-efficacy scale. This measure was deemed reliable for the sample (Cronbach's alpha = .896). Scores on the self-efficacy scale ranged between 1 and 73, with a possible scale score of 80. The mean score was 34.5 ( $SD=16.39$ ). Table 2 shows the mean response for each individual item from the self-efficacy scale. As shown in Table 2, participants rated their self-efficacy highest for using a screening tool to identify ASD among young children ( $M=5.6$ ,  $SD=2.93$ ), whereas they rated their self-efficacy lowest for creating effective treatment

plans for individuals with ASD ( $M=3.6$ ,  $SD=2.59$ ) and for describing evidence-based treatments for ASD ( $M=3.6$ ,  $SD=2.85$ ).

### **Attitudes**

Attitudes toward working with individuals with ASD were assessed using a researcher-developed scale that was adapted from related, previous research on MSW students' career interests (Csiaki & Belanger, 2002). The 11 items on the scale were answered using a Likert scale (response options ranged from 0 to 6), yielding a total scale score of 66, with a possible range of 11 to 66. Higher scores indicated more positive attitudes. Five negatively worded items were reverse coded prior to analysis. Participants' overall scores ranged from 34 to 64. The total mean score was 52.4 ( $SD=5.81$ ). Table 2 shows the mean for each item of the attitudes scale. In terms of the most favorable attitudes, participants believed that working with individuals with ASD provided opportunities to develop skills as a social worker ( $M=5.5$ ,  $SD=0.68$ ) and that the work was important to society ( $M=5.4$ ,  $SD=1.00$ ; See Table 2).

### **Interest**

The survey included a researcher-developed scale, adapted from measures assessing social work graduate student's interest in gerontology (Cummings & Galambos, 2002; Cummings et al., 2005; Curl et al., 2005; Gutheil et al., 2009), to measure participants' interest in working with individuals with ASD. The 5 items on the scale were answered with a 6-point Likert scale, yielding an overall scale score of 30 (Range= 5-30). A Cronbach's alpha was computed to assess internal consistency, and the scale was deemed reliable for the sample (Cronbach's alpha=.896). The mean overall score was 16.9 ( $SD=5.89$ ). Overall, participants reported the greatest amount of interest in accepting a job working with individuals with ASD ( $M=4.1$ ,  $SD=1.36$ ), whereas participants reported relatively lower levels of interest in working

with children ( $M=3.2$ ,  $SD=1.38$ ), adults ( $M=3.0$ ,  $SD=1.28$ ), and older adults ( $M=2.9$ ;  $SD=1.47$ ) with ASD. Participants reported a mean score of 3.7 ( $SD=1.47$ ) for working with individuals with ASD in general.

### **Formal Training**

Formal training was measured with two different survey items: number of methods of instruction and number of workshops attended. For methods of instruction, participants were asked to check off the different learning activities through which they received information about ASD in their graduate courses (e.g., lecture presented by professor, presentation by classmates, group project, assigned readings, etc.). Items were coded as *yes* (1) or *no* (0), with overall scale scores ranging from 0 to 7. The overall scale score indicated the number of instructional methods by which participants received information about ASD while enrolled in the MSW program. The mean overall score for the sample was 2.2 ( $SD=1.52$ ), and the mode was 1, indicating that participants most often reported receiving information about ASD through one method of instruction.

Formal training was also measured with one survey item asking participants to report the actual number of workshops attended that related to ASD. The number of workshops attended ranged from 0 to 10. Five participants (5.2%) reported having attended one workshop, and three participants (3.0%) reported having attended two or more workshops. The majority of participants ( $n=89$ , 91.8%) reported never attending a workshop on ASD.

Table I

Number and Proportion of Participants with Correct Answers ( $N=97$ )

Knowledge Item	<i>n</i>	%
All children with ASD display poor eye contact.	54	55.7
Individuals with ASD typically perform better when tasks are presented visually than when tasks are presented verbally.	63	64.9
Problems with social relatedness that are present in ASD are different from these same problems seen in other psychiatric conditions.	55	56.7
Children must exhibit impaired social interaction to receive a diagnosis of ASD.	65	67
ASD is more frequently diagnosed in males than in females.	74	76.3
Most parents/caregivers of children with ASD report their first concerns were related to child's social behavior.	22	22.7
Research shows that ASD has a strong genetic component.	35	36.1
Children must exhibit behaviors and interests that are repetitive and stereotyped to receive a diagnosis of ASD.	30	30.9
ASD can be cured with proper treatment.	76	78.4
ASD can be diagnosed as early as 18 months.	56	57.7
ASD occurs more commonly among higher socioeconomic and educational levels.	46	47.4
The need for routines and sameness is one of the earliest behavioral features of ASD.	70	72.2
Vaccines contribute to the onset of ASD.	59	60.8
Individuals with ASD rarely show affection.	45	46.4

(Table 1, continued...)

Knowledge Item	<i>n</i>	%
Research has shown that prenatal exposure to certain medications may be related to the onset of ASD.	39	40.2
Children must exhibit self-injurious behavior to receive a diagnosis of ASD.	83	85.6
Most individuals with ASD never develop speech.	82	84.5
Injection of the hormone secretin in the stomach is a validated medical treatment for ASD.	17	17.5
Most children with ASD have an accompanying intellectual disability (i.e., mental retardation).	44	45.4
Some children with ASD exhibit either over-sensitivity or under-sensitivity to pain.	54	55.7
Children must exhibit impaired communication skills to receive a diagnosis of ASD.	56	57.7
Individuals with ASD frequently have savant characteristics (e.g., special talents or abilities).	8	8.2
Children with ASD are entitled to services from the federal government from birth to age 3.	27	27.8
It is common for adolescents with ASD to show symptoms of depression.	32	33.0
Most individuals with ASD are treated with psychotropic medications to alleviate symptoms.	21	21.6
Facilitated communication is an evidence-based treatment for ASD.	2	2.1
Most individuals with ASD experience gastrointestinal difficulties (e.g., chronic constipation, diarrhea, and abdominal pain).	19	19.6
Epilepsy (seizure disorder) is a common co-occurring condition for individuals with ASD.	31	32.0

Table 2

## Self-Efficacy and Attitudes toward Working with Individuals with ASD (N=97)

	<i>M</i>	<i>SD</i>
<i>Self-Efficacy</i>		
Identify common characteristics of ASD	4.6	2.22
Use reliable ASD screening tool with young children	5.6	2.93
Describe evidence-supported treatments for ASD	3.6	2.85
Counsel parents/guardians of individuals with ASD	4.1	2.59
Create effective treatment plan for individual with ASD	3.6	2.59
Direct families to community resources for ASD	5.3	2.92
Describe early signs and symptoms of ASD	4.2	2.76
Describe impact of social policies on individuals with ASD	3.6	2.64
<i>Attitudes</i>		
Depressing*	5.2	0.90
Important to society	5.4	1.00
Financially rewarding	3.5	1.31
Concern for physical safety*	4.9	0.98
Deals with uncomfortable issues*	4.9	0.93
Personal experiences with services	3.3	1.35
Too demanding*	4.4	1.05
Opportunities for personal growth	5.3	0.86
Little hope for change*	5.3	1.01
Opportunity to build social work skills	5.5	0.68
Opportunities for career advancement	4.8	1.01

\* reverse coded prior to analysis

## Contact

The survey included 5 questions that assessed participants' interactions with individuals with ASD in professional settings (i.e., field, work, volunteer) and in their personal lives. Participants reported *yes*, *no*, or *don't know*. For the four different types of interactions, a positive response was coded as "1", whereas other responses were coded as "0." Thus, overall scores ranged from 0 to 4. The mean score for the sample was 1.4 ( $SD=1.00$ ). The mode was 1, indicating that participants most often reported interacting with individuals with ASD in one type of setting. Well over one half of participants ( $n=59$ , 60.8%) reported interacting with individuals with ASD in their personal lives; however, only 26.8% of all participants reported having personal interactions with individuals with ASD within the context of a mutually meaningful relationship ( $n=26$ ). Over one third of participants ( $n=36$ , 37.1%) reported interacting with individuals with ASD in a volunteer setting. Less than one-fourth ( $n=22$ , 22.7%) reported having interactions with individuals with ASD in a paid work setting, and only 15.5% ( $n=15$ ) reported interacting with individuals with ASD in their field placements.

## Correlates of Self-Efficacy and Interest

The current research hypothesized that participants' self-efficacy in working with individuals with ASD would be positively related to participants' knowledge about ASD, formal training, and contact. Table 3 shows a correlation matrix that was computed to examine interrelationships among these latter variables. As seen in Table 3, the mean self-efficacy score showed a moderate and positive association with knowledge ( $r=.30$ ), methods of instruction ( $r=.34$ ), and contact ( $r=.35$ ), all of which were significant at  $p<.01$ . There was a weak and positive association between self-efficacy and workshops ( $r=.22$ ); however, this association was not significant.



The current study also hypothesized that participants' interest in working with individuals with ASD would be positively related to participants' self-efficacy, attitudes, formal training, and contact. As seen in Table 3, the mean score for interest showed a strong and positive association with attitudes ( $r=.55, p<.01$ ). The mean interest score showed a weak and positive association with contact ( $r=.27, p<.01$ ). There was also a weak and positive correlation between interest and self-efficacy ( $r=.20$ ); however, the latter association was not significant. The correlation matrix indicated virtually no associations between interest and methods of instruction ( $r=.04$ ) or workshops ( $r=.01$ ).

Table 3

Pearson's  $r$  Correlation Matrix of Self-Efficacy, Interest, and Other Relevant Variables

Variable	Knowledge	Self-efficacy	Attitudes	Interest	Methods	Workshops	Contact
Knowledge	-	.304*	.080	.171	.181	.150	.239
Self-efficacy	-	-	.292*	.203	.341*	.221	.353*
Attitudes	-	-	-	.551*	.019	.191	.373*
Interest	-	-	-	-	.036	.009	.271*
Methods	-	-	-	-	-	-.072	-.003
Workshops	-	-	-	-	-	-	.243
Contact	-	-	-	-	-	-	-

\* $p<.01$

### Differences in Year of Study and Types of Contact

In order to answer the question of whether there were differences between students on the major variables of interest (i.e., knowledge, self-efficacy, attitudes, interest, methods of instruction, workshop attendance, and contact), the mean scores were compared for foundation-

and advanced-year participants. The three response categories for year of study were recoded as either “1” for foundation ( $n=39$ ) or “2” for advanced students ( $n=57$ ). Advanced-standing students (i.e., those whose foundation year is waived by the virtue of their having a Bachelor’s Degree in Social Work) were coded as “2” to indicate advanced-year of study.

*T*-tests were performed to see if there were significant differences on major variables of interest between foundation- and advanced- year students (Rubin & Babbie, 2010). The mean score on the interest scale was higher for advanced-year students ( $M=17.9$ ,  $SD=6.23$ ) than for foundation-year students ( $M=15.4$ ,  $SD=5.11$ ). This difference was significant at  $t(92)=2.09$ ,  $p<.05$ . No differences between foundation- and advanced-year students emerged with respect to knowledge, self-efficacy, attitudes, methods of instruction, workshop attendance, and contact.

*T*-tests were also conducted to determine whether there were differences between students who did and did not report the various types of contact with individuals with ASD. No significant differences emerged between participants who reported interacting with individuals with ASD in a field setting and those who did not, with respect to knowledge, self-efficacy, attitudes, interest, methods of instruction, and workshop attendance.

Significant differences were found between participants who reported interacting with individuals with ASD in a work setting and participants who did not with regard to self-efficacy. The means score on the self-efficacy scale was higher for students who had interacted with persons with ASD in a paid work setting ( $M=41.2$ ,  $SD=19.25$ ) than for students who had not ( $M=32.6$ ,  $SD=15.05$ ). This difference was significant at  $t(95)=-2.20$ ,  $p<.05$ . No other differences emerged with respect to other variables of interest.

Participants who reported interacting with individuals with ASD in a volunteer setting scored significantly higher on measures of knowledge, attitudes, and interest than participants

who did not interact as volunteers. The mean score on the knowledge scale was significantly higher for participants with volunteer experience ( $M=15.7$ ,  $SD=4.22$ ) than for participants without volunteer experience ( $M=13.6$ ,  $SD=4.86$ ), at  $t(95)=-2.19$ ,  $p<.05$ . The mean score on the attitudes scale was significantly higher for students with volunteer experiences ( $M=55.0$ ,  $SD=5.10$ ) than for students without volunteer experience ( $M=50.9$ ,  $SD=5.70$ ), at  $t(94)=-3.57$ ,  $p<.05$ . Finally, the mean score on the interest scale was higher for students who reported interactions with individuals with ASD in a volunteer setting ( $M=19.2$ ,  $SD=5.94$ ) than for students who did not have volunteer experience with individuals with ASD ( $M=15.7$ ,  $SD=5.52$ ,  $t=-2.93(93)$ ,  $p<.05$ ). No significant differences emerged with regard to self-efficacy, methods of instruction, and workshops.

Differences were found between participants with and without personal experience with persons with ASD on measures of attitudes and self-efficacy. Personal experience included reported interactions that were within and were not within a mutually meaningful relationship. The mean score on the attitude scale was significantly higher for students who reported interacting with individuals with ASD in their personal lives ( $M=53.4$ ,  $SD=5.35$ ) than for those who did not report having interactions with persons with ASD in their personal lives ( $M=50.9$ ,  $SD=6.26$ ,  $t=-2.08(94)$ ,  $p<.05$ ). The mean score on the self-efficacy scale was also significantly higher for students reporting personal interactions ( $M=37.9$ ,  $SD=15.73$ ) than for those reporting no personal interactions ( $M=29.3$ ,  $SD=15.19$ ), at  $t(95)=-2.62$ ,  $p<.05$ . No differences emerged with regard to knowledge, interest, methods of instruction, and workshops.

Participants who reported having interactions with individuals within a mutually meaningful relationship ( $n=26$ ) scored significantly higher on measures of self-efficacy and interest than participants who did not report having mutually meaningful interactions ( $n=71$ ).

The mean score on the interest scale for students who reported having mutually meaningful personal interactions ( $M=19.2$ ,  $SD=6.01$ ) was significantly higher than for students who did not ( $M=16.1$ ,  $SD=5.83$ ), at  $t(93)=-2.30$ ,  $p<.05$ . The mean score for the self-efficacy scale was also significantly higher for participants reporting meaningful interactions ( $M=40.7$ ,  $SD=17.42$ ) than for those who did not ( $M=32.3$ ,  $SD=15.53$ ,  $t=-2.28(95)$ ,  $p<.05$ ).

## **CHAPTER 6: DISCUSSION**

This exploratory-descriptive study is the first known study to examine the interrelationships among graduate social work students' knowledge, self-efficacy, attitudes, interest, formal training, and contact regarding ASD. The hypothesis that participants' self-efficacy would be positively related to knowledge, formal training, and contact was confirmed. The current study showed that participants' interest in working with individuals with ASD was positively related to attitudes, formal training, and contact. Although there was a weak and positive correlation between interest and self-efficacy, it was not significant. The current study also explored whether there were differences in the variables of interest among foundation- and advanced-year students and among participants with and without different types of contact with individuals with ASD. This chapter discusses the limitations of the current study and the implications of its findings for social work practice, research, and education.

### **Sample Characteristics**

Demographic characteristics of the sample in the current study were similar to those reported by the Council on Social Work Education (CSWE; 2011) for students enrolled in U.S. MSW programs with regard to age and gender. The average age of the sample was 26 years. The Annual Survey of Social Work Programs found that 57.2% of students in U.S. MSW programs were under age of 30 years (CSWE, 2011). In the current study, 86.6% of participants were female, which is comparable to the proportion of 84.2% reported by CSWE (2011). With regard to race, 75.3% identified as white, 18.3% identified as black, 3.1% reported a different race, and 4.1% did not report their race. The races of students reported by CSWE (2011) differed from those of the participants in the current study, 40.1% of students white, 16.2% black, 11.9% reporting a different race, and 6.38% not reporting their race. These racial differences may be due

to the geographic location of the university from which students were sampled for the current study. Also, differences in racial composition may be related to measurement issues. Overall, however, the demographic characteristics of participants in the current study were similar to those of participants in most of the reviewed studies, which sampled predominately white, female samples in their mid-20s (e.g., Csikai & Belanger, 2002; Duvdevany et al., 1995; Eack & Newhill, 2008; Goncalves et al., 2011; Werner, 2011).

### **Correlates of Self-Efficacy in Working with Individuals With ASD**

SCCT suggests that one's personal performance achievements influence the formation of self-efficacy (Lent & Brown, 1996). In the current study, these personal performance achievements with regard to ASD were defined as knowledge, formal training, and contact. In accordance with SCCT, the current study found that knowledge about ASD, methods of instruction in which information about ASD was received, and contact with persons with ASD had weak and positive associations with self-efficacy. Participants, overall, reported low levels of self-efficacy.

### **Knowledge and Self-Efficacy**

In the current study, the mean score for all participants for knowledge about ASD indicated low levels of understanding of the symptoms, etiology, characteristics, co-occurring conditions, and treatments of ASD, with the typical participant answering fewer than half of items correctly. In addition, it is likely that participants' actual level of knowledge is lower than the obtained mean because of false positive responses. Participants were given the option of responding *don't know* on the knowledge test to discourage guessing; however, it is probable that some participants may not have used the *don't know* option for reasons related to social desirability (Rubin & Babbie, 2010). Some participants may have guessed rather than used the

don't know option; thus, it is expected that the correctly guessed items resulted in a false positive leading to a mean score that was, in fact, higher than participants' true level of knowledge. Thus, participants' actual knowledge was most likely lower than what is indicated by the mean score.

Low levels of knowledge about ASD could be attributed to omissions and gaps in the social work curriculum, to a lack of specialized field placements, or to both (Laws, Parish, Scheyett, & Egan, 2010; Russo-Gleicher, 2008). The knowledge scores obtained in the current study could also be affected by the timing of the survey, which was administered to students in both the foundation- and advanced-year cohorts. This means that some participants had taken considerably more social work courses than others. However, it should be noted that the mean knowledge score for foundation-year students ( $M=14.2$ ) was not significantly different from that of advanced-year students ( $M= 14.6$ ).

Participants seemed to know the most about ASD symptoms and diagnostic criteria, which may be because these topics are covered in a course on differential diagnosis, which is required in the foundation year of study. Participants knew the least about evidence-based treatments for ASD. Preece and Jordan (2007) found similar results in their study of knowledge about ASD among social workers in England, who reported a higher level of knowledge about common characteristics than treatments. The relatively low levels of knowledge about treatment among social workers are a concern due to the surge of pseudoscientific treatments emerging in the field of ASD. Further, social workers have an ethical responsibility to be knowledgeable about and advocate for evidence-based practices for vulnerable populations. The social work profession ideally should be at the frontlines in the DD field, testing and promoting best practices with persons with ASD and their families.

### **Formal Training and Self-Efficacy**

The quantity of methods of instruction in which information about ASD was presented in graduate-level courses was positively related to self-efficacy. In other words, students who received information about ASD through numerous instructional methods reported higher levels of self-efficacy. This has important implications for social work education because self-efficacy is theoretically associated with interest (Lent & Brown, 1996); therefore, bolstering students' classroom experiences with augmented content on ASD may lead to increased self-efficacy and interest in working with individuals with ASD; which, in turn, could influence future practice behaviors.

### **Contact and Self-Efficacy**

Contact was also significantly and positively associated with self-efficacy. Therefore, the findings of the current study suggest that interactions with persons with ASD may be related to increased self-efficacy in working with persons with ASD, which was also demonstrated in a study that assessed social work students' self-efficacy in working with older persons (Olson, 2011). The association between contact and self-efficacy suggests that hands-on experiences with individuals with ASD in social work education programs, most likely through formal field placements, could lead to increased self-efficacy among students with regard to working with individuals with ASD.

### **Correlates of Interest in Working With Individuals with ASD**

The current study hypothesized that graduate social work students' interest in working with individuals with ASD would be positively related to their self-efficacy in working with individuals with ASD, attitudes toward working with individuals with ASD, formal training



regarding ASD, and contact with individuals with ASD. However, only attitudes and contact were significantly correlated with interest.

### **Attitudes and Interest**

SCCT hypothesizes that self-efficacy and outcome expectations (i.e., attitudes) simultaneously influence career interests, with self-efficacy having the greatest effect (Lent & Brown, 1996). While the current study found a weak and positive association between self-efficacy and interest, it was not significant. However, there was a moderate and positive association between self-efficacy and attitudes. This latter finding suggests that attitudes are more likely to be associated with greater interest in working with ASD than self-efficacy, which contradicts SCCT. However, previous research regarding social work students' career interests has yielded similar findings, especially with regard to the impact of negative attitudes. For example, Csiaski and Belanger (2002) found that the attitude that work with a particular population would be depressing predicted low levels of interest in working with that population. Goncalves et al.'s (2011) study yielded similar findings regarding the relationship between attitudes and interest in working with older persons among undergraduate students in human service disciplines.

Overall, participants in the current study reported positive attitudes toward working with individuals with ASD. Despite high scores for attitudes, participants reported only moderate levels of interest in working with persons with ASD. Participants in the current study are entering a helping profession; thus, they may, in fact, have more positive attitudes toward working with this population. On the other hand, the relatively high scores on this variable may also be attributed to participants' attempts to increase their social desirability (Rubin & Babbie, 2010), which also should be considered when interpreting these findings.

## **Contact and Interest**

Among the relevant variables, contact was the only variable other than interest that showed a positive association with attitudes. This suggests that social work education programs may be able to foster increased student interest in ASD by providing them with more opportunities to interact with persons with ASD through formal field placements and other types of community-based learning. Attitudes, interest, and contact have been shown to be interrelated in other studies. For example, research with social work students found that personal contact was positively related to attitudes in working with individuals with DD (Werner, 2011) and schizophrenia (Eack & Newhill, 2008). Viecli et al.'s (2010) study with psychology graduate students found that contact with individuals with DD in a community setting led to higher interest in working with persons with DD. Other research has shown that placement in formal field settings that serve person with DD (Russo-Gleicher, 2008) and chronic mental illness (Werrbach & DePoy, 1993) is positively associated with increased student interest in working with those populations.

The findings of the current study confirm the hypothesis that contact is positively associated with interest. However, this finding must be interpreted with caution because temporal order cannot be established (Rubin & Babbie, 2010). Thus, greater amounts of interaction with individuals with ASD may lead to increased interest in ASD among graduate social work students; or, conversely, students who are interested in ASD may be more likely to seek out interactions with persons with ASD.

### **Limitations of the Current Study**

Like all exploratory-descriptive studies, the current study is not without its limitations. The main areas of limitation were measurement issues, sampling, and methods of analysis.

With regard to measurement, the researcher developed all of the scales used to measure relevant variables based on previous related research. While these researcher-developed scales were found to be reliable for the current study, further psychometric testing is warranted. Also, it is possible that social desirability may have influenced some of the findings of the current study. However, social desirability was not measured directly; thus, findings that could be influenced by a social desirability bias (e.g., measures of interest and attitudes) should be interpreted with caution. Lastly, only one source of data was used in the current study. In addition to self-report data, future research should objectively and behaviorally measure interest in working with individuals with ASD. Using observational data to measure actual practice behaviors and career choices would be ideal.

In the current study, only bivariate analyses were used. Multivariate approaches are needed to assess the relative importance of numerous relevant variables for explaining interest in working with persons with ASD. The current study could be expanded by using a multivariate approach, such as ordinary least squares regression to identify which variables best predict interest in working with persons with ASD (Rubin & Babbie, 2010).

### **Implications for Social Work Practice, Research, and Education**

The current study is the first known study to examine interrelationships among graduate social work students' knowledge about ASD, self-efficacy in working with individuals with ASD, attitudes toward working with individuals with ASD, formal training in ASD, and contact with persons with ASD. The findings are consistent with SCCT, and they suggest that knowledge, formal training, and contact are related to self-efficacy. Also, the findings of the current suggest that interest and attitudes are positively related. This final section discusses this study's implications for social work practice, research, and education.

## **Practice**

The current study showed that graduate social work students have low levels of knowledge about ASD, especially with regard to evidence-based practices. This suggests that students are entering the workforce unprepared to advocate for and to provide evidence-based practices for individuals with ASD and their families. Continuing education opportunities that focus on proper diagnosis of and evidence-based treatments for ASD are needed to increase knowledge and skills among social workers employed in settings that serve persons with ASD. Other practice-related resources are available through organization such as The National Professional Development Center on ASD ([autismcdc.fpg.unc.edu](http://autismcdc.fpg.unc.edu)) and Association of University Centers on Disabilities ([www.aucd.org](http://www.aucd.org)). Social workers can educate themselves about key issues around best practice and relevant policies.

## **Research**

While previous studies have examined interest in other fields of practice among graduate social work students, the current research is the first known study to examine knowledge, self-efficacy, attitudes, interest, formal training, and contact regarding ASD specifically for the first time. To more fully understand the interrelationships of key variables of interest among graduate social work students, additional research is warranted. Future studies should include larger and more diverse samples and incorporate multivariate approaches for assessing the relative importance of all influential variables on student interest in ASD. Longitudinal studies examining social work students' interest at the beginning and end of their graduate studies would provide helpful information. Also, longitudinal studies that explore actual practice behaviors after graduation would be an ideal approach for understanding the factors that predict employment in the field of DD.

## **Education**

The findings of the current study indicate numerous implications for social work education. Methods of instruction and self-efficacy were positively related; thus, infusing content related to ASD throughout core coursework and offering specialized elective courses in DD may ultimately promote higher levels of self-efficacy, more positive attitudes, and higher levels of interest in working with persons with ASD among graduate social work students.

The current study found that contact was positively related to attitudes and that attitudes were positively related to interest. This indicates a need to provide graduate social work students with greater opportunities to interact with individuals with ASD. The most obvious way to do this would be to increase the availability of formal field experiences that expose students to individuals with ASD. Also, providing stipends for internships in the field of DD and ASD may entice students to explore working with this vulnerable population. However, there are ethical issues to consider when providing incentives to students for working with certain populations because the practice may contribute to stigmatization. In addition to field placements, service-learning classes, guest speakers, and other experiential types of learning may be valuable instructional methods for increasing students' interactions with persons with ASD.

## **Concluding Statements**

With the recent increase in diagnoses of ASD (CDC, 2009), knowledgeable professionals are needed to work with individuals and families affected by ASD (Mandell et al., 2009); however, social work students historically report low levels of interest in the field of DD (Aviram & Katan, 1991; Butler, 1990; Rubin & Johnson, 1984) and negative attitudes toward working with persons with ASD (Werner, 2011). Further, few social workers enter the field of DD (Whitaker & Arrington, 2008). The current study aimed to address this problem by exploring

a number of important variables related to interest in ASD among graduate social work students. The current study showed that self-efficacy was positively related to knowledge, methods of instruction, and contact; and that interest was positively related to attitudes and contact. These findings yield implications for social work practice, research, and education.

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## VITA

Cassie Montagnino Dinecola was born in Fort Worth, Texas, in 1986. She was raised in and currently resides in Baton Rouge, Louisiana. She received her Bachelor of Science in psychology from Louisiana State University in 2008. Cassie volunteered and worked at the Baton Rouge Crisis Intervention Center for over five years. After receiving her bachelor's degree, she spent two years working as a child-specific shadow and behavior therapist for an adolescent with autism at a local, private school. Prior to pursuing her Master of Social Work (MSW) degree, Cassie also took graduate-level coursework in Applied Behavior Analysis through the University of North Texas. In Fall 2010, Cassie returned to Louisiana State University to pursue her MSW degree. She is a member of Alpha Delta Mu honorary society and the National Association of Social Workers. Her interests center on autism spectrum disorders, social work education, and clinical interventions. After receiving her Master of Social Work degree, she plans to enter the doctoral program in social work at Louisiana State University in Fall 2012.