

THE ROLES ELEMENTARY SCHOOL COUNSELORS PERFORM IN THE EDUCATION
OF STUDENTS WITH AUTISM SPECTRUM DISORDERS

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This nation-wide study investigated elementary school counselors (ESC) self-reported: (a) professional background and training; (b) general knowledge of autism spectrum disorders (ASD); (c) attitudes towards ASD; and (d) roles performed with students identified with ASD. Also investigated was the predictive relationships between professional background, training, knowledge, and attitudes on roles (counseling, consultation, curriculum, and coordination) performed with students identified with ASD. Descriptive statistics were utilized to address professional background, training, knowledge, attitude and characteristics of ESC participants. These variables were also examined in relationship to the four role types. Multivariate analyses of variance (MANOVA) and Pearson's correlation coefficients were used to test for significant relationships. A series of four multiple regression analyses predicting each of the total roles scores for counseling, consultation, curriculum, and coordination were also conducted.

Results of the study suggest (a) ESC have limited training experiences of ASD, leading to self-education about this population of students, (b) ESC possess general knowledge about ASD, (c) overall, ESC have positive attitudes towards ASD, and (d) ESC perform all conceptualized roles in the education of students with ASD. Regression models revealed eight predictors found to influence roles: total knowledge, attitudes, geographic setting, U.S. region, years practiced, conference training, self-education, and ASD caseload. Significantly associated with performing roles across all four domains was the number of students with ASD on ESC caseload.

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THE ROLES ELEMENTARY SCHOOL COUNSELORS PERFORM IN THE EDUCATION OF STUDENTS WITH AUTISM SPECTRUM DISORDERS

Introduction

Autism spectrum disorders (ASD) encompass a group of severe disorders having underlying neurobiological processes (Akshoomoff, Pierce, & Courchesne, 2002; Volkmar, Lord, Bailey, Schultz, & Klin, 2004) that influence development, primarily in the areas of social relationships, communication, behavior, (*DSM –IV-TR*, 2000), leading to a lifelong disability (Kleinman et al., 2008). A recent report released by the Centers for Disease Control (CDC) analyzed data from 11 states and found the prevalence rate of ASD among U.S. children 8 years of age to be 1 in 110 (CDC, 2009), with a 27% to 95% increase in prevalence between the years of 2002-2006 in 10 out of the 11 states. Other reports cite an increase as high as twenty-fold in little more than two decades (Tidmarsh & Volkmar, 2003). In addition, the current edition of the *Digest of Education Statistics* (Snyder & Dillow, 2009), a report published annually by the National Center of Education Statistics (NCES) located within the U.S. Department of Education (USDOE) and the Institute of Education Sciences (IES), shows students identified with autism account for 4.5% of the 13.4% total students in the US being served under the Individuals with Disabilities Education Improvement Act (IDEIA).

An increased presence of students with ASD in public schools has implications for all school personnel, creating the need for accurate knowledge of characteristics and ability to implement effective programming for students with ASD (Scheuermann & Webber, 2002; Scott, Clark, & Brady, 2000; Webber & Scheuermann, 2008). Although ASD are a group of heterogeneous disorders, which presents educators with complicated challenges, there is a

body of research emerging which has identified common effective educational practices (Hurth, Shaw, Izeman, Whaley, & Rogers, 1999; Simpson, McKee, Teeter, & Beytien, 2007). These elements, however, are only effective when “applied by a knowledgeable professional” (Simpson, 2005 p. 144), as even the most effective intervention implemented without treatment fidelity will likely be unable to deliver expected positive outcomes (Detrich, 1999).

Among school personnel who have increasing opportunities to interact with students with ASD are elementary school counselors (ESC; Layne, 2007; Myles & Simpson, 2002). ESC are charged by their guiding professional organization, the American School Counselor Association (ASCA) to serve *all* students in the areas of academic achievement, personal/social and career development. As such, ESC have an opportunity to positively influence the education of students with ASD in areas characteristically wrought with difficulties for these students. This is especially true as students with ASD are often included in general education settings.

Recently, ASCA has focused significant attention on school counseling program standards and the role of ESC. The ASCA (2005) provides a framework for developing school counseling programs and advocates for programs to help all students develop competencies reflective of standards in domains such as academic achievement, career planning, and personal/social development. Standards are infused by ESC as they fulfill their daily roles and responsibilities within the school building. Activities ESC may fulfill in their roles are conceptualized in the School Counselor Activity Rating Scale (SCARS; Scarborough, 2005) across the following four domains: counseling, consultation, curriculum, and coordination. Research suggests school counseling programs that address standards outlined by ASCA and fulfill the

roles within the context of the four above domains are more likely to realize positive outcomes for all students (Hatch & Chen-Hayes, 2008).

Increases in the prevalence of ASD, as well as legislative requirements for educating students with disabilities, has created a need for ESC to perform progressively more important roles in the education of students with disabilities. For instance, literature shows ESC performing roles with students identified with brain injuries (Garcia, Krankowski, & Jones, 1998), communication disorders (Glenn & Smith, 1998), visual impairments (Brame, Martin, & Martin, 1998), and chronic illnesses (Kaffenberger, 2006). Literature also recommends that ESC possess accurate knowledge of disorders such as attention deficit hyperactivity disorder (Erk, 1999).

The dichotomy of preservice preparation and real application expectations for school counselors have led to recent literature citing that school counselors need more training in issues surrounding the education of students with exceptionalities (Deck, Scarborough, Sferrezza, & Estill, 1999; Janson, Guillot-Miller, & Rainey, 2007; Nichter & Edmonson, 2005). For example, Milsom (2002) found that 80.8% of school counselors indicated they served on multidisciplinary teams while having limited training specific to special education and in particular to the formation and implementation of the individual education plan (IEP). It appears that most school counselors seek disability specific training on an as needed basis (Studer & Quigney, 2003) to remediate deficits in their knowledge base. Baker (1992) asserted that professionals need to assume responsibility for professional development when a need arises. This is especially important in the area of ASD due to the heterogeneity of the

population in itself and as Glenn (1998) asserted that generalizing across disabilities may put students at risk.

Although the recommendation for autism specific training has been documented for teaching professionals (Council for Exceptional Children; CEC, 2009) as well as professional counselors (Layne, 2007), training still remains lacking (Giangreco & Broer, 2005; Scheuermann, Webber, Boutot, & Goodwin, 2003). In a recent issue of the *Journal of Counseling & Development*, Layne (2007) noted that as a result of the increases in early identification, counselors in the private sector as well as school counselors will have to support the increasing numbers of students identified with ASD despite potentially little experience or training with the population. Widely known researchers in the field of ASD have further taken notice of the limitations in personnel preparation, specifically listing the school counselor as an educational professional that will be expected to support and assist students with ASD (Myles & Simpson, 2002).

The complexities of job responsibilities of ESC are maintained by a growing amount of legislative mandates, recommendations by professional organizations, and the specific policies and procedures of the district they serve. There are a numerous presenting problems that ESC must be attentive to in their position. ESC are expected to know how to serve diverse student populations with minimal training and exposure. Because students identified with ASD are a heterogeneous group, the interventions that have found to be effective, based upon empirical research have the ability to assist not only students identified with ASD, but also students in from with diverse needs. Thus, building a thorough knowledge base of ASD will assist ESC in constructing a strong, effective, and comprehensive school counseling program for all students.

In turn, ESC may likely increase their engagement in roles performed in the education of students identified with ASD. As great as the need is for comprehensive support for students identified with ASD, and as noteworthy as the rationale that school counseling services are critical for students identified with ASD (Myles, 2005), a dearth of literature in the area of elementary school counseling and ASD was found. This exploratory study was, therefore, carried out to investigate the roles ESC perform in the education of students identified with ASD. The core questions for this study are as follows:

1. How often are counseling, consultation, curriculum, and coordination roles performed by ESC in the education of students identified with ASD?
2. How are demographic, professional background, and training characteristics of ESC related to their roles in each of these areas?

Methods

Participants

ESC from across the nation were recruited to participate in this study using a variety of non-probability sampling techniques. One thousand postcard invitations were mailed to ESC using addresses from the American Counseling Association's (ACA) database. Another technique involved posting a description of the survey and the hyperlink on counseling affiliated social networking sites, (the SCENE, LinkedIn, and ASCA Facebook site). Collectively, ESC were members of these sites and were potential participants. E-mail addresses were also obtained from the aforementioned social networking sites. Additionally, to ensure broad representation e-mail addresses of ESC were obtained from the websites of urban, suburban, and rural district sites from each of the 50 states. A combined number of 655 individual e-

mails were then sent by the researcher to ESC. The e-mail message contained a description of the study, request to participate and the survey link. The e-mail message also asked recipients to forward the message to other ESC colleagues (snowballing). These recruitment techniques described above yielded 221 ESC participants. Individually e-mailing resulted in a 16.8% response rate, with postal mailing resulting in a 1.9% response rate. Sixty-two ESC responded to the social networking sites postings, and 30 ESC responded through an email sent by a colleague. A representation of the break-down between invitation variables and total number of participants is shown in Table 1.

Table 1

Frequencies and Percentages for Categorical Invitation to Participate Variables

| | Frequency | % |
|--|-----------|------|
| Invitation to Participate | | |
| Postcard Mailing | 19 | 8.6 |
| Survey link on ASCA social networking site | 43 | 19.5 |
| E-mailed from researcher of study | 110 | 49.8 |
| E-mailed from a Colleague | 30 | 13.6 |
| Survey link on Facebook | 1 | .5 |
| Other | 18 | 8.1 |

Regions of the United States regions were represented, with the majority (50.2%) of participants from the Southern region, 22.2% from the Northeast, 13.1% from the Midwest, and 12.7% from the West. In addition, there was representation in each of the three geographic areas, with suburban districts showing the majority of representation (45.7%), leaving rural districts with 30.3% and urban districts representing 24.0%.

In order to fully investigate the research questions, ESC were asked about their professional background and training experiences with students identified with ASD. The majority (33%) of participants indicated they had practiced for 7 to 15 years, 31.2% indicated they had practiced 3 to 6 years, with 19.9% practicing for 16-39 years, and 15.4% practicing for two years or less. To fully examine how many students ESC provided direct services to on a continuous basis, the statement students which you actually pull out on a regular basis to counsel with either individually or in a group setting was placed in parenthesis after the survey question asking ESC how many students they currently served on their caseload. Over half (52.0%) of the participants indicated they currently served a caseload of less than 40 students, with close to as many (48.0%) indicating they served a caseload of 40 or more. In addition to indicating how many students they served on their total caseload, participants were also asked how many students specifically identified with ASD they served. The majority (41.6%) of participants specified they served two to four students, with 32.1% indicating they only served one student, and 26.2% indicating they served five or more students identified with ASD on their current caseload.

Education and professional development characteristics of participants revealed the majority (40.3%) indicating they had only one special education course in their graduate training, with 36.2% indicating they had no special education courses and 23.5% indicating they had two or more courses in special education. In a similar precedent the majority (83.7%) of ESC indicated they had taken zero courses specific to ASD.

In addition to graduate program preparation, participants were asked what types of professional development in ASD they had engaged in during the last three years. Most had

gained information about ASD through self-education (59.3%) and through opportunities provided by their school district (52.5%).

Instrumentation

To explore the roles that ESC perform in the education of students with ASD, data were gathered from a survey developed for a larger study. The original instrument included four parts. The current manuscript isolates two important components of the larger study. Professional Background and Training and an adapted form of the School Counseling Activity Rating Scale (Scarborough, 2005) combined to form these two components.

Section I asked participants about their professional background in terms of how long they had been a practicing ESC, graduate school preparation, and professional development experiences, both related to ASD. In addition, participants were asked how many total students and how many students identified with ASD they currently served on their caseload.

Section II utilized the SCARS (Scarborough, 2005) to assess the frequency in which ESC actually performed each function listed in the role domains of counseling, consultation, curriculum, and coordination.

The SCARS is a well-known instrument in the field of school counseling and, has been utilized in previous studies as a tool for program evaluation (Scarborough, 2005). Process data describe the way the school counseling program is structured and conducted and whether prescribed practice was followed. The SCARS is divided into five sections, four of which refer to the roles previously mentioned. In order to conceptualize that these four domain areas, were reflective of activities school counselors performed, Scarborough reviewed professional literature, school counseling textbooks, ASCA publications, and journal articles focusing on

school counselor activities. Based upon these reviews, 50 activities were selected as reflective of school counseling roles and included in the four role domains. The current study contains 38 activities, as the fifth section, reserved for “other” activities, was eliminated for this study. The SCARS uses a verbal frequency scale in which school counselors are asked how often an activity is performed. A verbal frequency scale is used as a measure of “how often” an action is taken, rather than a Likert scale that measures “strength of agreement,” although both are very similar (Alreck & Settle, 2004). Scarborough recognized that the verbal frequency scale has limitations (i.e., the specific amount of time is not assessed); however, utilization of this scale has been cited due to perceived ease, comprehensiveness, and flexibility.

With permission from Janet Scarborough, SCAR’s developer, adaptations were made to the instrument to facilitate gathering information on the frequency of activities and total roles ESC perform with students identified with ASD. The format of “actual” versus “preferred” activities was not considered applicable for target research focus of this study. Therefore, the “preferred” column was dropped. The adapted format allowed the participants to select from the following options: 1 = *I NEVER do this*, 2 = *I RARELY do this*, 3 = *I OCCASIONALLY do this*, 4 = *I FREQUENTLY do this*, and 5 = *I ROUTINELY do this*. Adaptations to individual questions were also employed. Included in individual questions is one of the following phrases to ensure questions are appropriate for the target purpose of this study: “with students identified with ASD,” “of students identified with ASD,” or “that includes students identified with ASD.” The coordination domain presented several questions that were inadaptable to these additions. Specifically, the following activity items were not appropriately adaptable: coordinate special events and programs for school around academic, career, or personal/social issues (e.g., career

day, drug awareness, test prep); coordinate and maintain a comprehensive school counseling program; and coordinate school-wide response for crisis management and intervention. The question “conduct small groups with students identified with ASD regarding bullying issues” was added because of the specificity of potential problems this population of students may incur with bullying issues (Carter, 2009; Gray, 2004; Myles & Simpson, 2002).

Throughout the survey, the term “ASD” was consistently used in order to broadly conceptualize and include all students in the public school. This term is consistent with current reflections in the field, as it is purported that in the future *Diagnostic and Statistical Manual of Mental Disorders* (DSM- V) ASD will be the title that is representing the class of disorders including: autism, Asperger’s disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS) (American Psychiatric Association; APA, 2011).

The instrument was refined after it was reviewed by a panel of three experts in the fields of school counseling and two experts in the field of ASD. Experts were asked to review the instrument and provide feedback on whether items in Section II (SCARS) adequately measure the roles performed by ESC in the education of students identified with ASD. Changes were made based upon the feedback of keeping the terminology of ASD consistent throughout the survey, grammatical and style changes, and placing a definition in parenthesis on Question 10 so that it clearly asked about the total caseload served. The survey was then pilot tested with a group of 25 ESC around the nation.

Procedures

Survey methods in the form of a questionnaire utilizing the web-based technology

Qualtrics® was employed to obtain data responses. Survey response rates among school counselors (Clemens, 2008) have been considered typically low. Therefore, Dillman's (2007) tailored design method was utilized to maximize the response rate, as well as offering the opportunity to participate in a drawing for VISA™ gift-cards in the amount of \$25. Offering incentives has become a popular method for increasing response rates (Church, 1993). Participants were informed that four winners would be drawn and contacted when the study ended. Four e-mail messages were sent at one-week intervals to those who were recruited via social networking postings and individual e-mails. The e-mails included an expression of gratitude for those who had participated and a request to participate for those who had not. Participants were asked to send an e-mail to a third party e-mail address to leave their contact information as a method for contacting winners.

Data Analysis

Each of the activities contained within the role domains of counseling, consultation, curriculum, and coordination was described using means and standard deviations. Next, mean scores were created to reflect the average number of roles in which the participant engaged, in order to conduct a comparative analysis between the four roles. Each of the four types of roles were then examined in regards to the demographic, education, and training items collected in the survey in order to further describe the roles. Multivariate analyses of variance (MANOVA) and Pearson's correlation coefficients were used to test for significant relationships. The results section presents the demographic, training, and education variables that were significantly related to roles.

Results

Research Question 1

Research Question 1 focused on how often ESC performed counseling, consultation, curriculum, and coordination roles with students identified with ASD. The following tables (2 – 5) present the first pieces of information utilized in answering the research question. Table 2 presents all counseling activities contained within the counseling role domain. Activities that revealed the highest mean responses for frequency of counseling roles were in the areas of school behavior ($M = 3.51, SD = 1.04$), social relationships ($M = 3.57, SD = 1.07$), and following up with students who had participated in counseling ($M = 3.45, SD = 1.19$). In contrast, specific activities that revealed the lowest mean responses for frequency of counseling roles were in the areas of academic groups ($M = 2.12, SD = 1.09$), family/personal issues groups, ($M = 2.25, SD = 1.07$), and substance abuse issues ($M = 1.50, SD = .77$).

As shown in Table 3, specific consulting activities that revealed the highest mean responses for frequency of consulting roles were again in the area of school behavior ($M = 3.73, SD = 1.04$). Additional areas were consulting with parents regarding development issues ($M = 3.08, SD = 1.05$), assisting in identifying exceptional children ($M = 3.28, SD = 1.30$), and participating in team meetings ($M = 3.11, SD = 1.26$). In comparison, specific activities that revealed the lowest mean responses for frequency of consulting roles were in the areas of consulting with community and school agencies ($M = 2.80, SD = 1.16$), coordinating referrals ($M = 2.87, SD = 1.13$), and providing consultation for administrators ($M = 2.49, SD = 1.16$).

Specific activities that revealed the highest mean responses for frequency of curriculum roles are presented in Table 4, and were in the areas of character education guidance lessons

($M = 4.18$, $SD = 1.06$), conducting guidance lessons on social relationships ($M = 4.09$, $SD = 1.13$), and conducting guidance lessons on conflict resolution ($M = 4.08$, $SD = 1.12$). The activity that revealed the lowest mean responses for frequency of curriculum roles was in the area of substance abuse guidance lessons ($M = 2.90$, $SD = 1.46$).

Table 2

Means and Standard Deviations for Frequency of Counseling Roles Items

| | N | Mean | SD | Min | Max |
|--|-----|------|------|-----|-----|
| a. Counsel with students identified with ASD regarding personal/family concerns. | 220 | 2.83 | 1.01 | 1 | 5 |
| b. Counsel with students identified with ASD regarding school behavior. | 220 | 3.51 | 1.04 | 1 | 5 |
| c. Counsel with students identified with ASD regarding crisis/emergency issues. | 220 | 2.71 | 1.00 | 1 | 5 |
| d. Counsel with students identified with ASD regarding social relationships (e.g., family, friends, romantic). | 220 | 3.57 | 1.07 | 1 | 5 |
| e. Counsel with students identified with ASD regarding academic issues. | 220 | 2.67 | 1.04 | 1 | 5 |
| f. Provide small group counseling addressing relationships/social skills with students identified with ASD. | 220 | 3.01 | 1.37 | 1 | 5 |
| g. Provide small group counseling with students with ASD regarding academic issues. | 220 | 2.12 | 1.09 | 1 | 5 |
| h. Conduct small groups with students identified with ASD regarding family/personal issues (e.g., divorce, bereavement). | 220 | 2.25 | 1.07 | 1 | 5 |
| i. Conduct small groups with students identified with ASD regarding bullying issues. | 220 | 2.61 | 1.10 | 1 | 5 |

| | | | | | |
|--|-----|------|------|---|---|
| j. Follow-up on students with ASD whom have participated in individual and group counseling. | 220 | 3.45 | 1.19 | 1 | 5 |
| k. Counsel with students identified with ASD regarding substance abuse issues. | 220 | 1.50 | .77 | 1 | 5 |

Table 3
Means and Standard Deviations for Frequency of Consulting Roles Items

| | N | Mean | SD | Min | Max |
|---|-----|------|------|-----|-----|
| a. Consult with school staff concerning behavior of students identified with ASD. | 219 | 3.73 | 1.04 | 1 | 5 |
| b. Consult with community and school agencies concerning individual students identified with ASD. | 219 | 2.80 | 1.03 | 1 | 5 |
| c. Consult with parents regarding child development issues in relation to ASD. | 219 | 3.08 | 1.05 | 1 | 5 |
| d. Coordinate referrals for students identified with ASD and/or their families to community or education professionals (e.g., mental health, speech pathology, medical assessment). | 219 | 2.87 | 1.13 | 1 | 5 |
| e. Assist in identifying exceptional children (special education). | 219 | 3.28 | 1.30 | 1 | 5 |
| f. Provide consultation for administrators (regarding school policy, programs, staff and/or students) focused on ASD. | 219 | 2.49 | 1.16 | 1 | 5 |
| g. Participate in team / grade level / subject team meetings focused on students with ASD. | 219 | 3.11 | 1.26 | 1 | 5 |

Table 4

Means and Standard Deviations for Frequency of Curriculum Roles Items

| | N | Mean | SD | Min | Max |
|--|-----|------|------|-----|-----|
| a. Conduct activities to introduce yourself and explain the counseling program in classrooms which include students identified with ASD. | 215 | 3.98 | 1.22 | 1 | 5 |
| b. Conduct lessons addressing career development and the world of work in classrooms which include students identified with ASD. | 215 | 3.52 | 1.39 | 1 | 5 |
| c. Conduct lessons on various personal and/or social traits (e.g., responsibility, respect, etc.) in classrooms which include students identified with | 215 | 4.18 | 1.06 | 1 | 5 |
| d. Conduct lessons on relating to others (family, friends) in classrooms which include students identified with ASD. | 215 | 4.09 | 1.13 | 1 | 5 |
| e. Conduct lessons on personal growth and development issues in classrooms which include students identified with ASD. | 215 | 3.89 | 1.23 | 1 | 5 |
| f. Conduct lessons on conflict resolution in classrooms which include students identified with ASD. | 215 | 4.08 | 1.12 | 1 | 5 |
| g. Conduct classroom lessons on substance abuse in classrooms which include students identified with ASD. | 215 | 2.90 | 1.46 | 1 | 5 |
| h. Conduct classroom lessons on personal safety issues in classrooms which include students identified with ASD. | 215 | 3.72 | 1.26 | 1 | 5 |

As shown in Table 5, specific activities that revealed the highest mean responses for frequency of coordination roles were in the areas of special events ($M = 3.85, SD = 1.23$), comprehensive school counseling program ($M = 4.61, SD = .78$), and school-wide response and intervention for crisis management ($M = 3.58, SD = 1.26$). The activities that revealed the lowest mean responses for frequency of coordination roles were in the areas of parent education classes/workshops ($M = 1.87, SD = 1.07$), teacher in-service programs ($M = 1.73, SD = .91$), with the lowest mean response for frequency of coordination roles in the area of advisory teams ($M = 1.73, SD = .91$).

The next piece of information utilized to fully investigate the first research question presents the mean scores for the frequency of roles (see Table 6). A repeated measures MANOVA was conducted to test for significant differences in the mean roles scores. The overall model was significant, $F(2, 501) = 134.88, p < .001$, partial $\eta^2 = .391$, indicating that the differences between roles explained 39.1% of the variance in roles. Tukey's posthoc analyses reveal that overall counseling ($M = 2.76, SD = .76$) and coordination ($M = 2.69, SD = .69$) were performed significantly less often than consultation ($M = 3.06, SD = .89$) and curriculum roles ($M = 3.80, SD = 1.02$). In addition, curriculum roles were performed significantly more often than consultation roles.

Table 5

Means and Standard Deviations for Frequency of Coordination Roles Items

| | N | Mean | SD | Min | Max |
|---|-----|------|------|-----|-----|
| a. Coordinate special events and programs for school around academic, career, or personal/social issues (e.g., career day, drug awareness, test prep). | 211 | 3.85 | 1.23 | 1 | 5 |
| b. Coordinate and maintain a comprehensive school counseling program. | 211 | 4.61 | .78 | 1 | 5 |
| c. Inform parents about the role, training, program, and interventions of a school counselor specific to ASD within the context of your school. | 211 | 2.66 | 1.26 | 1 | 5 |
| d. Conduct or coordinate parent education classes or workshops specific with topics applicable to ASD. | 211 | 1.87 | 1.07 | 1 | 5 |
| e. Coordinate school-wide response for crisis management and intervention. | 211 | 3.58 | 1.26 | 1 | 5 |
| f. Inform teachers/administrators about the role, training, program, and interventions of a school counselor specific to ASD within the context of your school. | 211 | 2.46 | 1.21 | 1 | 5 |
| g. Conduct or coordinate teacher in-service programs specific to topics applicable to ASD. | 211 | 1.73 | .91 | 1 | 5 |
| h. Keep track of how time is being spent on the functions that you perform with students identified with ASD. | 211 | 2.33 | 1.40 | 1 | 5 |

Table 5 (continued)

| | N | Mean | SD | Min | Max |
|---|-----|------|------|-----|-----|
| i. Attend professional development activities covering ASD topics. | 211 | 2.73 | 1.04 | 1 | 5 |
| j. Coordinate with an advisory team to analyze and respond to school counseling program needs specific to working with students with ASD. | 211 | 2.05 | 1.16 | 1 | 5 |
| k. Formally evaluate progress of students identified with ASD. | 211 | 2.28 | 1.29 | 1 | 5 |
| l. Conduct needs assessments and counseling program evaluations specific to the needs of students identified with ASD. | 211 | 2.10 | 1.13 | 1 | 5 |

Table 6

Means and Standard Deviations for Overall Frequency of Roles Scores

| | N | Mean | SD | Min | Max |
|--------------------|-----|-------------------|------|------|------|
| Counseling Total | 211 | 2.76 ^a | .76 | 1.00 | 4.73 |
| Consultation Total | 211 | 3.06 ^b | .89 | 1.00 | 5.00 |
| Curriculum Total | 211 | 3.80 ^c | 1.02 | 1.00 | 5.00 |
| Coordination Total | 211 | 2.69 ^a | .69 | 1.08 | 5.00 |

Note. Multivariate $F(2, 501) = 134.88, p < .001$, partial $\eta^2 = .391$. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

Research Question 2

Research Question 2 asked how demographic, professional background, and training characteristics related to the roles ESC performed. The relationships between the roles, professional background, and training items were tested with a series of MANOVAs

The multivariate relationship between roles and U.S. region was significant, $F(12, 599) = 3.65, p < .001$, partial $\eta^2 = .068$, indicating that the U.S. region in which the participants lived explained 6.8% of the variance in their roles. Examination of the univariate effects revealed a significant difference between the counseling total score by U.S. region, $F(3, 204) = 9.54, p < .001$, partial $\eta^2 = .123$, as well as the consultation total score by U.S. region, $F(3, 204) = 7.32, p < .001$, partial $\eta^2 = .097$. Region accounted for 12.3% of the variance in counseling roles and 9.7% of the variance in consultation roles. Tukey's posthoc analyses revealed that counseling roles were performed significantly more often in the Northeast ($M = 3.21, SD = .75$) and West ($M = 2.81, SD = .66$), compared to the Midwest ($M = 2.67, SD = .68$) and South ($M = 2.56, SD = .70$). In addition, Tukey's posthoc analyses revealed that consultation roles were performed significantly more often in the Northeast ($M = 3.53, SD = .88$) and West ($M = 3.08, SD = .88$) compared to the Midwest ($M = 2.99, SD = .87$) and South ($M = 2.84, SD = .82$). Univariate differences were not found for curriculum or coordination roles between U.S. regions.

The multivariate relationship between roles and geographic setting also was significant, $F(8, 108) = 2.23, p = .024$, partial $\eta^2 = .042$, indicating that geographic setting explained 4.2% of the variance in roles. Examination of the univariate effects revealed a significant difference between the curriculum total score by setting, $F(2, 208) = 3.39, p < .05$, partial $\eta^2 = .032$, indicating that setting explained 3.2% of the variance in the curriculum score. Tukey's posthoc

analyses revealed that curriculum roles were performed more often in rural settings ($M = 3.97$, $SD = .98$) than in urban settings ($M = 3.50$, $SD = 1.17$) and suburban settings ($M = 3.85$, $SD = .93$). Univariate differences were not found for counseling, consultation, or coordination roles between geographic settings.

In addition, the multivariate relationship between roles and years practiced was significant, $F(12, 608) = 1.67$, $p = .069$, partial $\eta^2 = .032$, indicating that the number of years ESC had been practicing explained 3.2% of the variance in roles. Examination of the univariate effects revealed a significant difference between the consultation total score by years practiced, $F(3, 207) = 2.78$, $p < .05$, partial $\eta^2 = .039$, indicating that number of years practiced explained 3.9% of the variance in consultation roles. Tukey's posthoc analyses revealed that consultation roles were performed marginally (Tukey's posthoc $p = .054$) more often for those who had practiced 16- 39 years ($M = 3.39$, $SD = .94$) compared to those who practiced two years or less ($M = 2.87$, $SD = .90$). The examination of the univariate effects also revealed a significant difference between the curriculum total score by years practiced, $F(3, 207) = 4.23$, $p < .01$, partial $\eta^2 = .058$, indicating that number of years practiced explained 5.8% of the variance in curriculum roles. Tukey's posthoc analyses revealed that curriculum roles were performed significantly more often for those who had practiced 16- 39 years ($M = 4.15$, $SD = .80$) compared to those who practiced 2 years or less ($M = 3.37$, $SD = 1.09$). Finally, significant univariate differences were also found between years practiced and the coordination total score, $F(3, 207) = 3.95$, $p < .01$, partial $\eta^2 = .054$ indicating that number of years practiced explained 5.4% of the variance in coordination roles. Tukey's posthoc analyses revealed that coordination roles were performed significantly more often for those who had practiced 16- 39

years ($M = 2.98$, $SD = .66$) compared to those who practiced two years or less ($M = 2.50$, $SD = .77$) or 3-6 years ($M = 2.63$, $SD = .65$). Univariate differences were not found for counseling roles and number of years practiced.

The multivariate relationship between roles and whether the participant had participated in self-education was significant, $F(4, 206) = 7.29$, $p < .001$, partial $\eta^2 = .124$, indicating that whether or not the participant had participated in self-education explained 12.4% of the variance in roles. Examination of the univariate effects revealed a significant difference for the counseling ($F(1, 209) = 16.23$, $p < .001$, partial $\eta^2 = .072$), consultation ($F(1, 209) = 21.23$, $p < .001$, partial $\eta^2 = .092$), and coordination ($F(1, 209) = 5.59$, $p < .05$, partial $\eta^2 = .026$) total scores by whether the participant had participated in self-education. Self-education accounted for 7.2% of the variance in counseling roles, 9.2% of the variance in consultation roles, and 2.6% of the variance in coordination roles. Tukey's posthoc analyses revealed that counseling roles were performed significantly more often for participants who had participated in self-education ($M = 2.92$, $SD = .72$) compared to those who had not ($M = 2.51$, $SD = .74$). Consultation roles were also performed significantly more often for participants who had participated in self-education ($M = 3.28$, $SD = .86$) compared to those who had not ($M = 2.73$, $SD = .83$). Finally, coordination roles were performed significantly more often for participants who had participated in self-education ($M = 2.78$, $SD = .69$) compared to those who had not ($M = 2.55$, $SD = .66$). Univariate differences were not found for curriculum roles by participation in self-education.

The multivariate relationship between roles and ASD caseload size was significant, $F(8, 208) = 7.29$, $p < .001$, partial $\eta^2 = .125$, indicating that ASD caseload size explained 12.5% of the

variance in roles. Examination of the univariate effects revealed a significant difference for the counseling ($F(2, 208) = 23.02, p < .001, \text{partial } \eta^2 = .181$), consultation ($F(2, 208) = 18.48, p < .001, \text{partial } \eta^2 = .151$), curriculum ($F(2, 208) = 3.74, p < .05, \text{partial } \eta^2 = .035$), and coordination [$F(2, 208) = 10.96, p < .001, \text{partial } \eta^2 = .095$] total scores by ASD caseload size. ASD caseload size accounted for 18.1% of the variance in counseling roles, 15.1% of the variance in consultation roles, 3.5% of the variance in curriculum roles, and 9.5% of the variance in coordination roles. Tukey's posthoc analyses revealed that counseling roles were performed significantly more often for participants with an ASD caseload of 5+ ($M = 3.15, SD = .67$) compared to a caseload of 2-4 ($M = 2.85, SD = .62$). Counseling roles were performed significantly less for those with only 1 ASD case ($M = 2.32, SD = .79$). Consultation roles were also performed significantly more often for participants with an ASD caseload of 5+ ($M = 3.46, SD = .77$) and 2-4 cases ($M = 3.17, SD = .78$) compared to a caseload of 1 ($M = 2.58, SD = .92$). A Dunnett's T3 posthoc analysis was conducted to compare curriculum scores due to a lack of homogeneity in the variance of the means. Results revealed a trend ($p > .10$) towards curriculum roles being performed more often for participants with an ASD caseload of 5+ ($M = 3.97, SD = .93$) and 2-4 ($M = 3.91, SD = .81$) compared to a caseload of 1 ($M = 3.53, SD = 1.27$). Finally, coordination roles were performed significantly more often for participants with a caseload of 5+ ($M = 3.00, SD = .79$) compared to a caseload of 2-4 ($M = 2.69, SD = .60$) or only 1 ($M = 2.43, SD = .62$).

Summary

In order to fully answer the research questions, a description of the specific activities ESC performed within each of the role domains (Tables 2 – 5) was shown. Next, presented in

Table 6, activities in each role domain were summed together in order to reflect the average roles that ESC perform. Finally, in order to better understand the roles, relationships between demographic, professional background, and training items were examined. All results of variables that were significantly related to roles were presented, except for two variables. Participants in the study were asked to indicate the amount of their total caseload (students they met with on a formal basis). The results of this question were not specifically related to students with ASD, and are therefore not presented. The second variable assessed if attendance at conference trainings on ASD topics were related to roles. In an effort to make the paper more cohesive, only the highest reported type of training, self-education was presented.

Discussion

The purpose of this study was two-fold. First, was to investigate how often ESC performed counseling, consultation, curriculum, and coordination roles in the education of students with ASD, assessing both the frequency of activities contained within each role and the overall total of roles performed. Secondly, understanding the variables that relate to ESC performing roles with students identified with ASD was investigated to lay a foundation regarding specific factors that may increase roles performed by ESC in the education of students with ASD. Because this study is exploratory in nature, much of the manuscript has been devoted to describing what roles ESC were found to perform with students identified with ASD. This is an important first step in a line of research designed to signify the importance of ESC performing active roles with students identified with ASD. These results, although preliminary and in need of further investigation, may have implications for creating policy changes in training preparation of ESC. Roles performed were found to be consistent with the delivery system included in the ASCA (2003; 2005) National Model and current legislative and federal mandates.

Frequency of Roles Performed

The results of this study signify that ESC perform the four roles on a consistent basis with students identified with ASD. Overall, it was found that ESC perform curriculum roles significantly more often than other roles, with consultation roles occurring as the second most frequently performed. When considering the activities that comprised these two areas, the results are strikingly similar to results revealed in a nation-wide study analyzing the amount of time school counselors spent with students identified with special needs (Studer & Quigney,

2003). Although, these researchers did not indicate what percentage of participants were solely ESC, nor did they operationally define special needs. However, because autism is an eligibility under the Individuals with Disabilities Education Act (P. L. 101-476; IDEA, 1990), it is assumed that students with ASD were included when considering special needs.

Activities most frequently performed within the consulting role are consistent with other findings in the literature regarding school counselors performing roles with students with disabilities (Milsom, 2002; Studer & Quigney, 2003; Villalba, Latus, Hamilton, & Kendrick, 2005).

Even though the overall counseling role was not found to be the most often performed, several activities contained frequently performed are noteworthy, specifically, counseling activities performed in the areas of school behavior and social relationship skills, which have been long considered highly challenging for students identified with ASD (Attwood, 1998; Barnhill, Hagiwara, Myles, Simpson, Brick, & Griswold, 2000; Frith, 1991; Gibbons & Goins, 2008). This finding indicates that ESC may accurately perceive and perform activities in areas most needed for students identified with ASD. Counseling activities least performed were in regards to small group counseling in academic and substance abuse areas. Small group counseling regarding academic areas was lower than counseling individually with students in this same area, indicating that ESC may prefer to conduct individual counseling in academic issues, which is consistent with the recommendation given by Myles (2005). In addition, drug awareness is typically addressed through guidance lessons and school-wide programs. These activities are included in the curriculum and coordination role domains and demonstrate ESC performing these activities more frequently.

The finding that overall counseling roles were performed significantly less often than curriculum and consultation may indicate that ESC are not as confident in their abilities to provide direct services to students with ASD, instead preferring to perform activities more guidance (curriculum) and consultative related. This has implications related to the background and training of ESC participants. Research has shown the more training and experience ESC have with students with disabilities, the more roles they perform (Greene & Valensky, 1998; Nichter & Edmonson, 2005), which leads to the concluding remarks in this section of the discussion. ESC who had five or more students identified with ASD on their caseload, performed more roles in each domain than ESC who had less students with ASD on their caseload signifying that the more experience with students the ESC has, the more roles they will perform.

Professional Background and Training

Interestingly, both U.S. region and the geographic area resulted in significant relationships to the overall roles. Most studies note demographics of participants, especially in the area of education, where each state may have differing policies, procedures, and expectations for school counselors. Counseling roles, as well as consultation roles were performed more frequently in the Northeast and West regions. This finding is interesting given that the South was the region most represented. Specific geographic areas were important to investigate because of different role definitions (Culbreth, Scarborough, Banks-Johnson, & Solomon, 2005) that may be expected (Hines, 2002; Lee, 2005). Differences in the frequency of roles performed in only the area of curriculum was surprising. ESC in rural areas may perform

more activities in this area because smaller districts typically have less support personnel than larger districts.

As previously discussed, there was no significant difference in the number of years practiced and counseling roles. However, the finding that ESC who had practiced the longest performed the most roles in the additional three domains is surprising in terms of the small amount of exposure of graduate training preparation that ESC with this amount of experience almost certainly received. It appears that because of limited training preparation, the majority of ESC have taken the recommendation to assume responsibilities for their own professional development (Baker, 1992) to heart, which again is consistent with research related to school counselors' roles with students with disabilities (Wood-Dunn and Baker, 2002).

Limitations

Several limitations exist with the design of the current study and must be considered when interpreting the results obtained. The largest limitation was the sample size. Although several efforts were made to increase the sample size, it is possible that the results are not representative of the ESC profession as a whole. It cannot be ignored that only ESC with an interest in ASD may have responded to the survey.

The second limitation is that, although the survey developed for the present study was based largely on the SCARS instrument, the entire survey itself was not validated on a large scale.

The final limitation is in regards to the ambiguity ESC may have experienced when responding to survey items because of the undefined term of ASD. It is more expected that ESC would have responded based upon experiences with students who are considered in the

higher-functioning and Asperger realm of the spectrum. However, because no item addressed this and no definition was given, it may have influenced the results.

Implications and Future Research

This study was the first to investigate how often ESC perform counseling, consultation, curriculum, and coordination roles with students identified with ASD. Counselors are the school personnel most likely to be involved with issues that prove problematic for children and adolescents (Davis & Richie, 1993), and it is imperative that qualified and knowledgeable professionals assist students with ASD (Simpson, 2004). In an effort to increase the readiness of graduating ESC, additional coursework in providing services to special populations, especially in the area of ASD, should be included in graduate programs. This has been a recommendation that is decades old and is more essential today than ever.

The fact that the majority of ESC have participated in self-education as their main means of learning about this group of disorders demonstrates an interest. Therefore, future studies investigating the knowledge and attitudes of ESC would meaningfully add to the literature and extend this line of research.

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APPENDIX A
THEORETICAL FRAMEWORK
AND
EXTENDED LITERATURE REVIEW

This section describes the guiding theoretical framework that served as the foundation for the current study by conceptualizing knowledge and attitudes and exploring factors associated with organizational role structures in relationship to knowledge and attitudes. Legal mandates and professional expectations have created the need for ESC to have critical knowledge that may influence the roles they perform in the education of all students (Davis & Richie, 1993), as well as those identified with ASD. The theoretical constructs below describe the relationship between roles (counseling, consultation, curriculum, and coordination) and professional background, training, knowledge, and attitudes of ESC that set the momentum for this current study.

Theory of Knowledge

The definition of knowledge is a matter of ongoing debate among philosophers in the field of epistemology dating back to ancient philosophers from 3000 BC (Van Doren, 1992). It is generally accepted that epistemology is the theory of knowledge and is the branch of philosophy concerned with the nature and scope of knowledge (Williams, 2001b). Kidwell, Vander Linde, and Johnson (2000) assert a popular framework for thinking about knowledge within the following two components: *explicit* and *tacit* knowledge. Explicit knowledge is documented information that can facilitate action. It can be expressed in formal, shared language. Tacit knowledge is know-how and learning embedded within the minds of the people in an organization. Tacit knowledge is typically based upon experience and the more applied, or practical knowledge.

Similar to this concept, Cook, Tankersley, and Harjusola-Webb note that “effective teaching in special education requires not only an awareness of the research evidence but also

application of non-research knowledge – tacit or accumulated knowledge gained largely through experience” (2008, p. 106). This involves perceptions, insights, experiences, and craftsmanship. Both refer to the philosophy that learning occurs intentionally in formal settings and incidentally through experience. Learning encompasses a multifaceted set of competencies, from knowledge of simple facts to expertise (Driscoll, 2000).

Knowledge competencies for ESC have been provided by ASCA (2007) outlining knowledge, attitudes, and skills that ensure ESC are equipped to meet demands of the profession and the needs of all students. These competencies are viewed by ASCA as being applicable along a continuum of areas and were developed to be utilized in the following three ways. First, school counselor education programs may use the competencies for ensuring students graduate with the knowledge, skills, and philosophical outlook needed for developing comprehensive school counseling programs. Secondly, school counselors could use the competencies as a checklist to self-evaluate and, as needed, formulate individualized professional development plans. Lastly, administrators in charge of hiring school counselors may find these competencies useful as a guide accurate interview questions and as a means of developing meaningful school counselor performance evaluations.

Framework of Role Behavior

This study investigated professional background, training, knowledge, and attitudes of ESC as a means to the overall understanding of the roles ESC perform in the education of students identified with ASD. In order to assess ESC willingness to perform roles with this population of students, Ajzen’s (1991) theory of planned behavior (TPB), and specific ASCA (2007) knowledge competencies were utilized. Knowledge competencies specifically utilized

are contained within the Foundations domain and the Delivery system of the the ASCA National Model: A Framework for School Counseling Programs (2005). Specific knowledge competencies utilized were: (a) 11-A-2: Educational systems, philosophies, and theories and current trends in education, including federal and state legislation; (b) 11-A-5: Human development theories and developmental issues affecting student success; and (c) 111-A-6: Principles of working with various student populations based on ethnic and racial background, English language learners, special needs, religion, gender, and income. These three knowledge competencies and TPB together served as the theoretical framework that provided the blueprint for this study.

TPB was developed for the primary purpose of predicting behaviors (Greenidge & Daire, 2010) and postulates that the best predictors of an individual engaging in a specific behavior are dependent upon his/her attitudes, subjective norms, and perceived behavioral control (Ajzen, 2002). The antecedent to individual behavior is driven by behavioral intentions, which are a function of an individual's attitude toward the behavior, the subjective norms surrounding the performance of the behavior, and the individual's perception of the ease with which the behavior can be performed, termed behavioral control (Ajzen, 1991). Subjective norms refer to the perceptions of how others value the behavior, and perceived behavioral control refers to the ability to overcome potential obstacles (Ajzen, 1991).

In adapting Ajzen's theory to this study, three factors were hypothesized to influence ESC willingness to perform roles (behavior) in the education of students identified with ASD: (a) behavioral intention is the attitude towards ASD, which was measured by the Autism Attitude Scale (Olley, DeVellis, DeVellis, Wall, & Long, 1981); (b) subjective norms are contained within the three competencies (ASCA, 2007) to demonstrate that the guiding professional organization

of school counseling value's the behavior and measured by Understanding Regarding Autism (Schwartz & Drager, 2008; Stone, 1987) and (c) perceived behavioral control was measured with items in ESC professional background, and training to illustrate barriers, such as limited background, training, and experiences with students identified with ASD. The AAST contained questions that further assessed how ESC view barriers that may complicate their involvement in the roles performed with students identified with ASD.

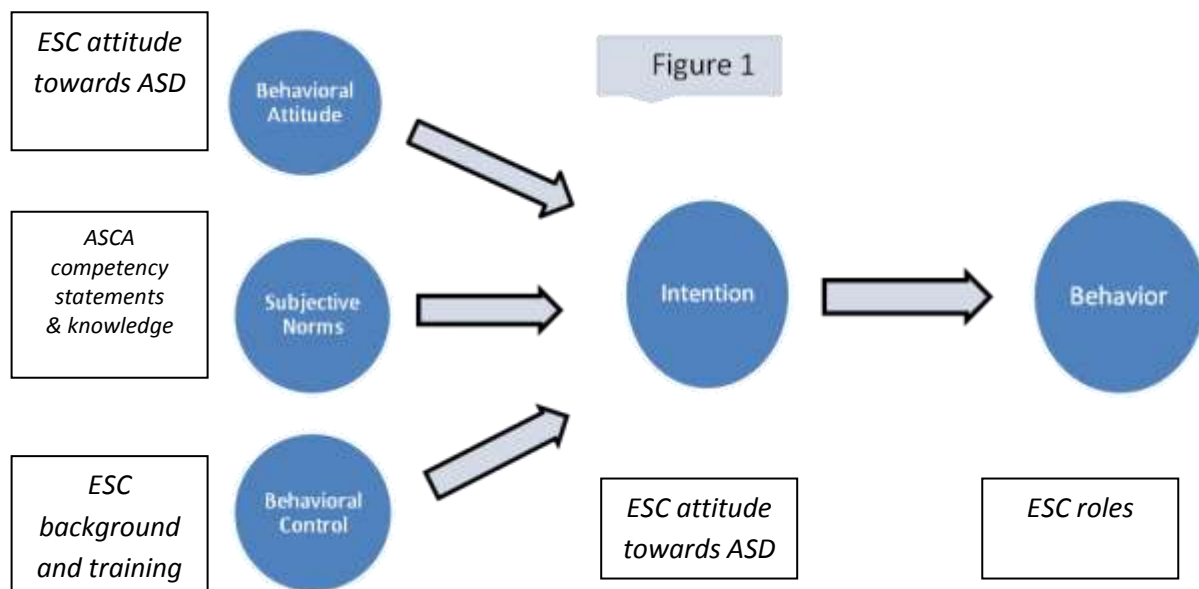


Figure 1. Theory of Planned Behavior framework

Evolution of the School Counseling Profession

A historical review of the field of school counseling reveals origins beginning in vocational guidance, psychometrics, and student development (Lambie & Williamson, 2004). Assisting with post-secondary training was the counselor's primary role along with traditional roles, such as counseling, consulting, and coordination of services (Studer & Quigney, 2005). In

order to promote and organize the field, the National Vocational Guidance Association (NVGA) was created in 1913. The NVGA merged with several educational associations creating what is known today as the ACA. ASCA became a division in the early 1950s and continues to be a current division of the ACA.

By the 1940s, the profession began shifting away from the guidance model towards a person-centered counseling approach (Schmidt, 2003). The 1950s were a time of establishing the identity of the school counselor with training centered on the development of individual counseling skills. In addition, Congress passed the National Defense Education Act (NDEA) in 1958. Funds were allocated from this legislation to provide school counseling services to gifted high school students in an effort to guide them towards college. Funds also were allocated to colleges and universities for the development of school counseling preparation programs (Lambie & Williamson, 2004).

A report in the early 1960s (*The Counselor in a Changing World* by Gilbert Wrenn) emphasized the importance of students' holistic development (Cobia & Henderson, 2002). This report guided the amendments to NDEA that included services for gifted students at the elementary level. Another significant event in the 1960s was the Elementary and Secondary Education Act of 1965 and the Vocational Education Act Amendments of 1968. These mandates designated funds for guidance and counseling, as well as granted funds to support career guidance programs at all levels for disadvantaged students and students with disabilities (Herr, 2002).

The 1970s included possibly the most dramatic changes in the role of school counselors. The Education of all Handicapped Children Act (EAHCA; P.L. 94-142, 1975) began an evolution

of the school counseling profession by mandating that all children with disabilities receive a free and appropriate public education with access to related services. School counseling is an identified related service (Bowen, 1998). The law has undergone numerous amendments and is known today as Individuals with Disabilities Education Improvement Act (IDEIA; P.L. 108-446). Though EAHCA began the evolution process, IDEIA increased the involvement of school counselors (Milsom & Hartley, 2005; Villalba, Latus, Hamilton, & Kendrick, 2005; Wadsworth, Milsom, & Cocco, 2004) by mandating for them to become a participating member of the multidisciplinary team responsible for developing appropriate educational plans for students with disabilities.

With each decade the profession has progressed and the roles of school counselors have evolved (Adelman, 2002; House & Sears, 2002; Shillingford & Lambie, 2010) from solely focusing on meeting the needs of gifted students in general education to meeting the needs of *all* students, across *all* instructional arrangements (ASCA, 2004).

Current Role of Elementary School Counselors

When considering the evolution to the current roles of ESC, one might attribute the change to a variety of factors, including federal legislation mandating a free appropriate education for all students in the least restrictive environment (IDEIA, 2004), a philosophical shift from segregation and isolation to integration and assimilation (Etscheidt, 2006), and the emergence of the need to utilize scientifically-based practices across all instructional settings (Cook, Tankersley, Cook, & Landrum, 2008; Slavin, 2002; Yell, Drasgow, & Lowrey, 2005). The profession is also focusing upon preventive measures, such as the Response to Intervention

(RtI) initiative (Miller, 2008), instead of reactionary efforts as were utilized in past curriculum delivery models.

ESC now perform roles with all students, as mandated by federal laws, and recommended by the ASCA. The specific roles performed with students may vary depending upon the individualized needs of the student (Walsh, Barrett, & DePaul, 2007). One of the barriers cited in the literature regarding ESC engaging in professionally determined roles is the lack of control they have over their day-to-day work activities and that their role continues to be defined by a number of sources (Paisley & Borders, 1995). This sometimes serves as a source of frustration given there is a paucity of research about the components of roles and functions of ESC related to working with students with disabilities (Kosine, 2005).

One rationale for the discrepancy of a well-defined set of roles may be the heterogeneity of the students school counselors serve. Another reason may be the history of legislative mandates and educational reform movements that have had a considerable influence on the changing roles of the profession (Green & Keys, 2001; Gysbers, 2001).

In an effort to create a more unified vision of a comprehensive school counseling program, as well as delineating the professional school counselor's role, ASCA developed a publication entitled the ASCA National Model: A Framework for School Counseling Programs (2005). One purpose for this model was to ensure that *every* student had equitable access to the school counseling program, and to ensure that the school counseling program was delivered systematically to *all* students (Bowers & Hatch, 2005; Shillingford & Lambie, 2010). There are four quadrants included in the National Model (Foundation, Delivery System, Management System, and Accountability). Central to the focus of this study was the delivery

system that explains the activities for which ESC are most responsible. Guidance activities, individual student planning, responsive services, and systems support are the four activities within the delivery system. Guidance curriculum consists of structured lessons designed to provide all students with the knowledge and skills appropriate for their developmental level. The guidance curriculum is delivered throughout the school system and may be systematically tailored to the individual needs of the campus. One goal of presenting the guidance curriculum throughout the school system is so ESC may have contact with all students included on their campus.

Individual student planning is where ESC coordinate ongoing systemic activities designed to help students establish personal goals and develop future plans. This area is the main focus during the high school years (Bowers & Hatch, 2005) and is mainly referred to as transition services. Career counseling is recommended to be initiated in the elementary and junior high years so students already have some ideas of the type of careers they may be interested in.

During elementary and junior high, the third area included in the delivery services quadrant, responsive services, is the main focus and captures the majority of the ESC time. These services are meant to be preventative activities meeting students' immediate and future needs (Bowers & Hatch, 2005). Responsive services consist of individual and/or group counseling, consultation with parents, teachers and other related service personnel, referrals, and peer mediation.

While the final component included within the delivery system is not considered as directly connected to students, system support is still invaluable to the overall counseling

program. This component consists of managing activities to establish, maintain, and enhance the comprehensive school-counseling program. The activities included within this component are professional development, consultation, collaboration, program management, and operations.

Similarly, the ASCA (2004) has produced position statements on pertinent issues in the school counseling field. The position statement that specifically focuses on students with special needs encourages ESC to support *all* students' academic, personal/social, and career development through comprehensive school counseling programs. The ASCA is not the only organizational body placing importance on this issue. In the 18th report to Congress on the implementation of the IDEIA, the U.S. Department of Education listed school counseling as one of the related services most needed by students with exceptionalities (1996).

“Changes in the roles of school counselors have not occurred in a vacuum; they have been shaped by the context of the American educational system” (Walsh, Barrett, & DePaul, 2007, p 371). The new configuration of the general education classroom calls for new expectations of ESC now than it did in decades past. Today's general education classroom reflects the diversity of society and will have students of varying learning styles and abilities including those with autism spectrum disorders (Wagner, 1999).

Roles of Professional School Counselors and Students with Disabilities

The reauthorization of IDEIA and the ASCA position statements have fostered an increased focus in the professional literature regarding the interactions between ESC and students with disabilities. Specifically researchers have examined activities of school counselors regarding collaboration (Kaffenberger, 2006; Murphy, DeEsch, & Strein, 1998), advocacy efforts

(Borders & Drury, 1992; Deck, Scarborough, Sferrazza, & Estill, 1999; Scarborough & Deck, 1998), assisting in inclusion classrooms (Greene & Valesky, 1998; Quigney & Studer, 1998; Tarver-Behring, Spagna, & Sullivan, 1998), leadership activities (Scarborough & Deck, 1998; Deck et al., 1999), and participation on multidisciplinary teams (Carpenter, King-Sears, & Keys, 1998). These research foci represent the roles ESC are performing in the education of students with disabilities.

Research has shown that ESC perform many roles and provide a variety of services for students with disabilities (Milsom, 2002; Studer & Quigney, 2003). However, also evident in the literature is that there is insufficient educational preparation and training in these aspects (Janson, Miller, & Rainey, 2007). Studer & Quigney (2005) conducted a survey on the amount of preservice and in-service training that school counselors receive related to students with disabilities and special education. Participants indicated significantly less training for roles requiring leadership, collaboration with other school professionals, and advocacy activities. Similarly, a study examining preservice school counselors' attitudes toward working with students with disabilities found that more than half of participants' responses indicated a lack of training in regards to engaging in a system-wide advocacy, leadership, and collaboration role (Janson, Guillot, & Rainey, 2007).

Web-based training funded from the Office of Special Education, (OSEP) in collaboration with Vanderbilt University, documents the importance of the knowledge and training needs of school counselors in working with students with disabilities. Modules specific to school counseling are in the areas of roles of responsibilities of the school counselor in working with students with special needs, and facilitating transitions from high school to postsecondary

settings for these students. This transition is an influential event in any student's life.

However, for students identified with ASD, there is a difference in the degree of detail needed in the transition planning process. The social, communication, and behavioral factors that are associated with ASD create more need for the direct involvement of school counselors in these students' transition planning.

Autism Spectrum Disorders

Pervasive developmental disorder (PDD) refers to the overarching group of conditions or class to which autism belongs (Volkmar & Wiesner, 2009). Within this class, the following disorders are recognized: Autism, Rett's disorder, childhood disintegrative disorder (CDD), Asperger's Syndrome (AS), and pervasive developmental disorder not otherwise specified (PDD-NOS). PDD as the term used to describe these conditions is purportedly going to be replaced with the term Autism Spectrum Disorders (ASD). There has been considerable debate in the field about the relationship between higher-functioning forms of autism and Asperger's Syndrome (Ozonoff, South, Miller, 2000). Some researchers contend that there is little empirical evidence of a true distinction (Schopler, 1996), while some advocate for a true divergence (Klin, Volkmar, Sparrow, Cicchetti, & Rourke, 1995). The term High-Functioning Autism Spectrum Disorders (HFASD) has recently been used to characterize the broader group of students identified with HFA, AS and pervasive developmental disorder not otherwise specified (PDD-NOS; Volkmar & Klin, 2005). Because ESC have responsibilities to students identified across the spectrum as mandated by law and directives from the ASCA, this study utilized the term ASD to encompass the entire spectrum.

The most frequently used system for diagnosis in the United States is the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000). The triad of symptoms that must be prevalent are impairments in social functioning, communication, and the presentation of restricted, repetitive behaviors. An absence of clinically significant delays in communication is a factor that determines a diagnosis of AS instead of autism. Revisions for the DSM-V (APA, 2011) will change this determination.

Characteristics of students identified with ASD affecting school performance are social difficulties (Boutot, 2009; Garcia-Winner, 2007; Klin, Volkmar, & Sparrow, 2000), behavioral and emotional issues (Barnhill et al., 2000; Myles & Southwick, 1999), restricted range of interests (Gagnon, 2001; Williams, 2001a), selective attention (Goodman & Williams, 2007; Rogers, 2001), sensory issues (Dunn, Myles, & Orr, 2002; Myles, Barnhill, Hagiwara, Griswold, & Simpson, 2001; Myles, Cook, Miller, Rinner, & Robbins, 2000), and poor motor skills (Ghaziuddin & Butler, 1998; Ghaziuddin, Butler, Tsai, & Ghaziuddin, 1994). Academic characteristics of ASD are difficult to describe because of the heterogeneity of the disorders. Children with AS typically have average to above average intellectual abilities (Myles, 2005). The difficulties they experience are principally because of the deficits inherent to the disorder and learning profiles in this population tend to vary (Griswold, Barnhill, Myles, Hagiwara, & Simpson, 2002).

One defining characteristic of individuals with ASD that affects all areas of functioning is their difficulty establishing and maintaining social relationships with others (Laushey & Heflin, 2000; Szatmari, 1991). The discrepancy in the understanding of social behaviors frequently

leaves them in social isolation instead of surrounded by friends. These social deficiencies may lead to mental health issues.

Mental Health Issues and Individuals with ASD

The prevalence of comorbid conditions in persons who are on the autism spectrum is higher than those in the typical population (Ghaziuddin, 2005; Lainhart, 1999; Ruberman, 2002). Recent studies have shown individuals on the autism spectrum to be diagnosed with depression, anxiety, and Attention Deficit Hyperactivity Disorder (ADHD) most commonly as comorbid mental health issues (Gillberg & Billstedt, 2000; Stewart, Barnard, Pearson, Hasan, & O'Brien, 2006). In a study concentrating specifically on the comorbidity of ASD and psychiatric disorders, Ghaziuddin, Weidmer-Mikhail, and Ghaziuddin (1998) found that of 35 participants with a mean age of 15, 65% presented symptoms of an additional psychiatric disorder. In this study, children were most likely to suffer from ADHD, while depression was most common in adolescents and adults.

An epidemiological study of 112 children identified with ASD revealed 70.8% showed at least one current psychiatric disorder, with 41% showing two or more comorbid psychiatric disorders (Simonoff et al., 2008). Similarly, a study using a semi-structured psychiatric interview for reflecting the presentation of psychiatric disorders in ASD included 109 children ranging in age from 5 to 17. Results showed that those participating demonstrated a high prevalence of specific phobia, obsessive compulsive disorder, and ADHD (Leyfer et al., 2006).

In another study, Kim, Szatmari, Bryson, Streiner, and Wilson (2000) compared rates of mood and anxiety disorders within a sample of 1751 community children identified with ASD. The children with ASD demonstrated a greater rate of mood and anxiety disorders than did

neurotypical children. This study indicates that children identified with ASD are at greater risk for mood and anxiety problems that may have a significant impact on their overall well-being and adaptation.

One of the primary focuses of the training received by ESC is counseling students with mental health issues that may interfere with their learning processes. The results of the comprehensive studies described above suggest a need for ESC to take an active role in the educational endeavors of students identified with ASD.

Knowledge and Roles of Support Personnel in Autism Spectrum Disorders

Stone (1987) is considered a pioneer in the exploration of knowledge and attitudes of professionals regarding autism by designing a 23-item survey to examine the effects of different professional training backgrounds on knowledge and attitudes. The four disciplines targeted in the study were pediatrics, clinical psychology, school psychology, and speech/language pathology. Their responses were compared with 18 specialists in the area of autism. Whereas the specialists' views were consistent with views prevalent during that time period, individual responses from the participants of the four disciplines revealed misconceptions regarding the social, emotional, and cognitive aspects of the disorder.

Similar to these findings, Stone and Rosenbaum (1988) conducted a follow-up study using only specific components of the original survey by Stone (1987) to assess teacher and parental beliefs and again compared these beliefs with those held by 22 specialists in the area of autism. Both parent and teacher responses showed misconceptions regarding cognitive, developmental, and emotional features of autism. The implications of these studies highlight

the importance of recognizing individual perspectives that each discipline brings to the multidisciplinary team (Stone, 1987).

Just short of a decade after the Autism Survey (Stone, 1987) was created, Campbell, Reichle, and Van Bourgondien, (1996), conducted a confirmatory factor analysis on Part I of the survey which consist of 21 statements reflecting misconceptions about autism (Stone & Rosenbaum, 1988). Items in Part I were originally grouped into three categories. These categories were social-emotional features (eight items), cognitive features (six items), and general descriptive features (seven items). Analysis confirmed three rogue items (i.e., even with early intervention, the prognosis for independent community functioning of children with autism is poor; most children with autism do not talk; and autism is a communication disorder) and were discarded from further analysis. In regards to the first rogue item, the authors presented the rationale that the item contained wording that may have made the appropriate response unclear because the question combined positive aspects (early intervention) with negative conations (prognosis of independent functioning being poor). The results of the study were that the Autism Survey appears to be a “good instrument” (p. 631), however, with the revision of discarding the three rogue items the reliability of the measure improves. The authors recommend that further psychometric testing conducted with a larger and more heterogeneous sample needs to be conducted.

Heidgerken, Geffken, Modi, and Frakey (2005) further extended this line of research by exploring the knowledge and beliefs about autism among health care related professionals at the Center for Autism and Related Disabilities (CARD). The first group represented professionals who were specialists in the field of diagnosis and treatment of autism, such as

psychiatrists, speech and language pathologists, clinical psychologists, compared with traditional primary health care providers, such as family physicians, pediatricians, and neurologists who were limited in their exposure to children with autism. Results of the study indicated that primary care providers endorsed outdated practices, as compared to the specialists group whose belief patterns were consistent with current research and evidence-based practices (Heidgerken et al., 2005). Implications of this research recommended the need for continuing education for primary health care providers and emphasized the importance of strong collaboration with experts in the field of autism.

A revised version of the Autism Survey (Stone, 1987) has also been utilized in the field of social work in an exploratory study assessing social workers' understanding of ASD (Preece & Jordan, 2007). The study employed a small sample size with only 23 participant responses; the results followed similar trends to prior research in suggesting the need for autism-specific training.

Schwartz and Drager (2008) further revised the survey in a more recent study of knowledge about autism among speech-language pathologists (SLP), by changing the response scale and adjusting the statements so that they reflect the opinions of respondents. In addition, instead of utilizing the diagnostic questions in the way Stone (1987) had, terminologies consistent with current criteria were employed, and the response scale was changed to true/false. Results of this study noted that most participants had accurate knowledge about the characteristics of children with autism. However, participants had mixed perceptions of diagnostic criteria for autism and reported that they could have benefited from additional training in the area of autism, which has been a common and consistent theme in

the line of research regarding knowledge and training in ASD, highlighting the potential training needs among various practitioners. School-based practitioners who are members of the multidisciplinary team are mandated to be knowledgeable in the IEP process. This is a requirement for every team member, including ESC who are among related service personnel.

Knowledge and Training of Professional School Counselors in Autism Spectrum Disorders

Comprehensive support systems in public schools are typically made up of multidisciplinary teams. Individuals on these teams bring disciplinary expertise to support programming for students. Because of the need for comprehensive support for students identified with ASD, it is critical that counseling and human development professionals become familiar with ASD and the roles that they may perform in the treatment of this population (Myles & Simpson, 2002). ESC are in a unique position to assist students with ASD by assisting with the coordination and maintenance of services. By the very nature of their job description, ESC may be the first professionals from whom parents and teachers seek assistance. The ASCA specifically indicates that school counselors are to serve on the school's multidisciplinary team, with relevant literature citing school counselors as vital members of the team (Carpenter, King-Sears, & Keys, 1998).

Although it is recognized that ESC need to be prepared to work with students with special needs, training and exposure to special education content may be inadequate. In a counseling and human development journal article, Myles and Simpson (2002) state:

despite recognition of the exceptionalities of this disorder, school and community-based personnel generally have had little training on how to support the student with AS. Thus, even though they are now taking an increased role in the lives of these individuals, **school counselors**, school social workers, school psychologists, agency workers, family counselors, and other educational professionals must educate themselves about AS in order to best meet student needs. (p. 1)

Similarly, in the article “School-Based Programs” within the most recent volume of the *Handbook for Autism and Pervasive Developmental Disorders* (3rd edition, 2005), Arick, Krug, Fullerton, Loos, and Falco give in their analysis of specific supports for anxiety and emotional vulnerability, the need for a “safety net.” This is consistent with Brenda Smith Myles’ (2005) suggestion of a “home base” area for the student with ASD to meet with an identified support person in the school. Arick et al. (2005) list examples of who could fulfill this role, specifically noting the guidance counselor.

This study investigated ESCs’ self-reported (a) professional background and training, (b) general knowledge of ASD characteristics, (c) attitudes towards ASD, and (d) roles performed with students identified with ASD. Also investigated was whether there were any predictive relationships between professional background, training, knowledge, and attitudes on roles (counseling, consultation, curriculum, and coordination) performed with students identified with ASD.

The core questions for this study are as follows:

1. What knowledge do ESC possess concerning ASD?

Hypothesis 1: The more knowledge ESC have regarding ASD, the more roles they will engage in (counseling, consultation, curriculum, coordination).

2. What educational training and professional development experiences do ESC receive specific to ASD?

Hypothesis 2: The more graduate courses ESC completed that addressed ASD, the higher they will score on knowledge about ASD.

3. What attitudes do ESC possess regarding ASD?

Hypothesis 3: The more positive attitudes ESC possess, the more roles they will perform in each area (counseling, consultation, curriculum, coordination).

4. How often are counseling, consultation, curriculum, and coordination roles performed by ESC in the education with students identified with ASD? (Contained within publishable unit).
5. What variables predict the roles that ESC perform in the education of students with ASD?

APPENDIX B
DETAILED METHODOLOGY

The detailed methodology section encompasses all tables not represented in the publishable unit. Tables representing response rates (Table 1), frequency of activities contained with each role domains (Tables 2 - 5), and overall frequency of the four roles (Table 6) are contained within the publishable unit. All additional tables related to methodology are presented below.

Participants

Two-hundred and twenty-one public school ESC were recruited across the nation to participate in this study. As shown in Table B.1, approximately 50% of participants were from the Southern region of the United States (50.2%), with 22.2% from the Northeast, 13.1% from the Midwest, and 13.1% from the West. There was representation of each of the three geographic areas ESC worked in, with suburban districts accounting for the majority (45.7%), rural districts accounting for 30.3% and urban districts accounting for 24.0% respectively.

Table B.1

Frequencies and Percentages for Categorical Demographic Variables

| | Frequency | % |
|----------------------|-----------|------|
| U.S. Region | | |
| Northeast | 49 | 22.2 |
| Midwest | 29 | 13.1 |
| South | 111 | 50.2 |
| West | 28 | 12.7 |
| District Geographics | | |
| Rural | 67 | 30.3 |
| Suburban | 101 | 45.7 |
| Urban | 53 | 24.0 |

Note. Frequencies not summing to 221 and percentages not summing to 100 reflect missing data.

Forty-three out of the fifty states were represented; however, 16 states had only one participant (see Table B.2). The majority of responses were obtained from Texas (20.4%).

Table B.2

Frequencies and Percentages for Categorical Demographic Variables

| | Frequency | % |
|---------------------------|-----------|------|
| Participate States | | |
| Alabama | 1 | .5 |
| Arizona | 4 | 1.8 |
| Arkansas | 1 | .5 |
| California | 3 | 1.4 |
| Colorado | 3 | 1.4 |
| Connecticut | 1 | .5 |
| Delaware | 2 | .9 |
| Florida | 4 | 1.8 |
| Georgia | 10 | 4.5 |
| Hawaii | 1 | .5 |
| Idaho | 2 | .9 |
| Illinois | 1 | .5 |
| Indiana | 1 | .5 |
| Iowa | 2 | .9 |
| Kansas | 1 | .5 |
| Kentucky | 1 | .5 |
| Louisiana | 1 | .5 |
| Maine | 2 | .9 |
| Maryland | 4 | 1.8 |
| Massachusetts | 2 | .9 |
| Michigan | 3 | 1.4 |
| Mississippi | 1 | .5 |
| Missouri | 9 | 4.1 |
| Nevada | 3 | 1.4 |
| New Hampshire | 1 | .5 |
| New Jersey | 3 | 1.4 |
| New Mexico | 1 | .5 |
| New York | 22 | 10.0 |
| North Carolina | 9 | 4.1 |
| North Dakota | 1 | .5 |
| Ohio | 3 | 1.4 |
| Oklahoma | 13 | 5.9 |

| | | |
|--------------------------------------|----|------|
| Oregon | 2 | .9 |
| Pennsylvania | 17 | 7.7 |
| Rhode Island | 1 | .5 |
| South Carolina | 3 | 1.4 |
| South Dakota | 1 | .5 |
| Tennessee | 5 | 2.3 |
| Texas | 45 | 20.4 |
| Utah | 1 | .5 |
| Virginia | 11 | 5.0 |
| Washington | 8 | 3.6 |
| Wisconsin | 7 | 3.2 |
| I do not reside in the United States | 4 | 1.8 |

Data Collection Procedures

In order to conduct the study, Institutional Review Board (IRB) was secured from University of North Texas IRB. The survey ranged from approximately 11 minutes to 25 minutes to complete depending upon the participant. The IRB approval form is located at the end of this section.

Survey methods, in the form of a questionnaire designed to collect data from a sample utilizing the web-based technology Qualtrics, were employed to obtain data responses. According to Alreck and Settle (2004), web surveys are “vastly superior” to e-mail questionnaires or attachments (p. 183). They note that the use of the internet has grown rapidly and offers a more stable and readily accessible environment for participation in surveys. Further, wide spectrums of demographic groups utilize the internet. Web surveys offer a cost advantage and can be conducted more quickly than other survey methods (i.e., phone, mail). Finally, web surveys make data collection more efficient by reducing data handling.

Responses were obtained mainly through the utilization of the social networking site the ASCA has constructed, called the SCENE, which was comprised of 13,265 members associated with school counseling at various grade levels at the time of this study; 405 members identified themselves as ESC. The survey was posted on the SCENE website in the discussions forums of the site, specifically in the research survey requests, general discussions, and elementary school counselors. In addition, e-mail addresses of individuals who identified themselves as ESC were retrieved from the directory, and those individuals were each e-mailed an invitation to participate in the study. A request to forward the e-mail to colleagues who may be interested in participating was imbedded within the second, third, and fourth round of individual e-mails sent to potential participants. Additional sites the survey link was posted on consisted of the ASCA group on facebook, and several counseling affiliated groups on LinkedIn, comprising the “other” category (see Table 1).

The second sampling method utilized to recruit participants was through traditional postal mailing. The mailing consisted of a postcard invitation to ESC members of the ACA. An amount of 1,000 physical addresses were obtained from the ACA database and utilized to mail out the postcards to potential participants. The postcard concisely described the study and incentive, requested participation, and provided the survey link. An example of the postcard, as best it can be represented in this format, is provided at the end of this section.

The frequencies and percentages of the categorical variables, invitation to participate, are shown in Table 1. Nearly one-half of the participants were invited through an e-mail from the researcher of the study (49.8%). In addition, nearly 20% were referred to the study from a survey link on the ASCA social networking site (19.5%). Other participants were invited through

an e-mail from a colleague (13.6%), postcard mailing (8.6%), survey link on Facebook (.5%), and through other methods (8.1%).

In order to maximize the response rate, Dillman's (2007) Tailored Design Method was followed with adaptations. This method involved five essential contact opportunities. The first aspect of the Tailored Design Method was for potential participants to receive a pre-notice e-mail explaining the study and indicating that the participant would receive a link to a brief, web-based study in the upcoming days. This step in the method was not utilized because of the two differing ways participants were recruited. With the amount of traditional mailings that were sent, a pre-notice mailing was not viable. A pre-notice was viable for the social networking sites and individual e-mails; however, in an attempt to be as efficient in collecting data as possible, this step was removed. The second aspect of the Dillman method, which operated as this study's invitation e-mail, was for the participants to receive an e-mail with a detailed description of the study and a hyperlink to the web-based questionnaire. Additionally, this e-mail described the perceived risks and benefits to participating in the study, confidentiality aspects, and the acknowledgment that the study had been approved by the University of North Texas Institutional Review Board. Near the end of the e-mail was an attempt to encourage participation by offering the opportunity to participate in a drawing for four VISA™ gift-cards in amounts of \$25 each. Offering incentives has become a popular method for increasing response rates (Church, 1993). Participants were asked to send an e-mail to a third party e-mail address, and leave their contact information in order to be eligible for the drawing. One week following the invitation e-mail, the third aspect of the Tailored Design Method was employed. This e-mail was quite similar to the invitation e-mail with the addition of an expression of

gratitude to those who had participated, an offer to encourage participation for those who had not yet participated, and a request for the recipient to forward the invitation to colleagues who may be interested in participating. Following another week, a similar procedure was employed, totaling three points of contact. Finally, a fourth and final e-mail was sent out indicating the study's date of conclusion and re-emphasizing the importance of contributions to the study. Copies of the e-mails are included at the end of this section for clarification.

Survey Development

Section I, Professional Background and Training, consisted of demographic questions, along with professional background and training items. These questions were based upon the need to fully assess the demographics of ESC who participated in the study. The professional background and training questions were needed to assess what experiences ESC who participated in the study had regarding ASD and if they had experiences with students identified with ASD.

Section II, Understanding Regarding Autism, targeted information concerning diagnostic criteria, characteristics, common misconceptions, and the etiology of ASD. Items from this section of the instrument were based largely upon Schwartz and Drager's (2008) study of knowledge and training among speech-language pathologists (SLP), and Stone's (1987) Autism Survey. Specifically, items 1 through 7 are based upon Schwartz and Drager's study that reflects more current diagnostic criteria (DSM –IV; 1994) of Autisitc Disorder as compared to Stone's (1987) utilization of the available edition of the DSM-III (APA, 1980). Items 8 through 17 were items first developed by Stone and revised by Schwartz and Drager. The additional 7 items are additional items based upon current literature revealing characteristic learning styles

(Hume, 2006; Iovannone, Dunlap, Huber, & Kincaid; Myles & Adreon, 2001) and common misconceptions of ASD (Offitt, 2008), which was extracted from a survey instrument developed by Ray and Mehta (2010) designed to measure knowledge of speech-language pathologists regarding autism.

The original 23-item Autism Survey developed by Stone (1987) assessed the beliefs and knowledge of 239 professionals representing four disciplines regarding the etiology, diagnosis, and specific features of autism compared with 18 specialists in the field. Separate one-way ANOVAs calculated for each statement and planned comparisons yielded significant group differences (Stone, 1987).

Part I originally consisted of 21 statements related to common misconceptions about autism, gleaned from the current literature (Farber & Capute, 1984; Schopler, 1983) during that time period, as well as participants' clinical experience. The items contained in the original survey were selected to represent three broad areas: social and emotional features; cognitive characteristics; and general descriptive features, including course of disorder and prognosis. Participants were asked to indicate the degree to which they agreed with each statement. The ratings were obtained on a 6-point scale, with the following anchor points: 1 = fully agree, 2 = mostly agree, 3 = somewhat agree, 4 = somewhat disagree, 5 = mostly disagree, and 6 = fully disagree. This scale was adapted for the current study, similar to Schwartz and Drager (2008) so that participants indicated whether they thought the item was true or false.

Section III, School Counseling Activity Rating Scale (SCARS; Scarborough, 2005), was utilized to assess the frequency in which ESC *actually* perform each function listed in the domain areas. The SCARS was first designed to measure how school counselors actually spend

their time versus how they would prefer to spend their time. The SCARS also has been utilized as a tool for program evaluation in previous studies (Scarborough, 2005). Process data describe the way the school counseling program is structured and conducted and whether prescribed practice was followed. The SCARS is divided into five sections, four of which refer to school counseling activities recommended by ASCA's National Model (2005), including counseling, consultation, curriculum, and coordination activities. The fifth section, reserved for "other" activities, was eliminated for this study. The SCARS uses a verbal frequency scale in which school counselors are asked how often an activity is performed. A verbal frequency scale is used as a measure of "how often" an action is taken, rather than a Likert scale that measures "strength of agreement," although both are very similar (Alreck & Settle, 2004). Scarborough recognized that the verbal frequency scale has limitations (i.e., the specific amount of time is not assessed); however, utilization of this scale has been cited due to perceived ease, comprehensiveness, and flexibility.

Scarborough (2005) conducted a study to examine the initial reliability and validity of the SCARS in 2005. Participants consisted of 361 practicing school counselors (117 elementary level, 120 middle school level, and 124 high school level). Results supported the utility of the SCARS as a measure of process data reflecting how school counselors actually may spend their time versus how they would prefer to spend their time in job-related activities. Content validity, construct validity, and reliability were assessed on the 40 items representing the activities associated with the four categories recognized by the school counseling profession. Cronbach's alpha reliability coefficients were calculated for the four subscales. The closer Cronbach's alpha coefficient is to 1.0, the greater the internal consistency of the items in the

scale (Gliem & Gliem, 2003). The curriculum subscale coefficients were closest to 1.0, with all four scales showing reliability coefficients ranging from excellent to acceptable, according to George and Mallery (2003).

With permission from Janet Scarborough, SCARS's developer, adaptations were made to the instrument to facilitate gathering information on roles ESC perform with students identified with ASD. The format of "actual" versus "preferred" activities was not considered suitable for the target population of this study. Therefore, the "preferred" column was dropped. The adapted format allowed the participants to select from the following options: 1 = I NEVER do this; 2 = I RARELY do this; 3 = I OCCASIONALLY do this; 4 = I FREQUENTLY do this; and 5 = I ROUTINELY do this. Adaptations to individual questions were also employed. Included in individual questions was one of the following phrases to ensure questions are appropriate for the target purpose of this study: "with students identified with ASD," "of students identified with ASD," or "that includes students identified with ASD." The coordination domain presented several questions that were inadaptable to these additions. Specifically, the following activity items: coordinate special events and programs for school around academic, career, or personal/social issues (e.g., career day, drug awareness, test prep); coordinate and maintain a comprehensive school counseling program; and coordinate school-wide response for crisis management and intervention were not appropriately adaptable.

The question "conduct small groups with students identified with ASD regarding bullying issues" was added because of the specificity of potential problems this population of students may incur with bullying issues (Carter, 2009; Gray, 2004; Myles & Simpson, 2002). Throughout the survey, the term "ASD" was consistently used, to order to broadly conceptualize and

include students in the public school setting that ESC may have the opportunity to serve. This term is consistent with current reflections in the field, as it is purported that the DSM- V is representing autism, Asperger's disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified as a single category under the name Autism Spectrum Disorder (American Psychiatric Association, 2011).

Lastly, Section IV, Autism Attitude Scale for Teachers (AAST; Olley, Devellis, Devellis, Wall, & Long, 1981) was chosen in accordance with the guiding framework, TPB (Ajzen, 1991) of this study. TPB suggests that engagement in specific behaviors correlates with attitudes concerning the behavior, beliefs regarding how significant others perceive the behavior, and the perceived control over barriers in the execution of the behavior (Mackenzie, Knox, Gekoski, & Macaulay, 2004). The AAST consists of a total of 14 questions to measure the attitude of school teachers towards children with autism. The AAST is a Likert-type scale with five options (strongly disagree, disagree, uncertain, agree, strongly agree). The participants' attitudes are determined by summing the scores on the individual items; higher scores reflect more positive attitudes, whereas lower scores represent less positive attitudes. The authors, in a publication dedicated to scoring the AAST, state that some words are worded positively while others are worded negatively. This is important to take into consideration before computing the total score. All items must be converted to a positive score for a positive attitude by reverse-scoring negatively worded items. Specifically, the first, second, fourth, sixth, seventh, eighth, ninth, 11th, 13th, and 14th items are negatively worded and should be reverse-scored (Olley et al., 1981). The following adaptations to facilitate more appropriate instrumentation for the target

population of ESC were employed: the wording was changed to reflect a person first language, and “teachers” have been replaced with “ESC.”

The instrument was refined after it was reviewed by a panel of experts in the fields of school counseling and ASD. Experts were asked to review the instrument and provide feedback on whether items in Section III (Professional Counseling Activities Related to Autism) and Section IV (Autism Attitude Scale) adequately measure ESC activities related to ASD and ESC attitudes toward students with ASD. Changes were made based upon the feedback provided. Changes consisted of keeping terminologies of ASD consistent throughout the survey, grammatical and style changes, and re-wording question 10 so that it clearly asked about the *total* caseload that an ESC would serve.

The initial survey was pilot tested with select ESC around the nation. Selections were made based upon the author’s familiarity with the individuals. Alreck and Settle (2004) advise in support of conducting informal pilot tests to obtain responses to key variables in question. Potential pilot testers were requested via e-mail to participate. The pilot test participants were given access to a trial link to the survey. Recommendations from this informal pilot test were to take out question 7 regarding how long ago ESC had earned their certification. The author felt this was an important question and elected to keep it in the survey. Additional recommendations were to place the “Agree” option in question 16 in logical order. The way the original question read, the “Agree” option was the last answer choice, which did not mirror how the opposite side of the column read.

Data Analysis Procedures

Power analysis using g*Power 3.1 analytical software was conducted (Faul, Erdfelder, Buchner, & Lang, 2009) and results indicated that with an alpha of .05, a power of .95, and a moderate effect size with 15 predictors, the minimum sample required was 199. The total amount of the sample surpassed this number by 22 respondents. Research Questions 1 through 4 were addressed by running descriptive statistics of Sections I, II, III, and IV. Specifically, frequencies and percentages were utilized to describe the categorical survey variables, and means and standard deviations were utilized to describe the continuous survey items.

For Research Question 1 (What knowledge do professional elementary school counselors possess concerning autism spectrum disorders?), the total number correct for each of the knowledge items is reported. In addition, the total number of correct responses in Section III was summed to create one overall knowledge score for each participant. The knowledge score was described using a mean and standard deviation.

For Research Question 2 (What educational training and professional development experiences do professional elementary school counselors receive specific to autism spectrum disorders?), the background and training of each participant is described using means and standard deviations for the continuous items, and frequencies and percentages for the categorical items. In addition, a significant positive relationship is hypothesized between number of completed graduate courses related to ASD (item numbers 13 and 14 in Section II) and ASD knowledge. An independent samples t-test was used to compare the knowledge scores of those who took no courses related to ASD compared to those who took any courses

related to ASD.

For Research Question 3 (What attitudes do professional elementary school counselors possess regarding autism spectrum disorders?), two attitudes subscale scores are calculated according to the scoring scheme described by Olley, DeVellis, DeVellis, Wall, and Long (1981). After reverse scoring the negatively worded items, responses to the attitudes items were averaged to create the subscale scores of Belief Scale (a) and Belief Scale (b). The means and standard deviations of each of the two subscales are reported.

For Research Question 4 (How often are counseling, consultation, curriculum, and coordination roles performed by ESC in the education of students identified with autism spectrum disorders?), after reporting the means and standard deviations of each item, four subscale scores have been calculated by creating a sum score for each of the four groups of variables (counseling, consultation, curriculum, coordination). Higher scores represent an ESC spending more time engaging in more roles in each of the four areas compared to those with lower scores. The four subscale scores are described using means and standard deviations. In addition to the descriptive characteristics of the roles, a significant positive relationship was hypothesized between knowledge and the number of roles that ESC engaged in. Pearson's correlation coefficients were used to test the relationship between the continuous knowledge score and the four continuous roles scores (counseling, consultation, curriculum, coordination). A significant positive association was also hypothesized between attitudes and number of roles that ESC engaged in. Pearson's correlation coefficients was again utilized to test the relationship between the two continuous attitudes subscales and the four roles scores (counseling, consultation, curriculum, coordination).

For Research Question 5 (What variables predict the roles that professional elementary school counselors perform in counseling activities, consultation activities, curriculum activities, and coordination activities?), a series of four multiple linear regression analyses was conducted. One of the four roles subscales (counseling, consultation, curriculum, coordination) was used as the dependent variable in each of the four regressions. Predictor variables included the knowledge score, the two attitudes subscales, and the education/training variables that were significantly related to the roles subscales. Prior to conducting the regression analyses, relationships among all dependent and predictor variables were analyzed to check for multicollinearity. In addition, the normality of all continuous items were tested.

Below is the regression equation that was used for all regression analyses, along with a short description of each variable.

Regression equation: $Y = \beta_1x_1 + \beta_2x_2 + \dots + \beta_px_p + \epsilon$

Y = Roles score (one equation for each of the four roles scores)

β = Coefficient

$x_1 \dots x_i$ = Predictors (knowledge [1 score], attitudes [2 scores], education/training [up to 12 items from sections II and III based on which items were significantly related to the roles items and how many participants were surveyed])

ϵ = Error term

SPSS version 15 was utilized for data analysis. Funding for this study and related activities was made possible through United States Department of Education Grant #H325D060017.



OFFICE OF THE VICE PRESIDENT FOR RESEARCH AND ECONOMIC DEVELOPMENT
Research Services

February 23, 2011

Dr. Berlina Coimbra
Department of Educational Psychology
University of North Texas

RE: Human Subjects Application No. 11-074

Dear Dr. Coimbra:

In accordance with 45 CFR Part 46 Section 46.101, your study titled "An Investigation of the Relationship between Knowledge and Attitudes about Autism and the Roles of Professional Elementary School Counselors Perform in the Education of Students with Autism Spectrum Disorders" has been determined to qualify for an exemption from further review by the UNT Institutional Review Board (IRB).

No changes may be made to your study's procedures or forms without prior written approval from the UNT IRB. Please contact Jordan Harmon, Research Compliance Analyst, ext. 3940, if you wish to make any such changes. Any changes to your procedures or forms after 3 years will require completion of a new IRB application.

We wish you success with your study.

Sincerely,

Patricia L. Keminski, Ph.D.
Associate Professor
Chair, Institutional Review Board

PK:jh

FIRST E-MAIL INVITATION

Dear Elementary School Counselor:

YOUR PARTICIPATION IS NEEDED!!!!

My name is Trube C. Miller. I am a doctoral candidate at the University of North Texas (UNT) in the Educational Psychology Department and a practicing school counselor. Along with my mentor, Dr. Bertina Combes, I am conducting a study to investigate the knowledge, training, and attitudes among Elementary School Counselors (ESC) in relationship to the roles they perform when working with students identified with Autism Spectrum Disorders (ASD).

I am sincerely requesting your participation in this study. The analyzed data will contribute to school counseling literature by representing the first evaluation of ESC knowledge base, training experiences, and attitudes regarding this specific population of students. The survey should only take approximately 15 to 20 minutes of your time. As an incentive for participants who complete the study, the opportunity to register for a drawing for a \$25 VISA gift card is available. Four VISA gift cards will be awarded at the completion of the study.

Please find the hyperlink to the study below:

<http://tinyurl.com/3vjfrpz>

It is important to note that this study has the support of the UNT Institutional Review Board (IRB). For information about the rights of people who take part in research, you may contact the UNT IRB at untirb@unt.edu or via telephone at (940) 565-3940.

If you have preliminary questions regarding the study, please feel free to contact me at TrubeMiller@my.unt.edu; or Dr. Bertina Combes (principal investigator) at combes@unt.edu.

Thank you for your time and consideration. We sincerely look forward to your participation in this study.

Sincerely,

Trube C. Miller
Doctoral Candidate
University of North Texas

SECOND E-MAIL INVITATION

Dear Elementary School Counselor:

YOUR PARTICIPATION IS NEEDED!!!!

My name is Trube C. Miller. I am a doctoral candidate at the University of North Texas (UNT) in the Educational Psychology Department and a practicing school counselor. Along with my mentor, Dr. Bertina Combes, I am conducting a study to investigate the knowledge, training, and attitudes among Elementary School Counselors (ESC) in relationship to the roles they perform when working with students identified with Autism Spectrum Disorders (ASD).

A request to participate in a research study went out last Tuesday. If you have already completed and submitted the questionnaire to us, please accept our **sincere appreciation**. We want to assure you that if you filled in your contact information, you have been entered into the drawing for one of the \$25 Visa gift cards.

The survey should only take approximately 15 to 20 minutes of your time. As an incentive for participants who complete the study, the opportunity to register for a drawing for a \$25 VISA gift card is available. Four VISA gift cards will be awarded at the completion of the study.

Please find the hyperlink to the study below:

<http://tinyurl.com/3vjfrpz>

If you know any additional elementary school counselors that would be interested in participating, please forward this E-mail to them as well!

It is important to note that this study has the support of the UNT Institutional Review Board (IRB). For information about the rights of people who take part in research, you may contact the UNT IRB at untirb@unt.edu or via telephone at (940) 565-3940.

If you have preliminary questions regarding the study, please feel free to contact me at TrubeMiller@my.unt.edu; or Dr. Bertina Combes (principal investigator) at combes@unt.edu.

Thank you for your time and consideration. We sincerely look forward to your participation in this study.

Sincerely,

Trube C. Miller

Doctoral Candidate

University of North Texas

THIRD E-MAIL INVITATION

Dear Elementary School Counselor:

YOUR PARTICIPATION IS NEEDED!!!!

My name is Trube C. Miller. I am a doctoral candidate at the University of North Texas (UNT) in the Educational Psychology Department and a practicing school counselor. Along with my mentor, Dr. Bertina Combes, I am conducting a study to investigate the knowledge, training, and attitudes among Elementary School Counselors (ESC) in relationship to the roles they perform when working with students identified with Autism Spectrum Disorders (ASD).

Two previous requests to participate in a research study have been sent. If you have already completed and submitted the questionnaire to us, please accept our **sincere appreciation**. We want to assure you that if you filled in your contact information, you have been entered into the drawing for one of the \$25 Visa gift cards.

The survey should only take approximately 15 to 20 minutes of your time. As an incentive for participants who complete the study, the opportunity to register for a drawing for a \$25 VISA gift card is available. Four VISA gift cards will be awarded at the completion of the study.

Please find the hyperlink to the study below:

<http://tinyurl.com/3vjfrpz>

If you know any additional elementary school counselors that would be interested in participating, please forward this E-mail to them as well!

It is important to note that this study has the support of the UNT Institutional Review Board (IRB). For information about the rights of people who take part in research, you may contact the UNT IRB at untirb@unt.edu or via telephone at (940) 565-3940.

If you have preliminary questions regarding the study, please feel free to contact me at TrubeMiller@my.unt.edu; or Dr. Bertina Combes (principal investigator) at combes@unt.edu.

Thank you for your time and consideration. We sincerely look forward to your participation in this study.

Sincerely,

Trube C. Miller

Doctoral Candidate

University of North Texas

FINAL INVITATION

Dear Elementary School Counselor:

YOUR PARTICIPATION IS NEEDED!!!!

My name is Trube C. Miller. I am a doctoral candidate at the University of North Texas (UNT) in the Educational Psychology Department and a practicing school counselor. Along with my mentor, Dr. Bertina Combes, I am conducting a study to investigate the knowledge, training, and attitudes among Elementary School Counselors (ESC) in relationship to the roles they perform when working with students identified with Autism Spectrum Disorders (ASD).

Three previous requests to participate in a research study have been sent. If you have already completed and submitted the questionnaire to us, please accept our **sincere appreciation**. We want to assure you that if you filled in your contact information, you have been entered into the drawing for one of the \$25 Visa gift cards. **THIS SURVEY CLOSES ON TUESDAY, MAY 17TH.**

The survey should only take approximately 15 to 20 minutes of your time. As an incentive for participants who complete the study, the opportunity to register for a drawing for a \$25 VISA gift card is available. Four VISA gift cards will be awarded at the completion of the study. Please find the hyperlink to the study below:

<http://tinyurl.com/3vjfrpz>

If you know any additional elementary school counselors that would be interested in participating, please forward this E-mail to them as well!

It is important to note that this study has the support of the UNT Institutional Review Board (IRB). For information about the rights of people who take part in research, you may contact the UNT IRB at untirb@unt.edu or via telephone at (940) 565-3940.

If you have preliminary questions regarding the study, please feel free to contact me at TrubeMiller@my.unt.edu; or Dr. Bertina Combes (principal investigator) at combes@unt.edu. Thank you for your time and consideration. We sincerely look forward to your participation in this study.

Sincerely,

Trube C. Miller

Doctoral Candidate

University of North Texas

Your Participation is Needed

Dear Colleague,

We are writing to request your participation in a national survey to gain understanding about the roles elementary school counselor play in the education of students with autism spectrum disorders. The survey will take approximately 20 minutes to complete. After completing the survey you will have an opportunity to participate in a drawing to win one of the four \$25 Visa gift cards.

The survey can be found at the link below:

<http://tinyurl.com/3vjfrpz>

This study has been approved by the University of North Texas Internal Review Board.

Thank you,

Trube Miller

Bertina Combes, PhD, Faculty Advisor



APPENDIX C
UNABRIDGED RESULTS

Included within the dissertation proposal were five specific research questions with associated hypotheses contained within three of the research questions. With the revised standards, the final dissertation document is written as one publishable unit. Therefore, to keep the scope of the publishable unit appropriate to the requirements for journal submission, only the fourth of the respective five research questions is addressed in the publishable unit, along with all the descriptive analyses needed to fully explain the results.

The current appendix presents all the analyses and results for the remaining research questions (1, 2, 3, and 5), as proposed in the dissertation proposal. Some tables, along with subsequent summaries may be superfluous to the entire dissertation document itself; the information is presented in the corresponding appendix to assist with the understanding of the paper. In the appropriate sections of the appendix, information is presented regarding the significant relationships among variables, as this information was used to determine which variables should be included in the research question determined most appropriate to be included in the publishable unit (Research Question 4) and to test for multicollinearity among variables.

Included in the following sections are brief descriptions of the professional background, training items, not included in the publishable unit. To increase clarity, an effort has been made to present these tables in the same order as the survey questions when feasible. In addition, descriptive in-depth conceptualizations of the results of the remaining research questions are contained within this section.

Professional Background and Training

Being a member of a professional organization has many benefits, including receiving the most recent information regarding professional conferences and trainings. Another reason that this information was requested was to assess the frequency of participant membership. Participants who are members of the ASCA may be more likely to be familiar with the publications, competencies, and position statements mentioned within this study. Participant responses regarding whether they were members of the ACA or the ASCA are presented in frequencies and percentages in Table C.1. Approximately one-half (54.8%) of the participants were members of the ASCA, while only 19.5% were members of the ACA. The low percentage of ACA members may be explained by the fact that only (8.6%) of the respondents were from postcard mailings. This is significant because the postcard addresses were obtained through the ACA database, perceptibly targeting ACA members, whereas, the highest response rates were obtained through individual e-mails (49.8%), and from the link posted on the ASCA social networking site (19.5%). Most of the e-mails individually sent were obtained through the ASCA social networking site, indicating that the two highest response rates seemingly would be from ASCA members.

Table C.1

Frequencies and Percentages for Participant Organization Membership

| | Frequency | % |
|---------------------------------|-----------|------|
| American Counseling Association | | |
| Not a Current Member of ACA | 178 | 80.5 |
| Current Member of ACA | 43 | 19.5 |

| | | |
|--|-----|------|
| American School Counseling Association | | |
| Not a Current Member of ASCA | 100 | 45.2 |
| Current Member of ASCA | 121 | 54.8 |

Note. Frequencies not summing to 221 and percentages not summing to 100 reflect missing data.

Research Question 1: What Knowledge do ESC Possess Concerning ASD?

The frequencies and percentages for correct and incorrect individual knowledge items are shown in Table C.2. The results on the knowledge section were obtained from Section II of the survey (Understanding Regarding Autism). Results indicated that, overall, participants answered most of the knowledge items correctly. The items that were answered correctly most often were in the areas of diagnostic criteria (item b: To receive a diagnosis of autism spectrum disorders, children must exhibit self-injurious behaviors [true = 98.2%]); myths regarding etiology of ASD (item j: Autism spectrum disorders are caused by a non-nurturing style of parenting [false = 98.6%]); myths about ASD characteristics (item l: Children with autism spectrum disorders are deliberately negativistic and non-compliant [false = 98.2%], item n: Most children with autism spectrum disorders do not have spoken language [false = 96.4%], item p: Some children with autism spectrum disorders have intense areas of interest [true = 98.6%], item x: Many individuals with high functioning autism spectrum disorders want friends but have difficulty reciprocating the relationship [true = 95%]); and intervention programming (item t: Visual schedules for students with autism spectrum disorders help them predict and follow the events or routines of the day [true =98.2]). The item that participants responded with the lowest level of accuracy was also in the area of diagnostic criteria (item c: To receive a

diagnosis of autism spectrum disorders, children must exhibit behaviors and interests that are repetitive and stereotypical [incorrect = 66.1%]).

Table C.2

Frequencies and Percentages for Correct and Incorrect Individual Knowledge Items

| | Correct Response | n | % |
|--|------------------|-----|------|
| a. Children must exhibit impaired social interaction to receive a diagnosis of ASD. | TRUE | 149 | 67.4 |
| b. To receive a diagnosis of ASD, children must exhibit self-injurious behaviors. | FALSE | 217 | 98.2 |
| c. To receive a diagnosis of ASD, children must exhibit behaviors and interests that are repetitive and stereotypical. | TRUE | 75 | 33.9 |
| d. To receive a diagnosis of ASD, children must exhibit impaired communication skills. | TRUE | 152 | 68.8 |
| e. Some children with ASD do not seem to experience pain in the same way as children without autism. | TRUE | 170 | 76.9 |
| f. More boys than girls are diagnosed with ASD. | TRUE | 204 | 92.3 |
| g. Some children with ASD demonstrate uncoordinated gross and fine motor skills. | TRUE | 206 | 93.2 |
| h. The bulk of scientific evidence supports a causal relation between childhood vaccinations and ASD. | FALSE | 192 | 86.9 |
| i. Children with ASD primarily tend to be auditory learners. | FALSE | 187 | 84.6 |
| j. ASD is caused by a non-nurturing style of parenting. | FALSE | 218 | 98.6 |
| k. ASD is a developmental disorder. | TRUE | 129 | 58.4 |
| l. Children with ASD are deliberately negativistic and non-compliant. | FALSE | 217 | 98.2 |

| | | | |
|--|-------|-----|------|
| m. Children with ASD do not show emotional attachment, even toward their parents. | FALSE | 187 | 84.6 |
| n. Most children with ASD do not have spoken language. | FALSE | 213 | 96.4 |
| o. Most children with ASD have an intellectual disability. | FALSE | 26 | 11.8 |
| p. Some children with ASD have intense areas of interest. | TRUE | 218 | 98.6 |
| q. Typically, individuals with ASD process information in a non-literal manner. | FALSE | 163 | 73.8 |
| r. Even with early intervention, the prognosis for independent community functioning of children with ASD is poor. | TRUE | 206 | 93.2 |
| s. Echolalia is a speech pattern less common in children with autism when compared to children with Down Syndrome. | FALSE | 149 | 67.4 |
| t. Visual schedules for students with ASD help them predict and follow the events or routines of the day. | TRUE | 217 | 98.2 |
| u. Children with ASD never make eye contact with others. | FALSE | 208 | 94.1 |
| v. ASD occurs more commonly among higher socioeconomic and educational levels. | FALSE | 185 | 83.7 |
| w. Children with ASD are more intelligent than scores from standardized tests indicate. | TRUE | 182 | 82.4 |
| x. Many individuals with high functioning ASD want friends but have difficulty reciprocating the relationship. | TRUE | 210 | 95.0 |

Note. Frequencies not summing to 221 and percentages not summing to 100 reflect missing data

The means and standard deviations were computed in order to obtain a total knowledge score for participants, and are presented in Table C.3. The total number of correct responses ranged from 11 to 23 while the mean response for total knowledge score was 18.50 ($SD = 2.10$).

Table C.3

Means and Standard Deviation for Total Knowledge Score

| | N | Mean | SD | Min | Max |
|-----------------------|-----|-------|------|-----|-----|
| Total Knowledge Score | 221 | 18.50 | 2.10 | 11 | 23 |

Research Question 2: What Educational Training and Professional Development Experiences do ESC Receive Specific to Autism Spectrum Disorders?

The frequencies and percentages of the categorical education and training items of the sample are shown in Table C.4. The majority of the participants indicated they had practiced for 7-15 years (33.5%), with the least amount of participants indicating they had practiced two years or less (15.4%). In addition, the majority (60.2%) of participants indicated they graduated from a CACREP accredited program, while 20.4% had not, and 19.5% were unsure if their program was CACREP accredited or not. Over half (52.0%) of the participants indicated they currently served a caseload of less than 40 students, with 48.0% serving a caseload of 40 or more. In addition to indicating how many students they served on their caseload, participants were also asked how many students specifically identified with ASD they served on their caseload. The majority (41.6%) of participants specified that they served two to four students, with 32.1% indicating they served one student identified with ASD on their caseload, and 26.2% indicated they served 5 or more students identified with ASD on their current caseload.

The majority (40.3%) of ESC indicated they had only one special education course in their graduate training, with 36.2% indicating they had no special education courses and 23.5%

indicating they had 2+ courses in special education. In a similar precedent the majority (90%, 89.1%, and 83.7%) of ESC indicated they had zero courses specific to ASD in their graduate training. The highest percentage (16.3%) had one or more courses specific to ASD.

Table C.4

Frequencies and Percentages for Categorical Education and Training Items

| | Frequency | % |
|--|-----------|------|
| Years Practiced | | |
| 2 or Less Years Practiced | 34 | 15.4 |
| 3-6 Years Practiced | 69 | 31.2 |
| 7-15 Years Practiced | 74 | 33.5 |
| 16-39 Years Practiced | 44 | 19.9 |
| Graduated CACREP Approved Program | | |
| Yes | 133 | 60.2 |
| No | 45 | 20.4 |
| Do Not Know | 43 | 19.5 |
| Total Caseload | | |
| Total Caseload Less than 40 | 115 | 52.0 |
| Total Caseload 40 or More | 106 | 48.0 |
| Total ASD Caseload | | |
| 1 ASD Case | 71 | 32.1 |
| 2-4 ASD Cases | 92 | 41.6 |
| 5+ ASD Cases | 58 | 26.2 |
| Number Special Education Courses | | |
| 0 Special Education Courses | 80 | 36.2 |
| 1 Special Education Course | 89 | 40.3 |
| 2+ Special Education Courses | 52 | 23.5 |
| Number ASD Courses | | |
| 0 ASD Courses | 199 | 90.0 |
| 1 or More ASD Courses | 22 | 10.0 |
| Number Master's ASD Courses | | |
| 0 Masters ASD Courses | 197 | 89.1 |
| 1 or More Masters ASD Courses | 24 | 10.9 |

| | | |
|-----------------------|-----|------|
| Any ASD Course | | |
| 0 ASD Courses | 185 | 83.7 |
| 1 or More ASD Courses | 36 | 16.3 |

Note. Frequencies not summing to 221 and percentages not summing to 100 reflect missing data.

In addition to graduate program preparation, participants were asked what type of trainings they had engaged in during the last three years applicable to ASD (see Table C.5). The majority of trainings were experienced through self-education (59.3%) and through their own school district (52.5%).

Table C.5

Frequencies and Percentages for Trainings Attended or Received

| | Frequency | % |
|---|-----------|------|
| Training in my District | | |
| No | 105 | 47.5 |
| Yes | 116 | 52.5 |
| Training at State-Level Professional Conference | | |
| No | 161 | 72.9 |
| Yes | 60 | 27.1 |
| Training at National or International Professional Conference | | |
| No | 210 | 95.0 |
| Yes | 11 | 5.0 |
| Training Session During Counseling Conference | | |
| No | 145 | 65.6 |
| Yes | 76 | 34.4 |
| Training in a Webinar or Online | | |
| No | 189 | 85.5 |
| Yes | 32 | 14.5 |
| Self-Education | | |

| | | |
|-----------------|-----|------|
| No | 90 | 40.7 |
| Yes | 131 | 59.3 |
| Other Trainings | | |
| No | 174 | 78.7 |
| Yes | 47 | 21.3 |

Note. Frequencies not summing to 221 and percentages not summing to 100 reflect missing data.

According to a guide to state laws and Regulations on Professional School Counseling (Lum, 2003), ESC are required by law and/or regulation in every state to obtain a state-issued credential in order to be employed in public schools. Participants were therefore asked how long ago they received their school counseling certification (see Table C.6). The mean response for years since certification was 13.45 (SD = 8.53) with a range of 2 years to 40+ years.

Table C.6

Mean and Standard Deviation for Years since Certification

| | N | Mean | SD | Min | Max |
|---------------------------|-----|-------|------|-----|-----|
| Years Since Certification | 221 | 13.45 | 8.53 | 2 | 41 |

The majority of the participants specified they held additional certifications or degrees (70.1%) in place of or in addition to the degrees listed in Table C.7. Of the degrees and certifications listed, the largest percentage were National Certified Counselors (23.1%). As a whole, the certifications or degrees specific to the study and focus of the research questions (e.g., master’s in special education, board certified behavior analyst, doctorate in education or psychology) did not have enough representation for comparative analysis.

See Table C.8 for a complete list of the frequencies and percentages for certifications or degrees held by participants.

Table C.7

Frequencies and Percentages for Certifications or Degrees Held by Participants

| | Frequency | % |
|--|-----------|-------|
| Licensed Professional Counselor | | |
| No | 178 | 80.5 |
| Yes | 43 | 19.5 |
| Licensed Family and Marriage Counselor | | |
| No | 217 | 98.2 |
| Yes | 4 | 1.8 |
| Board Certified Behavior Analyst | | |
| No | 221 | 100.0 |
| Yes | 0 | .0 |
| Registered Play Therapist | | |
| No | 217 | 98.2 |
| Yes | 4 | 1.8 |
| National Certified Counselor | | |
| No | 170 | 76.9 |
| Yes | 51 | 23.1 |
| Doctorate in Education | | |
| No | 217 | 98.2 |
| Yes | 4 | 1.8 |
| Doctorate in Psychology | | |
| No | 217 | 98.2 |
| Yes | 4 | 1.8 |
| Master's in Special Education | | |
| No | 215 | 97.3 |
| Yes | 6 | 2.7 |
| Other Certifications/Degrees | | |
| No | 66 | 29.9 |
| Yes | 155 | 70.1 |

Note. Frequencies not summing to 221 and percentages not summing to 100 reflect missing data.

Contained within research question two was the hypothesis that the more graduate courses ESC completed that addressed ASD, the higher they would score regarding knowledge about ASD. Independent Samples t-test was used to test the relationship between knowledge and number of ASD courses taken. The relationship was tested for both any ASD courses taken and ASD courses taken in the school counseling degree program and no significant relationships were found ($p > .05$).

Table C.8

Means and Standard Deviations for Total Knowledge Score by ASD Courses

| | n | Mean | SD | t | p |
|---|-----|-------|------|------|------|
| Total Knowledge Score | | | | 1.58 | .116 |
| 0 Total ASD Courses | 185 | 18.60 | 2.08 | | |
| 1 or More Total ASD Courses | 36 | 18.00 | 2.12 | | |
| Total Knowledge Score | | | | 1.84 | .068 |
| 0 ASD Courses in School Counseling Degree Program | 199 | 18.59 | 2.08 | | |
| 1 or More ASD Courses in School Counseling Degree Program | 22 | 17.73 | 2.12 | | |

Relationships among Demographics and Education and Training

Relationships among categorical demographic, education, and training variables were tested using crosstabulations with Pearson’s chi square (see Tables C.9 – C.16). The relationship between district geographic areas and the other demographic, education, and training items are shown in Table C.9. The relationship between district geographic areas and whether any ASD courses were taken was significant, $\chi^2 (2) = 6.64, p < .05$. A greater proportion of those in a rural setting had not taken any ASD courses (91.0%) compared to those in a suburban (84.2%) or urban setting (73.6%). None of the other relationships with district geographic areas were significant ($p > .05$).

Table C.9

Frequencies and Percentages for Categorical Demographics, Education, and Training by District Geography

| | Rural | | Suburban | | Urban | | χ^2 | <i>p</i> |
|---|----------|------|----------|------|----------|------|----------|----------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | | |
| U.S. Region | | | | | | | 8.27 | .219 |
| Northeast | 15 | 22.7 | 25 | 25.0 | 9 | 17.6 | | |
| Midwest | 10 | 15.2 | 9 | 9.0 | 10 | 19.6 | | |
| South | 32 | 48.5 | 57 | 57.0 | 22 | 43.1 | | |
| West | 9 | 13.6 | 9 | 9.0 | 10 | 19.6 | | |
| Total Caseload | | | | | | | 3.46 | .178 |
| Total Caseload Less than 40 | 37 | 55.2 | 46 | 45.5 | 32 | 60.4 | | |
| Total Caseload 40 or More | 30 | 44.8 | 55 | 54.5 | 21 | 39.6 | | |
| Any ASD Course | | | | | | | 6.64 | .036 |
| 0 ASD Courses | 61 | 91.0 | 85 | 84.2 | 39 | 73.6 | | |
| 1 or More ASD Courses | 6 | 9.0 | 16 | 15.8 | 14 | 26.4 | | |
| Training at State/ National/ Intl Conference | | | | | | | .05 | .978 |
| No | 47 | 70.1 | 72 | 71.3 | 37 | 69.8 | | |

| | | | | | | | | |
|---------------------------|----|------|----|------|----|------|------|------|
| Yes | 20 | 29.9 | 29 | 28.7 | 16 | 30.2 | | |
| Self-Education | | | | | | | .26 | .878 |
| No | 26 | 38.8 | 41 | 40.6 | 23 | 43.4 | | |
| Yes | 41 | 61.2 | 60 | 59.4 | 30 | 56.6 | | |
| Total ASD Caseload | | | | | | | 8.24 | .083 |
| 1 ASD Case | 26 | 38.8 | 25 | 24.8 | 20 | 37.7 | | |
| 2-4 ASD Cases | 28 | 41.8 | 41 | 40.6 | 23 | 43.4 | | |
| 5+ ASD Cases | 13 | 19.4 | 35 | 34.7 | 10 | 18.9 | | |
| Years Practiced | | | | | | | 7.60 | .269 |
| 2 or Less Years Practiced | 8 | 11.9 | 15 | 14.9 | 11 | 20.8 | | |
| 3-6 Years Practiced | 21 | 31.3 | 27 | 26.7 | 21 | 39.6 | | |
| 7-15 Years Practiced | 27 | 40.3 | 35 | 34.7 | 12 | 22.6 | | |
| 16-39 Years Practiced | 11 | 16.4 | 24 | 23.8 | 9 | 17.0 | | |

The relationship between U.S. geographic areas and whether any trainings were attended at the state, national, or international level was significant, $\chi^2 (2) = 18.57, p < .05$. A greater proportion of those in the Northeast had attended trainings (51.0%) compared to those in the Midwest (41.4%), South (19.8%), and West (21.4%). Other relationships that were significant included the relationship between U.S. geographic areas and whether ESC participated in self-education, $\chi^2 (2) = 18.07, (p > .05)$. Again, a greater proportion of those in a Northeast had participated in self-education (83.7%) compared to those in the Midwest (65.5%), South (50.5%), and West (46.4%). Finally, the relationship between U.S. geographic areas and the total ASD caseload was also significant, $\chi^2 (6) = 23.88, p > .01$. A greater proportion of those with five or more ASD cases were located in the Northeast (49.0%) compared to those in the Midwest (17.2%), South (20.7%), and West (21.4%).

The relationship between years practiced and whether ESC had participated in self-education was significant, $\chi^2 (2) = 8.33, p < .05$. A greater proportion of those who had

practiced between 16-39 years had participated in self-education (72.7%) compared to those in the 3 to 6 year category (65.2%), 2 or less years (52.9%), and 7 to 15 years (48.6%). None of the other relationships with years practiced were significant ($p > .05$).

As mentioned previously, the relationship between conference attendance and U.S. region was significant, ($p < .05$). A greater proportion of those in the Northeast (38.5%) and Midwest, (18.5%) had attended a conference. In contrast, a greater proportion of those in the South (58.6%) and West (14.5%) had not attended a conference. The relationship between conference attendance and total ASD caseload was also significant, $\chi^2 (3) = 8.74, p < .05$. A greater proportion of those with one ASD case had not attended a conference (37.8%), and a greater proportion of those with two to four, or five or more ASD cases had attended a conference (46.5% and 35.4%, respectively).

Table C.10

Frequencies and Percentages for Categorical Demographics, Education, and Training by U.S. Region

| | Northeast | | Midwest | | South | | West | | χ^2 | <i>p</i> |
|---|-----------|------|----------|------|----------|------|----------|------|----------|----------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | | | | | 8.27 | .219 |
| Rural | 15 | 30.6 | 10 | 34.5 | 32 | 28.8 | 9 | 32.1 | | |
| Suburban | 25 | 51.0 | 9 | 31.0 | 57 | 51.4 | 9 | 32.1 | | |
| Urban | 9 | 18.4 | 10 | 34.5 | 22 | 19.8 | 10 | 35.7 | | |
| Total Caseload | | | | | | | | | 3.63 | .304 |
| Total Caseload Less than 40 | 20 | 40.8 | 17 | 58.6 | 61 | 55.0 | 16 | 57.1 | | |
| Total Caseload 40 or More | 29 | 59.2 | 12 | 41.4 | 50 | 45.0 | 12 | 42.9 | | |
| Any ASD Course | | | | | | | | | .18 | .981 |
| 0 ASD Courses | 41 | 83.7 | 25 | 86.2 | 93 | 83.8 | 23 | 82.1 | | |
| 1 or More ASD Courses | 8 | 16.3 | 4 | 13.8 | 18 | 16.2 | 5 | 17.9 | | |
| Training at State/National/Intl Conference | | | | | | | | | 18.57 | <.001 |
| No | 24 | 49.0 | 17 | 58.6 | 89 | 80.2 | 22 | 78.6 | | |
| Yes | 25 | 51.0 | 12 | 41.4 | 22 | 19.8 | 6 | 21.4 | | |
| Self-Education | | | | | | | | | 18.07 | <.001 |
| No | 8 | 16.3 | 10 | 34.5 | 55 | 49.5 | 15 | 53.6 | | |
| Yes | 41 | 83.7 | 19 | 65.5 | 56 | 50.5 | 13 | 46.4 | | |
| Total ASD Caseload | | | | | | | | | 23.88 | .001 |
| 1 ASD Case | 4 | 8.2 | 10 | 34.5 | 45 | 40.5 | 10 | 35.7 | | |

| | | | | | | | | | | |
|---------------------------|----|------|----|------|----|------|----|------|------|------|
| 2-4 ASD Cases | 21 | 42.9 | 14 | 48.3 | 43 | 38.7 | 12 | 42.9 | | |
| 5+ ASD Cases | 24 | 49.0 | 5 | 17.2 | 23 | 20.7 | 6 | 21.4 | | |
| Years Practiced | | | | | | | | | 7.19 | .617 |
| 2 or Less Years Practiced | 5 | 10.2 | 3 | 10.3 | 19 | 17.1 | 6 | 21.4 | | |
| 3-6 Years Practiced | 14 | 28.6 | 13 | 44.8 | 33 | 29.7 | 8 | 28.6 | | |
| 7-15 Years Practiced | 16 | 32.7 | 8 | 27.6 | 40 | 36.0 | 9 | 32.1 | | |
| 16-39 Years Practiced | 14 | 28.6 | 5 | 17.2 | 19 | 17.1 | 5 | 17.9 | | |

Table C.11

Frequencies and Percentages for Categorical Demographics, Education, and Training by Years Practiced

| | 2 or Less Years Practiced | | 3-6 Years Practiced | | 7-15 Years Practiced | | 16-39 Years Practiced | | χ^2 | <i>p</i> |
|--|---------------------------|------|---------------------|------|----------------------|------|-----------------------|------|----------|----------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | | | | | 7.60 | .269 |
| Rural | 8 | 23.5 | 21 | 30.4 | 27 | 36.5 | 11 | 25.0 | | |
| Suburban | 15 | 44.1 | 27 | 39.1 | 35 | 47.3 | 24 | 54.5 | | |
| Urban | 11 | 32.4 | 21 | 30.4 | 12 | 16.2 | 9 | 20.5 | | |
| U.S. Region | | | | | | | | | 7.19 | .617 |
| Northeast | 5 | 15.2 | 14 | 20.6 | 16 | 21.9 | 14 | 32.6 | | |
| Midwest | 3 | 9.1 | 13 | 19.1 | 8 | 11.0 | 5 | 11.6 | | |
| South | 19 | 57.6 | 33 | 48.5 | 40 | 54.8 | 19 | 44.2 | | |
| West | 6 | 18.2 | 8 | 11.8 | 9 | 12.3 | 5 | 11.6 | | |
| Total Caseload | | | | | | | | | 7.35 | .061 |
| Total Caseload Less than 40 | 22 | 64.7 | 29 | 42.0 | 44 | 59.5 | 20 | 45.5 | | |
| Total Caseload 40 or More | 12 | 35.3 | 40 | 58.0 | 30 | 40.5 | 24 | 54.5 | | |
| Any ASD Course | | | | | | | | | 5.00 | .171 |
| 0 ASD Courses | 25 | 73.5 | 56 | 81.2 | 64 | 86.5 | 40 | 90.9 | | |
| 1 or More ASD Courses | 9 | 26.5 | 13 | 18.8 | 10 | 13.5 | 4 | 9.1 | | |
| Training at State/National/Intl Conference | | | | | | | | | 4.13 | .248 |
| No | 26 | 76.5 | 52 | 75.4 | 52 | 70.3 | 26 | 59.1 | | |

| | | | | | | | | | | |
|--------------------|----|------|----|------|----|------|----|------|------|------|
| Yes | 8 | 23.5 | 17 | 24.6 | 22 | 29.7 | 18 | 40.9 | | |
| Self-Education | | | | | | | | | 8.33 | .040 |
| No | 16 | 47.1 | 24 | 34.8 | 38 | 51.4 | 12 | 27.3 | | |
| Yes | 18 | 52.9 | 45 | 65.2 | 36 | 48.6 | 32 | 72.7 | | |
| Total ASD Caseload | | | | | | | | | 4.70 | .582 |
| 1 ASD Case | 13 | 38.2 | 24 | 34.8 | 22 | 29.7 | 12 | 27.3 | | |
| 2-4 ASD Cases | 14 | 41.2 | 25 | 36.2 | 36 | 48.6 | 17 | 38.6 | | |
| 5+ ASD Cases | 7 | 20.6 | 20 | 29.0 | 16 | 21.6 | 15 | 34.1 | | |

ELEMENTARY SCHOOL COUNSELORS

Table C.12

Frequencies and Percentages for Categorical Demographics, Education, and Training by Conference Attendance

| | Conference Attendance | | | | χ^2 | <i>p</i> |
|-----------------------------|-----------------------|------|----------|------|----------|----------|
| | No | | Yes | | | |
| | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | .05 | .978 |
| Rural | 47 | 30.1 | 20 | 30.8 | | |
| Suburban | 72 | 46.2 | 29 | 44.6 | | |
| Urban | 37 | 23.7 | 16 | 24.6 | | |
| U.S. Region | | | | | 18.57 | <.001 |
| Northeast | 24 | 15.8 | 25 | 38.5 | | |
| Midwest | 17 | 11.2 | 12 | 18.5 | | |
| South | 89 | 58.6 | 22 | 33.8 | | |
| West | 22 | 14.5 | 6 | 9.2 | | |
| Total Caseload | | | | | .88 | .348 |
| Total Caseload Less than 40 | 78 | 50.0 | 37 | 56.9 | | |
| Total Caseload 40 or More | 78 | 50.0 | 28 | 43.1 | | |
| Any ASD Course | | | | | 1.86 | .173 |
| 0 ASD Courses | 134 | 85.9 | 51 | 78.5 | | |
| 1 or More ASD Courses | 22 | 14.1 | 14 | 21.5 | | |
| Self-Education | | | | | 3.78 | .052 |
| No | 70 | 44.9 | 20 | 30.8 | | |
| Yes | 86 | 55.1 | 45 | 69.2 | | |
| Total ASD Caseload | | | | | 8.74 | .013 |
| 1 ASD Case | 59 | 37.8 | 12 | 18.5 | | |
| 2-4 ASD Cases | 62 | 39.7 | 30 | 46.2 | | |
| 5+ ASD Cases | 35 | 22.4 | 23 | 35.4 | | |
| Years Practiced | | | | | 4.13 | .248 |
| 2 or Less Years Practiced | 26 | 16.7 | 8 | 12.3 | | |
| 3-6 Years Practiced | 52 | 33.3 | 17 | 26.2 | | |
| 7-15 Years Practiced | 52 | 33.3 | 22 | 33.8 | | |
| 16-39 Years Practiced | 26 | 16.7 | 18 | 27.7 | | |

As mentioned previously, the relationship between self-education and U.S. region was significant, $p < .05$. A greater proportion of those in the South had not participated in self-education (62.5%) compared to those in the Midwest (11.4%), Northeast (9.1%), and West (17.0%). As mentioned previously, self-education and training at the state, national, or international level, was significant, $p < .05$. A greater proportion of those had not participated in trainings at the state, national, or international level, nor self-education (77.8%), than those who had not participated in trainings, but had participated in self-education (65.6%). In addition, the relationship between total ASD caseload and self-education was significant, $\chi^2 (2) = 7.10, p < .05$. A greater proportion of ESC who had two to four students on a caseload had participated in self-education (45.8%), than those who had the same amount of students identified with ASD on a caseload that had not participated in self-education (35.6%). Finally, the years practiced and self-education was significant, $\chi^2 (2) = 8.33, p < .05$. A greater proportion of ESC who had practiced between 7 to 15 years, had not participated in self-education (42.2%), than those who had practiced between 7 to 15 years and had participated in self-education (27.5%).

Table C.13

Frequencies and Percentages for Categorical Demographics, Education, and Training by Self-Education

| | Self-Education | | | | χ^2 | p |
|----------------------|----------------|------|----------|------|----------|------|
| | No | | Yes | | | |
| | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | .26 | .878 |
| Rural | 26 | 28.9 | 41 | 31.3 | | |
| Suburban | 41 | 45.6 | 60 | 45.8 | | |
| Urban | 23 | 25.6 | 30 | 22.9 | | |

| | | | | | | |
|--|----|------|-----|------|-------|-------|
| U.S. Region | | | | | 18.07 | <.001 |
| Northeast | 8 | 9.1 | 41 | 31.8 | | |
| Midwest | 10 | 11.4 | 19 | 14.7 | | |
| South | 55 | 62.5 | 56 | 43.4 | | |
| West | 15 | 17.0 | 13 | 10.1 | | |
| Total Caseload | | | | | 2.01 | .157 |
| Total Caseload Less than 40 | 52 | 57.8 | 63 | 48.1 | | |
| Total Caseload 40 or More | 38 | 42.2 | 68 | 51.9 | | |
| Any ASD Course | | | | | .02 | .900 |
| 0 ASD Courses | 75 | 83.3 | 110 | 84.0 | | |
| 1 or More ASD Courses | 15 | 16.7 | 21 | 16.0 | | |
| Training at State/National/Intl Conference | | | | | 3.78 | .052 |
| No | 70 | 77.8 | 86 | 65.6 | | |
| Yes | 20 | 22.2 | 45 | 34.4 | | |
| Total ASD Caseload | | | | | 7.10 | .029 |
| 1 ASD Case | 38 | 42.2 | 33 | 25.2 | | |
| 2-4 ASD Cases | 32 | 35.6 | 60 | 45.8 | | |
| 5+ ASD Cases | 20 | 22.2 | 38 | 29.0 | | |
| Years Practiced | | | | | 8.33 | .040 |
| 2 or Less Years Practiced | 16 | 17.8 | 18 | 13.7 | | |
| 3-6 Years Practiced | 24 | 26.7 | 45 | 34.4 | | |
| 7-15 Years Practiced | 38 | 42.2 | 36 | 27.5 | | |
| 16-39 Years Practiced | 12 | 13.3 | 32 | 24.4 | | |

The relationship between total caseload and total ASD caseload was significant, $\chi^2 (2) = 29.74, p < .05$. A greater proportion of those with total caseloads less than 40 had one student with ASD (42.6%) or two to four students identified with ASD (46.1%), compared to those who had a total caseload of 40+ (20.8% and 36.8%, respectively). A greater proportion of those with a caseload of 40+ had five or more students with ASD in their caseload (42.5%) compared to those with a total caseload of less than 40 (11.3%). None of the other relationships with total

caseloads and total ASD caseloads were significant ($p > .05$).

Table C.14

Frequencies and Percentages for Categorical Demographics, Education, and Training by Total Caseload

| | Total Caseload Less than 40 | | Total Caseload 40 or More | | χ^2 | <i>p</i> |
|---|--------------------------------|------|------------------------------|------|----------|----------|
| | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | 3.46 | .178 |
| Rural | 37 | 32.2 | 30 | 28.3 | | |
| Suburban | 46 | 40.0 | 55 | 51.9 | | |
| Urban | 32 | 27.8 | 21 | 19.8 | | |
| U.S. Region | | | | | 3.63 | .304 |
| Northeast | 20 | 17.5 | 29 | 28.2 | | |
| Midwest | 17 | 14.9 | 12 | 11.7 | | |
| South | 61 | 53.5 | 50 | 48.5 | | |
| West | 16 | 14.0 | 12 | 11.7 | | |
| Any ASD Course | | | | | .99 | .319 |
| 0 ASD Courses | 99 | 86.1 | 86 | 81.1 | | |
| 1 or More ASD Courses | 16 | 13.9 | 20 | 18.9 | | |
| Training at State/National/Intl Conference | | | | | .88 | .348 |
| No | 78 | 67.8 | 78 | 73.6 | | |
| Yes | 37 | 32.2 | 28 | 26.4 | | |
| Self-Education | | | | | 2.01 | .157 |
| No | 52 | 45.2 | 38 | 35.8 | | |
| Yes | 63 | 54.8 | 68 | 64.2 | | |
| Total ASD Caseload | | | | | 29.74 | <.001 |
| 1 ASD Case | 49 | 42.6 | 22 | 20.8 | | |
| 2-4 ASD Cases | 53 | 46.1 | 39 | 36.8 | | |
| 5+ ASD Cases | 13 | 11.3 | 45 | 42.5 | | |
| Years Practiced | | | | | 7.35 | .061 |
| 2 or Less Years Practiced | 22 | 19.1 | 12 | 11.3 | | |
| 3-6 Years Practiced | 29 | 25.2 | 40 | 37.7 | | |
| 7-15 Years Practiced | 44 | 38.3 | 30 | 28.3 | | |
| 16-39 Years Practiced | 20 | 17.4 | 24 | 22.6 | | |

The relationship between number of ASD cases and U.S. region was significant, $\chi^2 (2) = 23.88, p < .05$. A greater proportion of those in the South (65.2%) had 1 ASD case, compared to the Northeast (5.8%), Midwest (14.5%), and West (14.5%). Similarly, a greater proportion of those in the South (47.8%) had 2 to 4 ASD cases, compared to Northeast (23.3%), Midwest (15.6%), and West (13.3%). Correspondingly, a greater proportion of those in the Northeast (41.4%) had 5+ ASD cases, with the South comparatively close with (39.7%), with the Midwest (8.6%), and West (10.3%) having 5+ cases.

The relationship between total caseload and number of ASD cases was also significant, $\chi^2 (2) = 29.74, p < .05$. A greater proportion of those with total caseloads less than 40 indicated they had one ASD case (69.0%), as compared to those with total caseloads of 40+ that indicated they had one ASD case (31.0%). Similarly, a greater proportion of those with total caseloads less than 40 indicated they had two to four ASD cases (57.6%), as compared to those with total caseloads of 40+ that indicated (42.4%) of two to four ASD cases. On the contrary, a greater proportion of those with total caseloads of 40+ indicated they had 5+ ASD cases (77.6%), as compared to those with total caseloads less than 40 indicated they had 5+ ASD cases (22.4%). This finding could reasonably be explained by the results in Table C.11, the urban geographic region had the highest majority of two to four ASD cases (43.4%) when compared to the other geographic regions, while the suburban geographic region had the highest majority of 5+ ASD cases (34.7%). See Table C.11 for more results. In addition, ESC indicating they had a caseload of 40+ may be including their total campus number, whereas ESC indicating they had a caseload of less than 40 may be only counting the number of students they serve on a formal basis.

The next relationship that was significant was between training at state, national, or international level and the number of ASD cases, $\chi^2 (2) = 8.74, p < .05$. The highest proportion of ESC indicated they had no trainings and had one ASD case (83.1%), as compared with two to four ASD cases (67.4%) and 5+ ASD cases (60.3%).

Finally, the relationship between self-education and number of ASD cases was significant, $\chi^2 (2) = 7.10, p < .05$. The highest proportion of ESC with one ASD case indicated that they did not participate in self-education (53.5%), as compared to two to four ASD cases (34.8%) and 5+ cases (34.5%).

Table C.15

Frequencies and Percentages for Categorical Demographics, Education, and Training by Number of ASD Cases

| | 1 ASD Case | | 2-4 ASD Cases | | 5+ ASD Cases | | χ^2 | <i>p</i> |
|-----------------------------|------------|------|---------------|------|--------------|------|----------|----------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | | | 8.24 | .083 |
| Rural | 26 | 36.6 | 28 | 30.4 | 13 | 22.4 | | |
| Suburban | 25 | 35.2 | 41 | 44.6 | 35 | 60.3 | | |
| Urban | 20 | 28.2 | 23 | 25.0 | 10 | 17.2 | | |
| U.S. Region | | | | | | | 23.88 | .001 |
| Northeast | 4 | 5.8 | 21 | 23.3 | 24 | 41.4 | | |
| Midwest | 10 | 14.5 | 14 | 15.6 | 5 | 8.6 | | |
| South | 45 | 65.2 | 43 | 47.8 | 23 | 39.7 | | |
| West | 10 | 14.5 | 12 | 13.3 | 6 | 10.3 | | |
| Total Caseload | | | | | | | 29.74 | <.001 |
| Total Caseload Less than 40 | 49 | 69.0 | 53 | 57.6 | 13 | 22.4 | | |
| Total Caseload 40 or More | 22 | 31.0 | 39 | 42.4 | 45 | 77.6 | | |
| Any ASD Course | | | | | | | 3.48 | .176 |
| 0 ASD Courses | 64 | 90.1 | 73 | 79.3 | 48 | 82.8 | | |
| 1 or More ASD Courses | 7 | 9.9 | 19 | 20.7 | 10 | 17.2 | | |

| | | | | | | | | |
|---|----|------|----|------|----|------|------|------|
| Training at State/ National/ Intl Conference | | | | | | | 8.74 | .013 |
| No | 59 | 83.1 | 62 | 67.4 | 35 | 60.3 | | |
| Yes | 12 | 16.9 | 30 | 32.6 | 23 | 39.7 | | |
| Self-education | | | | | | | 7.10 | .029 |
| No | 38 | 53.5 | 32 | 34.8 | 20 | 34.5 | | |
| Yes | 33 | 46.5 | 60 | 65.2 | 38 | 65.5 | | |
| Years Practiced | | | | | | | 4.70 | .582 |
| 2 or Less Years Practiced | 13 | 18.3 | 14 | 15.2 | 7 | 12.1 | | |
| 3-6 Years Practiced | 24 | 33.8 | 25 | 27.2 | 20 | 34.5 | | |
| 7-15 Years Practiced | 22 | 31.0 | 36 | 39.1 | 16 | 27.6 | | |
| 16-39 Years Practiced | 12 | 16.9 | 17 | 18.5 | 15 | 25.9 | | |

The relationship between number of ASD cases and district geographic areas was significant, $\chi^2 (2) = 6.64, p < .05$. A greater proportion of those in the suburban area indicated they had zero ASD courses (45.9%) as compared to those in the rural areas (33.0%) and urban areas (21.1%). Similarly, a greater proportion of those in the suburban area indicated they had one or more ASD courses (44.4%), as compared to those in rural areas (16.7%) and urban areas (38.9%). None of the other relationships with number of ASD courses were significant ($p > .05$).

Table C.16

Frequencies and Percentages for Categorical Demographics, Education, and Training by Number of ASD Courses

| | 0 ASD Courses | | 1 or More ASD Courses | | χ^2 | <i>p</i> |
|----------------------|---------------|------|-----------------------|------|----------|----------|
| | <i>n</i> | % | <i>n</i> | % | | |
| District Geographies | | | | | 6.64 | .036 |
| Rural | 61 | 33.0 | 6 | 16.7 | | |
| Suburban | 85 | 45.9 | 16 | 44.4 | | |
| Urban | 39 | 21.1 | 14 | 38.9 | | |

| | | | | | | |
|---|-----|------|----|------|------|------|
| U.S. Region | | | | | .18 | .981 |
| Northeast | 41 | 22.5 | 8 | 22.9 | | |
| Midwest | 25 | 13.7 | 4 | 11.4 | | |
| South | 93 | 51.1 | 18 | 51.4 | | |
| West | 23 | 12.6 | 5 | 14.3 | | |
| Total Caseload | | | | | .99 | .319 |
| Total Caseload Less than 40 | 99 | 53.5 | 16 | 44.4 | | |
| Total Caseload 40 or More | 86 | 46.5 | 20 | 55.6 | | |
| Training at State/National/Intl Conference | | | | | 1.86 | .173 |
| No | 134 | 72.4 | 22 | 61.1 | | |
| Yes | 51 | 27.6 | 14 | 38.9 | | |
| Self-Education | | | | | .02 | .900 |
| No | 75 | 40.5 | 15 | 41.7 | | |
| Yes | 110 | 59.5 | 21 | 58.3 | | |
| Total ASD Caseload | | | | | 3.48 | .176 |
| 1 ASD Case | 64 | 34.6 | 7 | 19.4 | | |
| 2-4 ASD Cases | 73 | 39.5 | 19 | 52.8 | | |
| 5+ ASD Cases | 48 | 25.9 | 10 | 27.8 | | |
| Years Practiced | | | | | 5.00 | .171 |
| 2 or Less Years Practiced | 25 | 13.5 | 9 | 25.0 | | |
| 3-6 Years Practiced | 56 | 30.3 | 13 | 36.1 | | |
| 7-15 Years Practiced | 64 | 34.6 | 10 | 27.8 | | |
| 16-39 Years Practiced | 40 | 21.6 | 4 | 11.1 | | |

Research Question 3: What Attitudes do ESC Possess Regarding ASD?

Participants were asked to rate their level of agreement on each question on a scale from 1 to 5, with 1 indicating strongly disagree and 5 indicating strongly agree (see Table C.17). The mean response for attitudes indicated by participants' on Form A was 29.71 ($SD = 3.31$). Mean response for attitudes indicated by participants' on Form B was 30.58 ($SD = 3.53$). The total mean response of participants' attitude score was 60.29 ($SD = 6.41$).

Table C.17

Means and Standard Deviations for Attitudes Scores

| | N | Mean | SD | Min | Max |
|------------------------|-----|-------|------|-----|-----|
| Attitudes Form A Score | 210 | 29.71 | 3.31 | 19 | 35 |
| Attitudes Form B Score | 210 | 30.58 | 3.53 | 18 | 35 |
| Attitudes Total Score | 210 | 60.29 | 6.41 | 40 | 70 |

The relationships among the attitudes total score and attitudes Form A and Form B scores were tested using Pearson's product moment correlations. There was a significant positive correlation between attitudes total score and attitudes Form A score, $r(208) = .931, p < .001$, and between attitudes total score and attitudes Form B score, $r(208) = .940, p < .001$. In addition, there was a significant positive correlation between the Form A and Form B scores, $r(208) = .751, p < .001$. A higher score on each of the attitudes scores were associated with higher scores on the other attitudes scores.

Table C.18

Pearson's Product Moment Correlations between Attitudes Scores

| | Attitudes Form A Score | Attitudes Form B Score |
|------------------------|------------------------|------------------------|
| Attitudes Form B Score | .75 *** | |
| Attitudes Total Score | .93 *** | .94 *** |

Note. *** $p < .001$.

Relationships between Knowledge, Attitudes and Demographic Items

The relationships between the knowledge, attitudes, and demographic items were tested with one-way ANOVAs and are shown in Tables C.19 – C.27. The relationships between participation invitation with years of certification, knowledge, and the attitudes scores are shown in Table C.19. Significant knowledge differences were found between participants who were invited through different methods, $F(4, 216) = 3.46, p < .01$. Tukey’s posthoc analyses showed that the mean of participants who were invited through postcard mailings ($M = 19.37, SD = 1.74$) and survey link on ASCA social networking site ($M = 18.88, SD = 1.93$) had significantly higher knowledge scores than those who were invited through an e-mail from a colleague ($M = 17.43, SD = 2.39$).

Table C.19

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Invitation Type

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|--|----------|---------------------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | 1.22 | .305 |
| Postcard mailing | 19 | 14.42 | 8.89 | 3 | 30 | | |
| Survey link on ASCA social networking site | 43 | 10.37 | 7.98 | 0 | 30 | | |
| E-mailed from researcher of study | 110 | 10.05 | 7.83 | 0 | 38 | | |
| E-mailed from a colleague | 30 | 11.17 | 8.53 | 1 | 32 | | |
| Other | 19 | 11.21 | 9.22 | 0 | 30 | | |
| Total Knowledge Score | | | | | | 3.46 | .009 |
| Postcard mailing | 19 | 19.37 ^a | 1.74 | 16 | 23 | | |
| Survey link on ASCA social networking site | 43 | 18.88 ^a | 1.93 | 14 | 22 | | |
| E-mailed from researcher of study | 110 | 18.56 ^{ab} | 1.99 | 13 | 22 | | |
| E-mailed from a colleague | 30 | 17.43 ^b | 2.39 | 11 | 22 | | |
| Other | 19 | 18.11 ^{ab} | 2.38 | 13 | 21 | | |
| Attitudes Total Score | | | | | | 1.12 | .349 |

| | | | | | |
|--|-----|-------|------|----|----|
| Postcard mailing | 16 | 61.19 | 7.26 | 40 | 70 |
| Survey link on ASCA social networking site | 42 | 61.50 | 6.07 | 46 | 70 |
| E-mailed from researcher of study | 105 | 60.11 | 6.65 | 40 | 70 |
| E-mailed from a colleague | 29 | 58.41 | 6.00 | 40 | 70 |
| Other | 18 | 60.72 | 5.39 | 51 | 70 |

Note. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The relationships between number of ASD courses with years of certification, knowledge, and attitude scores are shown in Table C.20. None of the relationships revealed significant results.

Table C.20

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Number of ASD Courses

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|------------------------|----------|-------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | 3.68 | .056 |
| 0 ASD Courses | 185 | 11.21 | 8.42 | 0 | 38 | | |
| 1 or More ASD Courses | 36 | 8.36 | 6.42 | 0 | 24 | | |
| Total Knowledge Score | | | | | | 2.48 | .116 |
| 0 ASD Courses | 185 | 18.60 | 2.08 | 11 | 23 | | |
| 1 or More ASD Courses | 36 | 18.00 | 2.12 | 13 | 22 | | |
| Attitudes Total Score | | | | | | 1.99 | .160 |
| 0 ASD Courses | 177 | 60.56 | 6.45 | 40 | 70 | | |
| 1 or More ASD Courses | 33 | 58.85 | 6.05 | 49 | 70 | | |

The relationships between conference attendance with years of certification, knowledge, and attitude scores are shown in Table C.21. Significant attitude differences were found between participants who had attended conferences about ASD and those who had not attended conferences about ASD, $F(1, 208) = 3.93, p < .05$. Tukey's posthoc analyses showed that the mean of participants who had attended conferences ($M = 61.67, SD = 6.53$) had

significantly higher attitude scores than those who had not attended conferences ($M = 59.74$, $SD = 6.29$).

Table C.21

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Conference Attendance

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|------------------------|----------|-------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | 2.64 | .106 |
| No | 156 | 10.17 | 7.95 | 0 | 35 | | |
| Yes | 65 | 12.12 | 8.63 | 0 | 38 | | |
| Total Knowledge Score | | | | | | .01 | .908 |
| No | 156 | 18.51 | 2.08 | 11 | 23 | | |
| Yes | 65 | 18.48 | 2.14 | 14 | 22 | | |
| Attitudes Total Score | | | | | | 3.93 | .049 |
| No | 150 | 59.74 | 6.29 | 40 | 70 | | |
| Yes | 60 | 61.67 | 6.53 | 40 | 70 | | |

The relationships between webinar or online course with years of certification, knowledge, and attitude scores are shown in Table C.22. Significant attitude differences were found between participants who had participated in webinar or online course about ASD and those who had not participated in webinar or online course about ASD, $F(1, 208) = 6.01$, $p < .05$. Tukey's posthoc analyses showed that the mean of participants who had participated in webinar or online course ($M = 62.97$, $SD = 5.88$) had significantly higher attitude scores than those who had not participated in webinar or online course ($M = 59.86$, $SD = 6.40$).

Table C.22

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Webinar or Online Course

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|------------------------|----------|-------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | .09 | .767 |
| No | 189 | 10.81 | 8.10 | 0 | 35 | | |
| Yes | 32 | 10.34 | 8.82 | 0 | 38 | | |
| Total Knowledge Score | | | | | | .99 | .320 |
| No | 189 | 18.44 | 2.11 | 11 | 23 | | |
| Yes | 32 | 18.84 | 1.99 | 14 | 21 | | |
| Attitudes Total Score | | | | | | 6.01 | .015 |
| No | 181 | 59.86 | 6.40 | 40 | 70 | | |
| Yes | 29 | 62.97 | 5.88 | 40 | 70 | | |

The relationships between self-education with years of certification, knowledge, and attitude scores are shown in Table C.23. Significant attitude differences were found between participants who had participated in self-education about ASD and those who had not participated in self-education about ASD, $F(1, 208) = 11.48, p < .05$. Tukey's posthoc analyses showed that the mean of participants who had participated in self-education ($M = 61.47, SD = 5.73$) had significantly higher attitude scores than those who had not participated in self-education ($M = 58.48, SD = 6.97$).

Table C.23

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Self-Education

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|------------------------|----------|-------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | .13 | .717 |
| No Self-Education | 90 | 10.50 | 8.06 | 0 | 38 | | |
| Self-Education | 131 | 10.91 | 8.30 | 0 | 35 | | |
| Total Knowledge Score | | | | | | 2.95 | .087 |
| No | 90 | 18.21 | 2.38 | 11 | 23 | | |
| Yes | 131 | 18.70 | 1.86 | 14 | 22 | | |
| Attitudes Total Score | | | | | | 11.48 | .001 |
| No | 83 | 58.48 | 6.97 | 40 | 70 | | |
| Yes | 127 | 61.47 | 5.73 | 40 | 70 | | |

The relationships between number of special education courses with years of certification, knowledge, and attitude scores are shown in Table C.24. Significant knowledge differences were found between participants who had different numbers of special education courses in their graduate training, $F(2, 218) = 3.27, p < .05$. Tukey's posthoc analyses showed that the mean of participants who had participated in one special education course ($M = 18.87, SD = 1.88$) had significantly higher knowledge scores than those who had participated in zero special education courses ($M = 18.46, SD = 2.30$), as well as those who had participated in two special education courses ($M = 17.94, SD = 2.03$).

Table C.24

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Number of Special Education Courses

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|------------------------------|----------|---------------------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | 1.28 | .281 |
| 0 Special Education Courses | 80 | 10.50 | 7.82 | 0 | 31 | | |
| 1 Special Education Course | 89 | 10.06 | 8.30 | 0 | 38 | | |
| 2+ Special Education Courses | 52 | 12.29 | 8.50 | 0 | 35 | | |
| Total Knowledge Score | | | | | | 3.27 | .040 |
| 0 Special Education Courses | 80 | 18.46 ^{ab} | 2.30 | 11 | 23 | | |
| 1 Special Education Course | 89 | 18.87 ^a | 1.88 | 14 | 22 | | |
| 2+ Special Education Courses | 52 | 17.94 ^b | 2.03 | 13 | 22 | | |
| Attitudes Total Score | | | | | | 2.74 | .067 |
| 0 Special Education Courses | 77 | 59.26 | 7.20 | 40 | 70 | | |
| 1 Special Education Course | 84 | 61.52 | 5.50 | 51 | 70 | | |
| 2+ Special Education Courses | 49 | 59.80 | 6.29 | 46 | 70 | | |

Note. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The relationships between years practiced with years of certification, knowledge, and attitude scores are shown in Table C.25. Significant years of certification differences were found between participants who had practiced a different number of years $F(3, 17) = 183.94, p < .001$. Tukey's posthoc analyses showed that the mean of participants who had practiced for 16-39 years ($M = 23.05, SD = 5.66$) had significantly higher years of certification than those who had practiced for 7 – 15 years ($M = 11.80, SD = 4.85$), as well as those who had practiced for 3 – 6 years ($M = 5.48, SD = 3.06$), and those who had practiced 2 or less years ($M = 3.21, SD = 3.62$).

Table C.25

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Years Practiced

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|---------------------------|----------|--------------------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | 183.94 | <.001 |
| 2 or Less Years Practiced | 34 | 3.21 ^a | 3.62 | 0 | 19 | | |
| 3-6 Years Practiced | 69 | 5.48 ^a | 3.06 | 1 | 16 | | |
| 7-15 Years Practiced | 74 | 11.80 ^b | 4.85 | 6 | 30 | | |
| 16-39 Years Practiced | 44 | 23.05 ^c | 5.66 | 15 | 38 | | |
| Total Knowledge Score | | | | | | .30 | .828 |
| 2 or Less Years Practiced | 34 | 18.21 | 2.00 | 13 | 21 | | |
| 3-6 Years Practiced | 69 | 18.58 | 2.19 | 13 | 23 | | |
| 7-15 Years Practiced | 74 | 18.50 | 2.15 | 11 | 22 | | |
| 16-39 Years Practiced | 44 | 18.61 | 1.97 | 14 | 22 | | |
| Attitudes Total Score | | | | | | 1.98 | .119 |
| 2 or Less Years Practiced | 33 | 59.12 | 6.55 | 40 | 70 | | |
| 3-6 Years Practiced | 65 | 59.29 | 6.13 | 44 | 70 | | |
| 7-15 Years Practiced | 69 | 61.65 | 6.20 | 40 | 70 | | |
| 16-39 Years Practiced | 43 | 60.51 | 6.81 | 40 | 70 | | |

Note. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The relationships between number of ASD cases with years of certification, knowledge, and attitude scores are shown in Table C.26. Significant attitudes differences were found between participants who had served different number of students identified with ASD, $F(2, 207) = 4.82, p < .05$. Tukey's posthoc analyses showed that the mean of participants who served 5+ students identified with ASD ($M = 61.57, SD = 6.20$) had significantly higher attitudes than those who had served two to four students identified with ASD ($M = 60.96, SD = 6.49$), as well as those who had served one student identified with ASD ($M = 58.33, SD = 6.09$).

Table C.26

Means and Standard Deviations of Certification, Knowledge, and Attitudes by Number of ASD Cases

| | <i>n</i> | Mean | <i>SD</i> | Min | Max | <i>F</i> | <i>p</i> |
|------------------------|----------|--------------------|-----------|-----|-----|----------|----------|
| Years of Certification | | | | | | 2.06 | .130 |
| 1 ASD Case | 71 | 10.00 | 7.72 | 1 | 30 | | |
| 2-4 ASD Cases | 92 | 10.14 | 7.47 | 0 | 32 | | |
| 5+ ASD Cases | 58 | 12.60 | 9.58 | 0 | 38 | | |
| Total Knowledge Score | | | | | | .30 | .741 |
| 1 ASD Case | 71 | 18.35 | 2.06 | 13 | 23 | | |
| 2-4 ASD Cases | 92 | 18.61 | 2.12 | 11 | 22 | | |
| 5+ ASD Cases | 58 | 18.52 | 2.13 | 14 | 22 | | |
| Attitudes Total Score | | | | | | 4.82 | .009 |
| 1 ASD Case | 66 | 58.33 ^a | 6.09 | 40 | 70 | | |
| 2-4 ASD Cases | 90 | 60.96 ^b | 6.49 | 40 | 70 | | |
| 5+ ASD Cases | 54 | 61.57 ^b | 6.20 | 40 | 70 | | |

Note. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The relationships among years practiced and certification years were tested using Spearman's correlations coefficient. There was a significant positive correlation between years practiced and certification years, $\rho (219) = .790, p < .001$. A higher score on years practiced was highly associated with higher scores on certification years, so much so that these items conceptually captured nearly the same information. In further analyses, years practiced and certification years were not used in the same analyses due to issues of multicollinearity.

Table C.27

Spearman’s Correlations Coefficient between Years Practiced and Certification Years

| | Certification Years |
|-----------------|---------------------|
| Years Practiced | .790 *** |

Note. *** $p < .001$.

Research Question 4: How often are counseling, consultation, curriculum, and coordination Roles Performed by ESC in the Education of Students Identified with ASD?

Research Question 4 has previously been presented in the publishable unit. The inclusion of the research question in this section is to ensure continuity and decrease confusion. More in-depth information is given in the publishable unit (see Tables 2-6).

Participants were asked to choose the rating that indicated the frequency with which they actually performed each function in the four role domains (counseling, consultation, curriculum, and coordination) contained within the SCARS (2005). The scale was from 1 to 5, with 1 indicating “I never do this,” and 5 indicating “I routinely do this” (see Table C.28 – C.31). The highest mean responses for frequency on counseling roles were 3.51 ($SD = 1.04$), 3.57 ($SD = 1.07$), 3.01 ($SD = 1.37$), and 3.45 ($SD = 1.19$). The lowest mean responses for frequency on counseling roles were 2.12 ($SD = 1.09$), and 1.50 ($SD = .77$).

Table C. 28

Means and Standard Deviations for Frequency of Counseling Roles Items

| | N | Mean | SD | Min | Max |
|--|-----|------|------|-----|-----|
| a. Counsel with students identified with ASD regarding personal/family concerns. | 220 | 2.83 | 1.01 | 1 | 5 |
| b. Counsel with students identified with ASD regarding school behavior. | 220 | 3.51 | 1.04 | 1 | 5 |
| c. Counsel with students identified with ASD regarding crisis/emergency issues. | 220 | 2.71 | 1.00 | 1 | 5 |
| d. Counsel with students identified with ASD regarding social relationships (e.g., family, friends, romantic). | 220 | 3.57 | 1.07 | 1 | 5 |
| e. Counsel with students identified with ASD regarding academic issues. | 220 | 2.67 | 1.04 | 1 | 5 |
| f. Provide small group counseling addressing relationships/social skills with students identified with ASD. | 220 | 3.01 | 1.37 | 1 | 5 |
| g. Provide small group counseling with students with ASD regarding academic issues. | 220 | 2.12 | 1.09 | 1 | 5 |
| h. Conduct small groups with students identified with ASD regarding family/personal issues (e.g., divorce, bereavement). | 220 | 2.25 | 1.07 | 1 | 5 |
| i. Conduct small groups with students identified with ASD regarding bullying issues. | 220 | 2.61 | 1.10 | 1 | 5 |
| j. Follow-up on students with ASD whom have participated in individual and group counseling. | 220 | 3.45 | 1.19 | 1 | 5 |
| k. Counsel with students identified with ASD regarding substance abuse issues. | 220 | 1.50 | .77 | 1 | 5 |

The highest mean responses for frequency of consulting roles were 3.73 ($SD = 1.04$), 3.08 ($SD = 1.05$), 3.28 ($SD = 1.30$), and 3.11 ($SD = 1.26$). The lowest mean response for frequency on consulting roles was 2.49 ($SD = 1.16$).

Table C.29

Means and Standard Deviations for Frequency of Consulting Roles Items

| | N | Mean | SD | Min | Max |
|---|-----|------|------|-----|-----|
| a. Consult with school staff concerning behavior of students identified with ASD. | 219 | 3.73 | 1.04 | 1 | 5 |
| b. Consult with community and school agencies concerning individual students identified with ASD. | 219 | 2.80 | 1.03 | 1 | 5 |
| c. Consult with parents regarding child development issues in relation to ASD. | 219 | 3.08 | 1.05 | 1 | 5 |
| d. Coordinate referrals for students identified with ASD and/or their families to community or education professionals (e.g., mental health, speech pathology, medical assessment). | 219 | 2.87 | 1.13 | 1 | 5 |
| e. Assist in identifying exceptional children (special education). | 219 | 3.28 | 1.30 | 1 | 5 |
| f. Provide consultation for administrators (regarding school policy, programs, staff and/or students) focused on ASD. | 219 | 2.49 | 1.16 | 1 | 5 |
| g. Participate in team / grade level / subject team meetings focused on students with ASD. | 219 | 3.11 | 1.26 | 1 | 5 |

The highest mean responses for frequency of curriculum roles were 3.98 ($SD = 1.22$), 4.18 ($SD = 1.06$), 4.09 ($SD = 1.13$), and 4.08 ($SD = 1.12$). The lowest mean response for frequency on curriculum roles was 2.90 ($SD = 1.46$).

Table C.30

Means and Standard Deviations for Frequency of Curriculum Roles Items

| | N | Mean | SD | Min | Max |
|--|-----|------|------|-----|-----|
| a. Conduct activities to introduce yourself and explain the counseling program in classrooms which include students identified with ASD. | 215 | 3.98 | 1.22 | 1 | 5 |
| b. Conduct lessons addressing career development and the world of work in classrooms which include students identified with ASD. | 215 | 3.52 | 1.39 | 1 | 5 |
| c. Conduct lessons on various personal and/or social traits (e.g., responsibility, respect, etc.) in classrooms which include students identified with | 215 | 4.18 | 1.06 | 1 | 5 |
| d. Conduct lessons on relating to others (family, friends) in classrooms which include students identified with ASD. | 215 | 4.09 | 1.13 | 1 | 5 |
| e. Conduct lessons on personal growth and development issues in classrooms which include students identified with ASD. | 215 | 3.89 | 1.23 | 1 | 5 |
| f. Conduct lessons on conflict resolution in classrooms which include students identified with ASD. | 215 | 4.08 | 1.12 | 1 | 5 |
| g. Conduct classroom lessons on substance abuse in classrooms which include students identified with ASD. | 215 | 2.90 | 1.46 | 1 | 5 |
| h. Conduct classroom lessons on personal safety issues in classrooms which include students identified with ASD. | 215 | 3.72 | 1.26 | 1 | 5 |

The highest mean responses for frequency of coordination roles were 3.85 ($SD = 1.23$), 4.61 ($SD = .78$), and 3.58 ($SD = 1.26$). The majority of mean responses for frequency of coordination roles were between 2.73 ($SD = 1.04$), and 2.05 ($SD = 1.16$), with the lowest mean response for frequency on coordination roles revealing 1.73 ($SD = .91$).

Table C.31

Means and Standard Deviations for Frequency of Coordination Roles Items

| | N | Mean | SD | Min | Max |
|---|-----|------|------|-----|-----|
| a. Coordinate special events and programs for school around academic, career, or personal/social issues (e.g., career day, drug awareness, test prep). | 211 | 3.85 | 1.23 | 1 | 5 |
| b. Coordinate and maintain a comprehensive school counseling program. | 211 | 4.61 | .78 | 1 | 5 |
| c. Inform parents about the role, training, program, and interventions of a school counselor specific to ASD within the context of your school. | 211 | 2.66 | 1.26 | 1 | 5 |
| d. Conduct or coordinate parent education classes or workshops specific with topics applicable to ASD. | 211 | 1.87 | 1.07 | 1 | 5 |
| e. Coordinate school-wide response for crisis management and intervention. | 211 | 3.58 | 1.26 | 1 | 5 |
| f. Inform teachers/administrators about the role, training, program, and interventions of a school counselor specific to ASD within the context of your school. | 211 | 2.46 | 1.21 | 1 | 5 |
| g. Conduct or coordinate teacher in-service programs specific to topics applicable to ASD. | 211 | 1.73 | .91 | 1 | 5 |

| | | | | | |
|---|-----|------|------|---|---|
| h. Keep track of how time is being spent on the functions that you perform with students identified with ASD. | 211 | 2.33 | 1.40 | 1 | 5 |
| i. Attend professional development activities covering ASD topics. | 211 | 2.73 | 1.04 | 1 | 5 |
| j. Coordinate with an advisory team to analyze and respond to school counseling program needs specific to working with students with ASD. | 211 | 2.05 | 1.16 | 1 | 5 |
| k. Formally evaluate progress of students identified with ASD. | 211 | 2.28 | 1.29 | 1 | 5 |
| l. Conduct needs assessments and counseling program evaluations specific to the needs of students identified with ASD. | 211 | 2.10 | 1.13 | 1 | 5 |

The mean scores for the frequency of roles scores are shown in Table C.32. A repeated measures MANOVA was conducted to test for significant differences in the mean roles scores. The overall model was significant, $F(2, 501) = 134.88, p < .001, \eta^2 = .391$, indicating that there were differences among the frequency of roles. Tukey's posthoc analyses reveal that overall counseling ($M = 2.76, SD = .76$) and coordination ($M = 2.69, SD = .69$) were performed significantly less often than consultation ($M = 3.06, SD = .89$) and curriculum roles ($M = 3.80, SD = 1.02$). In addition curriculum roles were performed significantly more often than consultation roles.

Table C.32

Means and Standard Deviations for Overall Frequency of Roles Scores

| | N | Mean | SD | Min | Max |
|--------------------|-----|-------------------|------|------|------|
| Counseling Total | 211 | 2.76 ^a | .76 | 1.00 | 4.73 |
| Consultation Total | 211 | 3.06 ^b | .89 | 1.00 | 5.00 |
| Curriculum Total | 211 | 3.80 ^c | 1.02 | 1.00 | 5.00 |
| Coordination Total | 211 | 2.69 ^a | .69 | 1.08 | 5.00 |

Note. Multivariate $F(2, 501) = 134.88, p < .001, \eta^2 = .391$. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The relationships among the overall frequency of roles scores were tested using Pearson's product moment correlations. There was a significant positive correlation between counseling and consultation total scores, ($r(217) = .60, p < .01$) and between counseling and curriculum total scores, ($r(213) = .31, p < .01$). Counseling roles also had a significant positive correlation with coordination roles ($r(209) = .45, p < .01$). In addition, there was a significant positive correlation between consultation and curriculum total scores, ($r(213) = .32, p < .01$), and between consultation and coordination ($r(209) = .64, p < .01$). Finally, there was a significant positive correlation between curriculum total scores and coordination total scores ($r(209) = .41, p < .01$). Each pair of variables was significantly positively correlated, indicating that participants who engaged in more roles in one domain were also likely to engage in more roles in the comparative domain.

Table C.33

Pearson's Product Moment Correlations between Overall Frequency of Roles Scores

| | Counseling Total | Consultation Total | Curriculum Total |
|--------------------|---------------------|-----------------------|---------------------|
| Consultation Total | .60 ** | | |
| Curriculum Total | .31 ** | .32 ** | |
| Coordination Total | .45 ** | .64 ** | .41 ** |

Note. ** $p < .01$.

Relationships between Roles and Knowledge, Attitudes, Education, and Training

The relationships among the overall frequency of roles by total knowledge and attitudes were tested using Pearson's product moment correlations. There was a significant positive correlation between counseling and total knowledge score, ($r(218) = .22, p < .01$) and between counseling and attitudes total scores, ($r(208) = .20, p < .01$). Consultation roles also had a significant positive correlation with total knowledge score ($r(218) = .20, p < .01$), and with attitudes total score ($r(208) = .24, p < .01$). In addition, there was a significant positive correlation between curriculum and total knowledge score, ($r(218) = .23, p < .01$), and between curriculum and attitudes total score ($r(208) = .17, p < .05$). The last significant positive correlation was between coordination and attitudes total score ($r(208) = .14, p < .05$). These findings indicate that higher roles scores were associated both with more total knowledge and better attitudes regarding ASD.

Table C.34

Pearson's Product Moment Correlations for Overall Frequency of Roles by Total Knowledge and Attitudes

| | Total Knowledge Score | Attitudes Total Score |
|--------------------|-----------------------------|--------------------------|
| Counseling Total | .219 ** | .197 ** |
| Consultation Total | .201 ** | .239 ** |
| Curriculum Total | .225 ** | .174 * |
| Coordination Total | .088 | .139 * |

Note. * $p < .05$; ** $p < .01$.

The relationships between the roles items and the knowledge, attitude, education, and training items were tested with a series of MANOVAs (see Tables C.35 – C.41). The multivariate relationship between roles and geographic setting was significant, $F(8, 108) = 2.23, p = .024, \eta^2 = .042$, indicating that geographic setting was related to roles. Examination of the univariate effects reveals a significant difference between the curriculum total score by setting, $F(2, 208) = 3.39, p < .05$. Tukey's posthoc analyses revealed that curriculum roles were performed more often in rural settings ($M = 3.97, SD = .98$) than in urban settings ($M = 3.50, SD = 1.17$) and suburban settings ($M = 3.85, SD = .93$). Univariate differences were not found for counseling, consultation, or coordination roles between geographic settings.

Table C.35

Means and Standard Deviations for Overall Frequency of Roles by Geographic Setting

| | n | Mean | SD | F | p |
|--------------------|----|--------------------|------|------|------|
| Counseling Total | | | | 1.98 | .141 |
| Rural | 65 | 2.71 | .80 | | |
| Suburban | 96 | 2.87 | .72 | | |
| Urban | 50 | 2.62 | .76 | | |
| Consultation Total | | | | .13 | .882 |
| Rural | 65 | 3.04 | .87 | | |
| Suburban | 96 | 3.05 | .84 | | |
| Urban | 50 | 3.11 | 1.01 | | |
| Curriculum Total | | | | 3.39 | .035 |
| Rural | 65 | 3.97 ^a | .98 | | |
| Suburban | 96 | 3.85 ^{ab} | .93 | | |
| Urban | 50 | 3.50 ^b | 1.17 | | |
| Coordination Total | | | | 1.19 | .305 |
| Rural | 65 | 2.76 | .71 | | |
| Suburban | 96 | 2.70 | .67 | | |
| Urban | 50 | 2.57 | .68 | | |

Note. Multivariate effect: $F(8, 108) = 2.23, p = .024, \eta^2 = .042$. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The multivariate relationship between roles and U.S. region was significant, $F(12, 599) = 3.65, p < .001, \eta^2 = .068$, indicating that the U.S. region in which the participants lived was related to roles. Examination of the univariate effects revealed a significant difference between the counseling total score by U.S. region, $F(3, 204) = 9.54, p < .001$. Tukey's posthoc analyses revealed that counseling roles were performed significantly more often in the Northeast ($M = 3.21, SD = .75$) and West ($M = 2.81, SD = .66$) compared to the Midwest ($M = 2.67, SD = .68$) and South ($M = 2.56, SD = .70$). The examination of the univariate effects also revealed a significant

difference between the consultation total score by U.S. region, $F(3, 204) = 7.32, p < .001$.

Tukey's posthoc analyses revealed that consultation roles were performed significantly more often in the Northeast ($M = 3.53, SD = .88$) and West ($M = 3.08, SD = .88$) compared to the Midwest ($M = 2.99, SD = .87$) and South ($M = 2.84, SD = .82$). Univariate differences were not found for curriculum or coordination roles between U.S. regions.

Table C.36

Means and Standard Deviations for Overall Frequency of Roles by U.S. Region

| | n | Mean | SD | F | p |
|--------------------|-----|-------------------|------|------|-------|
| Counseling Total | | | | 9.54 | <.001 |
| Northeast | 48 | 3.21 ^a | .75 | | |
| Midwest | 27 | 2.67 ^b | .68 | | |
| South | 107 | 2.56 ^b | .70 | | |
| West | 26 | 2.81 ^a | .66 | | |
| Consultation Total | | | | 7.32 | <.001 |
| Northeast | 48 | 3.53 ^a | .88 | | |
| Midwest | 27 | 2.99 ^b | .87 | | |
| South | 107 | 2.84 ^b | .82 | | |
| West | 26 | 3.08 ^a | .88 | | |
| Curriculum Total | | | | .27 | .845 |
| Northeast | 48 | 3.72 | .84 | | |
| Midwest | 27 | 3.92 | 1.11 | | |
| South | 107 | 3.78 | 1.07 | | |
| West | 26 | 3.88 | 1.04 | | |
| Coordination Total | | | | 1.89 | .132 |
| Northeast | 48 | 2.87 | .76 | | |
| Midwest | 27 | 2.78 | .70 | | |
| South | 107 | 2.60 | .63 | | |
| West | 26 | 2.62 | .74 | | |

Note. Multivariate effect: $F(12, 599) = 3.65, p = <.001, \eta^2 = .068$. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The multivariate relationship between roles and invitation type was significant, $F(16, 806) = 1.97, p = .013, \eta^2 = .038$, indicating that the type of invitation the participant received for the survey was related to roles. However, an examination of the univariate effects revealed no significant difference between the invitation types for the four roles types.

Table C.37

Means and Standard Deviations for Overall Frequency of Roles by Invitation Type

| | n | Mean | SD | F | p |
|--|-----|------|------|------|------|
| Counseling Total | | | | 2.39 | .052 |
| Postcard Mailing | 16 | 2.57 | .84 | | |
| Survey link on ASCA social networking site | 43 | 2.88 | .80 | | |
| E-mailed from researcher of study | 105 | 2.71 | .70 | | |
| E-mailed from a Colleague | 29 | 2.61 | .76 | | |
| Other | 18 | 3.18 | .78 | | |
| Consultation Total | | | | 2.01 | .095 |
| Postcard Mailing | 16 | 2.99 | .95 | | |
| Survey link on ASCA social networking site | 43 | 3.02 | .84 | | |
| E-mailed from researcher of study | 105 | 3.14 | .93 | | |
| E-mailed from a Colleague | 29 | 2.69 | .71 | | |
| Other | 18 | 3.35 | .86 | | |
| Curriculum Total | | | | .97 | .427 |
| Postcard Mailing | 16 | 3.77 | 1.18 | | |
| Survey link on ASCA social networking site | 43 | 3.56 | 1.13 | | |
| E-mailed from researcher of study | 105 | 3.91 | .93 | | |
| E-mailed from a Colleague | 29 | 3.87 | 1.01 | | |
| Other | 18 | 3.72 | 1.09 | | |
| Coordination Total | | | | 1.10 | .358 |
| Postcard Mailing | 16 | 2.83 | .59 | | |
| Survey link on ASCA social networking site | 43 | 2.53 | .76 | | |
| E-mailed from researcher of study | 105 | 2.75 | .67 | | |

| | | | |
|---------------------------|----|------|-----|
| E-mailed from a Colleague | 29 | 2.60 | .64 |
| Other | 18 | 2.70 | .74 |

Note. Multivariate effect: $F(16, 806) = 1.97, p = .013, \eta^2 = .038$. Means with different superscripts are significantly different from each other (Tukey's $p < .05$).

The multivariate relationship between roles and years practiced was significant, $F(12, 608) = 1.67, p = .069, \eta^2 = .032$, indicating that the number of years that the participant had been practicing was related to roles. Examination of the univariate effects revealed a significant difference between the consultation total score by U.S. region, $F(3, 207) = 2.78, p < .05$. Tukey's posthoc analyses revealed that consultation roles were performed marginally (Tukey's posthoc $p = .054$) more often for those who had practiced 16- 39 years ($M = 3.39, SD = .94$) compared to those who practiced two years or less ($M = 2.87, SD = .90$). The examination of the univariate effects also revealed a significant difference between the curriculum total score by U.S. region, $F(3, 207) = 4.23, p < .01$. Tukey's posthoc analyses revealed that curriculum roles were performed significantly more often for those who had practiced 16- 39 years ($M = 4.15, SD = .80$) compared to those who practiced two years or less ($M = 3.37, SD = 1.09$). Finally, significant univariate differences were also found between years practiced and the coordination total score, $F(3, 207) = 3.95, p < .01$. Tukey's posthoc analyses revealed that coordination roles were performed significantly more often for those who had practiced 16- 39 years ($M = 2.98, SD = .66$) compared to those who practiced two years or less ($M = 2.50, SD = .77$) or three to six years ($M = 2.63, SD = .65$). Univariate differences were not found for counseling roles and number of years practiced.

Table C.38

Means and Standard Deviations for Overall Frequency of Roles by Years Practiced

| | n | Mean | SD | F | p |
|---------------------------|----|--------------------|------|------|------|
| Counseling Total | | | | 1.39 | .248 |
| 2 or Less Years Practiced | 34 | 2.59 | .77 | | |
| 3-6 Years Practiced | 65 | 2.77 | .75 | | |
| 7-15 Years Practiced | 69 | 2.72 | .77 | | |
| 16-39 Years Practiced | 43 | 2.94 | .73 | | |
| Consultation Total* | | | | 2.78 | .042 |
| 2 or Less Years Practiced | 34 | 2.87 ^a | .90 | | |
| 3-6 Years Practiced | 65 | 2.97 ^{ab} | .88 | | |
| 7-15 Years Practiced | 69 | 3.03 ^{ab} | .82 | | |
| 16-39 Years Practiced | 43 | 3.39 ^b | .94 | | |
| Curriculum Total | | | | 4.23 | .006 |
| 2 or Less Years Practiced | 34 | 3.37 ^a | 1.09 | | |
| 3-6 Years Practiced | 65 | 3.72 ^{ab} | 1.07 | | |
| 7-15 Years Practiced | 69 | 3.88 ^{ab} | .98 | | |
| 16-39 Years Practiced | 43 | 4.15 ^b | .80 | | |
| Coordination Total | | | | 3.95 | .009 |
| 2 or Less Years Practiced | 34 | 2.50 ^a | .77 | | |
| 3-6 Years Practiced | 65 | 2.63 ^a | .65 | | |
| 7-15 Years Practiced | 69 | 2.65 ^{ab} | .65 | | |
| 16-39 Years Practiced | 43 | 2.98 ^b | .66 | | |

Note. Multivariate effect: $F(12, 608) = 1.67, p = .069, \eta^2 = .032$. Means with different superscripts are significantly different from each other (Tukey's $p < .05$); *Posthoc differences marginal, $p = .054$.

The multivariate relationship between roles and total caseload size was significant, $F(4, 206) = 4.04, p = .004, \eta^2 = .073$, indicating that total caseload size was related to roles.

Examination of the univariate effects revealed a significant difference for the counseling ($F(1, 209) = 11.63, p = .001$), consultation ($F(1, 209) = 4.60, p < .05$), and coordination ($F(1, 209) = 10.31, p < .01$) total scores by total caseload size. Tukey's posthoc analyses revealed that

counseling roles were performed significantly more often for participants with a caseload of 40 or more ($M = 2.94, SD = .77$) compared to a caseload of less than 40 ($M = 2.60, SD = .71$).

Consultation roles were also performed significantly more often for participants with a caseload of 40 or more ($M = 3.20, SD = .88$) compared to a caseload of less than 40 ($M = 2.94, SD = .88$).

Finally, coordination roles were also performed significantly more often for participants with a caseload of 40 or more ($M = 2.84, SD = .68$) compared to a caseload of less than 40 ($M = 2.55, SD = .66$). Univariate differences were not found for curriculum roles by total case size.

Table C.39

Means and Standard Deviations for Overall Frequency of Roles by Total Caseload Size

| | n | Mean | SD | F | p |
|-----------------------------|-----|------|------|-------|------|
| Counseling Total | | | | 11.63 | .001 |
| Total Caseload Less than 40 | 111 | 2.60 | .71 | | |
| Total Caseload 40 or More | 100 | 2.94 | .77 | | |
| Consultation Total | | | | 4.60 | .033 |
| Total Caseload Less than 40 | 111 | 2.94 | .88 | | |
| Total Caseload 40 or More | 100 | 3.20 | .88 | | |
| Curriculum Total | | | | 2.70 | .102 |
| Total Caseload Less than 40 | 111 | 3.70 | 1.03 | | |
| Total Caseload 40 or More | 100 | 3.93 | .99 | | |
| Coordination Total | | | | 10.31 | .002 |
| Total Caseload Less than 40 | 111 | 2.55 | .66 | | |
| Total Caseload 40 or More | 100 | 2.84 | .68 | | |

Note. Multivariate effect: $F(4, 206) = 4.04, p = .004, \eta^2 = .073$.

The multivariate relationship between roles and whether the participant had attended conference training was significant, $F(4, 206) = 6.66, p < .001, \eta^2 = .115$, indicating that whether the participant had attended conference training was related to roles. Examination of

the univariate effects revealed a significant difference for the counseling ($F(1, 209) = 17.52, p < .001$), consultation ($F(1, 209) = 19.02, p < .001$), and coordination ($F(1, 209) = 16.81, p < .001$) total scores by whether the participant had attended conference training. Tukey's posthoc analyses revealed that counseling roles were performed significantly more often for participants who had attended conference training ($M = 3.09, SD = .77$) compared to those who had not ($M = 2.63, SD = .71$). Consultation roles were also performed significantly more often for participants who had attended conference training ($M = 3.46, SD = .82$) compared to those who had not ($M = 2.90, SD = .87$). Finally, coordination roles were performed significantly more often for participants who had attended conference training ($M = 2.98, SD = .75$) compared to those who had not ($M = 2.57, SD = .62$). Univariate differences were not found for curriculum roles by attendance at conference training.

Table C.40

Means and Standard Deviations for Overall Frequency of Roles by Conference Training

| | n | Mean | SD | F | p |
|----------------------------|-----|------|------|-------|-------|
| Counseling Total | | | | 17.52 | <.001 |
| No Training at Conferences | 150 | 2.63 | .71 | | |
| Training at Conferences | 61 | 3.09 | .77 | | |
| Consultation Total | | | | 19.02 | <.001 |
| No Training at Conferences | 150 | 2.90 | .87 | | |
| Training at Conferences | 61 | 3.46 | .82 | | |
| Curriculum Total | | | | 1.50 | .223 |
| No Training at Conferences | 150 | 3.75 | 1.05 | | |
| Training at Conferences | 61 | 3.94 | .93 | | |
| Coordination Total | | | | 16.81 | <.001 |
| No Training at Conferences | 150 | 2.57 | .62 | | |
| Training at Conferences | 61 | 2.98 | .75 | | |

Note. Multivariate effect: $F(4, 206) = 6.66, p < .001, \eta^2 = .115$.

The multivariate relationship between roles and whether the participant had participated in self-education was significant, $F(4, 206) = 7.29, p < .001, \eta^2 = .124$, indicating that whether the participant had participated in self-education was related to roles. Examination of the univariate effects revealed a significant difference for the counseling ($F(1, 209) = 16.23, p < .001$), consultation ($F(1, 209) = 21.23, p < .001$), and coordination ($F(1, 209) = 5.59, p < .05$) total scores by whether the participant had participated in self-education. Tukey's posthoc analyses revealed that counseling roles were performed significantly more often for participants who had participated in self-education ($M = 2.92, SD = .72$) compared to those who had not ($M = 2.51, SD = .74$). Consultation roles were also performed significantly more often for participants who had participated in self-education ($M = 3.28, SD = .86$) compared to those who had not ($M = 2.73, SD = .83$). Finally, coordination roles were performed significantly more often for participants who had participated in self-education ($M = 2.78, SD = .69$) compared to those who had not ($M = 2.55, SD = .66$). Univariate differences were not found for curriculum roles by total case size.

Table C.41

Means and Standard Deviations for Overall Frequency of Roles by Participation in Self-Education

| | n | Mean | SD | F | p |
|--------------------|-----|------|------|-------|-------|
| Counseling Total | | | | 16.23 | <.001 |
| No Self-Education | 83 | 2.51 | .74 | | |
| Self-Education | 128 | 2.92 | .72 | | |
| Consultation Total | | | | 21.23 | <.001 |
| No Self-Education | 83 | 2.73 | .83 | | |
| Self-Education | 128 | 3.28 | .86 | | |
| Curriculum Total | | | | .05 | .825 |
| No Self-Education | 83 | 3.82 | 1.11 | | |
| Self-Education | 128 | 3.79 | .96 | | |
| Coordination Total | | | | 5.59 | .019 |
| No Self-Education | 83 | 2.55 | .66 | | |
| Self-Education | 128 | 2.78 | .69 | | |

Note. Multivariate effect: $F(4, 206) = 7.29, p = <.001, \eta^2 = .124$.

The relationships among how well graduate school prepared ESC to provide specific services by overall frequency of roles were tested using Pearson's product moment correlations. There was a significant positive correlation between consultation service to teachers and coordination total scores, ($r(209) = .14, p < .05$). In addition, there was a significant positive correlation between comprehensive programming scores, ($r(209) = .17, p < .05$).

Table C.42

Pearson's Product Moment Correlations for How Well Graduate School Prepared Participants to Provide Specific Services by Overall Frequency of Roles

| | Counseling Total | Consultation Total | Curriculum Total | Coordination Total |
|----------------------------------|---------------------|-----------------------|---------------------|-----------------------|
| Counseling Services | .01 | .08 | -.03 | .07 |
| Guidance Lessons | .06 | .02 | .01 | .12 |
| Consultation Services | .03 | .12 | -.05 | .12 |
| Consultation Service to Teachers | .07 | .10 | -.05 | .14 * |
| Comprehensive Program | .11 | .12 | .08 | .17 * |

Note. * $p < .05$.

The relationships among years of certification by overall frequency of roles were tested using Pearson's product moment correlations. There was a significant positive correlation between years of certification and consultation total score, ($r(217) = .14, p < .05$) and between years of certification and curriculum total scores, ($r(213) = .22, p < .01$). Years of certification also had a significant positive correlation with coordination total roles ($r(209) = .19, p < .01$).

Table C.43

Pearson's Product Moment Correlations for Years of Certification by Overall Frequency of Roles

| | Counseling Total | Consultation Total | Curriculum Total | Coordination Total |
|------------------------|---------------------|-----------------------|---------------------|-----------------------|
| Years of Certification | .07 | .14 * | .22 ** | .19 ** |

Note. * $p < .05$; ** $p < .01$.

Research Question 5: What Variables Predict the Roles ESC Perform in the Education of Students Identified with ASD?

A series of four multiple regression analyses predicting each of the total roles scores for counseling, consultation, curriculum, and coordination were conducted. In the first round of analyses, total knowledge, attitudes, geographic setting, U.S. region, years practiced, conference training, self-education, number of ASD cases as well as survey invitation type, total caseload, and whether the participant had taken ASD courses were all used as predictors of each of the roles scores. These variables were used in the predictive analyses because these were the variables shown to be significantly related to roles or significantly related to one of the variables that was related to roles. In order to reduce the number of predictors for the final analyses, variables which were not significantly predictive of any of the roles totals were dropped from the analyses, resulting in a total of eight predictor variables (shown in Tables C.44 – C.47).

As shown in Table C.44, the overall model predicting total counseling roles was significant, $F(14, 195) = 6.50, p < .001$, and accounted for 31.8% of the variance ($R^2 = .318$). Further examination of the model revealed that the total knowledge score was a significant predictor of total counseling roles (Beta = .20, $p < .01$), indicating that higher total knowledge was associated with more counseling roles. In addition, U.S. region was a significant predictor of total counseling roles (Beta = .15, $p < .05$), indicating that being from the Northeast was significantly associated with more counseling roles compared to being from the South. Conference training was also a significant predictor of total counseling roles (Beta = .15, $p < .05$), indicating that attending a conference (state, national, or international) was significantly

associated with more counseling roles compared to not attending training at a conference.

Finally, number of ASD cases was a significant predictor of total counseling roles. Having two to four ASD cases (Beta = .25, $p < .01$) compared to one ASD case was predictive of total counseling roles and having five or more ASD cases (Beta = .33, $p < .001$) compared to one ASD case was predictive of total counseling roles, indicating that having either two to four ASD cases or five or more ASD cases was significantly associated with more counseling roles compared to only having one ASD case.

Table C.44

Multiple Linear Regression Predicting Counseling Roles from Knowledge, Attitudes, Education, Training, and Demographic Characteristics

| | Unstandardized | | | | |
|--|----------------|------|------|------|-------|
| | B | SE | Beta | t | p |
| Total Knowledge Score | .79 | .25 | .20 | 3.19 | .002 |
| Attitudes Total Score | .02 | .08 | .02 | .23 | .820 |
| Suburban Population (vs Rural) | .65 | 1.18 | .04 | .55 | .585 |
| Urban (vs Rural) | -1.26 | 1.37 | -.07 | -.92 | .359 |
| Northeast (vs South) | 3.03 | 1.36 | .15 | 2.22 | .027 |
| Midwest (vs South) | .61 | 1.57 | .03 | .39 | .697 |
| West (vs South) | 2.93 | 1.56 | .12 | 1.88 | .062 |
| 0-2 yrs Practiced (vs 16+ yrs Practiced) | -1.55 | 1.69 | -.07 | -.92 | .359 |
| 3-6 yrs Practiced (vs 16+ yrs Practiced) | -.35 | 1.42 | -.02 | -.25 | .806 |
| 7-15 yrs Practiced (vs 16+ yrs Practiced) | -.82 | 1.43 | -.05 | -.58 | .565 |
| Training at State/National/Intl Conference (vs No) | 2.67 | 1.15 | .15 | 2.33 | .021 |
| Self-Education (vs No) | 2.06 | 1.09 | .12 | 1.89 | .060 |
| 2-4 ASD Cases (vs 1 ASD Case) | 4.15 | 1.21 | .25 | 3.44 | .001 |
| 5+ ASD Cases (vs 1 ASD Case) | 6.26 | 1.44 | .33 | 4.35 | <.001 |

Note. Overall Model $F(14, 195) = 6.50$, $p < .001$, $R^2 = .318$, adj $R^2 = .269$.

Presented in Table C.45, the overall model predicting total consultation roles was significant, $F(14, 195) = 6.03, p < .001$, and accounted for 30.2% of the variance ($R^2 = .302$). Further examination of the model revealed that the total knowledge score was a significant predictor of total consultation roles (Beta = .14, $p < .05$), indicating that higher total knowledge was associated with more consultation roles. In addition years practiced was a significant predictor of total consultation roles (Beta = -.16, $p < .05$), indicating that practicing for 16 years or more was associated with more roles than practicing for three to six years. Conference training was also a significant predictor of total consultation roles (Beta = .15, $p < .05$), indicating that attending a conference (state, national, or international) was significantly associated with more consulting roles compared to not attending training at a conference. Self-education was also a significant predictor of total consultation roles (Beta = .18, $p < .01$), indicating that participating in self-education was significantly associated with more consulting roles than not participating in self-education. Finally, number of ASD cases was a significant predictor of total consultation roles. Having two to four ASD cases (Beta = .23, $p < .01$) compared to one ASD case was predictive of total consultation roles, and having five or more ASD cases (Beta = .31, $p < .001$) compared to one ASD case was predictive of total consultation roles, indicating that having either two to four ASD cases or five or more ASD cases was significantly associated with more consultation roles compared to only having one ASD case.

Table C.45

Multiple Linear Regression Predicting Consultation Roles from Knowledge, Attitudes, Education, Training, and Demographic Characteristics

| | Unstandardized | | | | |
|--|----------------|------|------|-------|-------|
| | B | SE | Beta | t | p |
| Total Knowledge Score | .41 | .19 | .14 | 2.17 | .031 |
| Attitudes Total Score | .06 | .06 | .06 | .92 | .359 |
| Suburban Population (vs Rural) | -.76 | .90 | -.06 | -.85 | .399 |
| Urban (vs Rural) | .60 | 1.04 | .04 | .58 | .562 |
| Northeast (vs South) | 1.54 | 1.03 | .10 | 1.48 | .140 |
| Midwest (vs South) | .05 | 1.19 | .00 | .04 | .970 |
| West (vs South) | 1.42 | 1.18 | .08 | 1.20 | .232 |
| 0-2 yrs Practiced (vs 16+ yrs Practiced) | -2.16 | 1.28 | -.13 | -1.69 | .092 |
| 3-6 yrs Practiced (vs 16+ yrs Practiced) | -2.15 | 1.08 | -.16 | -2.00 | .047 |
| 7-15 yrs Practiced (vs 16+ yrs Practiced) | -1.47 | 1.08 | -.11 | -1.36 | .176 |
| Training at State/National/Intl Conference (vs No) | 2.02 | .87 | .15 | 2.32 | .021 |
| Self-Education (vs No) | 2.26 | .83 | .18 | 2.73 | .007 |
| 2-4 ASD Cases (vs 1 ASD Case) | 2.90 | .91 | .23 | 3.17 | .002 |
| 5+ ASD Cases (vs 1 ASD Case) | 4.42 | 1.09 | .31 | 4.05 | <.001 |

Note. Overall Model $F(14, 195) = 6.03, p < .001, R^2 = .302, \text{adj } R^2 = .252$.

As shown in Table C.46, the overall model predicting total curriculum roles was significant, $F(14, 195) = 3.42, p < .001$, and accounted for 19.7% of the variance ($R^2 = .197$). Further examination of the model revealed that the total knowledge score was a significant predictor of total curriculum roles (Beta = .23, $p < .001$), indicating that higher total knowledge was associated with more curriculum roles. In addition, geographic region was a significant predictor of total curriculum roles (Beta = -.23, $p < .001$), indicating that being from a rural area was significantly associated with more curriculum roles than being from an urban area. Years

practiced was also a significant predictor of total curriculum roles (Beta = -.24, $p < .001$), signifying that practicing for 16 years or more was significantly associated with more curriculum roles than practicing for zero to two years, as well as practicing for three to six years (Beta = -.17, $p < .05$). Having two to four ASD cases (Beta = .18, $p < .05$) compared to one ASD case was predictive of total curriculum roles, and having five or more ASD (Beta = .21, $p < .05$) cases was significantly associated with more curriculum roles compared to only having one ASD case.

Table C.46

Multiple Linear Regression Predicting Curriculum Roles from Knowledge, Attitudes, Education, Training, and Demographic Characteristics

| | Unstandardized | | Beta | <i>t</i> | <i>p</i> |
|--|----------------|------|------|----------|----------|
| | B | SE | | | |
| Total Knowledge Score | .88 | .27 | .23 | 3.33 | .001 |
| Attitudes Total Score | .10 | .09 | .08 | 1.11 | .268 |
| Suburban Population (vs Rural) | -1.98 | 1.26 | -.12 | -1.57 | .117 |
| Urban (vs Rural) | -4.45 | 1.46 | -.23 | -3.05 | .003 |
| Northeast (vs South) | -2.23 | 1.46 | -.12 | -1.54 | .126 |
| Midwest (vs South) | 1.01 | 1.67 | .04 | .61 | .545 |
| West (vs South) | .87 | 1.66 | .04 | .52 | .601 |
| 0-2 yrs Practiced (vs 16+ yrs Practiced) | -5.35 | 1.80 | -.24 | -2.98 | .003 |
| 3-6 yrs Practiced (vs 16+ yrs Practiced) | -3.05 | 1.51 | -.17 | -2.02 | .045 |
| 7-15 yrs Practiced (vs 16+ yrs Practiced) | -2.80 | 1.52 | -.16 | -1.84 | .067 |
| Training at State/National/Intl Conference (vs No) | .91 | 1.23 | .05 | .74 | .461 |
| Self-Education (vs No) | -1.72 | 1.16 | -.10 | -1.48 | .141 |
| 2-4 ASD Cases (vs 1 ASD Case) | 2.99 | 1.29 | .18 | 2.32 | .021 |
| 5+ ASD Cases (vs 1 ASD Case) | 3.86 | 1.53 | .21 | 2.52 | .013 |

Note. Overall Model $F(14, 195) = 3.42$, $p < .001$, $R^2 = .197$, adj $R^2 = .139$.

As shown in Table C.47, the overall model predicting total coordination roles was significant, $F(14, 195) = 3.46, p < .001$, and accounted for 19.9% of the variance ($R^2 = .199$). Further examination of the model revealed that years practiced was a significant predictor of total coordination roles (Beta = $-.18, p < .05$), indicating that practicing for 16 years or more was associated with more coordination roles compared to zero to two years practiced, and three to six years practiced (Beta = $-.19 = p < .05$). Conference training was also a significant predictor of total coordination roles (Beta = $.19, p < .001$), indicating that attending a conference (state, national, or international) was significantly associated with more coordination roles compared to not attending training at a conference. Finally, number of ASD cases was a significant predictor of total coordination roles. Having five or more ASD cases (Beta = $.30, p < .001$) compared to one ASD case was predictive of total coordination roles, indicating that having five or more ASD cases was significantly associated with more coordination roles compared to only having one ASD case.

Table C.47

Multiple Linear Regression Predicting Coordination Roles from Knowledge, Attitudes, Education, Training, and Demographic Characteristics

| | Unstandardized | | | | |
|--------------------------------|----------------|------|------|-------|------|
| | B | SE | Beta | t | p |
| Total Knowledge Score | .29 | .27 | .07 | 1.08 | .283 |
| Attitudes Total Score | .03 | .09 | .02 | .27 | .787 |
| Suburban Population (vs Rural) | -1.72 | 1.28 | -.10 | -1.34 | .181 |
| Urban (vs Rural) | -2.42 | 1.48 | -.13 | -1.64 | .103 |
| Northeast (vs South) | -.38 | 1.48 | -.02 | -.25 | .800 |
| Midwest (vs South) | 1.43 | 1.70 | .06 | .84 | .402 |

| | | | | | |
|--|-------|------|------|-------|-------|
| West (vs South) | .29 | 1.69 | .01 | .17 | .865 |
| 0-2 yrs Practiced (vs 16+ yrs Practiced) | -4.04 | 1.83 | -.18 | -2.21 | .028 |
| 3-6 yrs Practiced (vs 16+ yrs Practiced) | -3.42 | 1.54 | -.19 | -2.22 | .027 |
| 7-15 yrs Practiced (vs 16+ yrs Practiced) | -2.98 | 1.54 | -.17 | -1.93 | .055 |
| Training at State/National/Intl Conference (vs No) | 3.39 | 1.24 | .19 | 2.72 | .007 |
| Self-Education (vs No) | 1.10 | 1.18 | .07 | .93 | .351 |
| 2-4 ASD Cases (vs 1 ASD Case) | 2.19 | 1.31 | .13 | 1.68 | .095 |
| 5+ ASD Cases (vs 1 ASD Case) | 5.65 | 1.56 | .30 | 3.62 | <.001 |

Note. Overall Model $F(14, 195) = 3.46, p < .001, R^2 = .199, \text{adj } R^2 = .141.$

Additional Analyses

A Principle Components exploratory factor analysis was conducted on the counseling roles items (see Table C.48). Factors with initial eigenvalues greater than 1.00 were extracted. The first factor was made up of the items that pertained to counseling individual students, and the items had individual factor loading ranging from .51 to .90. The initial eigenvalue for this factor was 5.45 and 36.4% of the variance of the counseling was explained by this factor. A Cronbach's reliability coefficient demonstrated excellent reliability among these items ($\alpha = .87$).

The second factor was made up of the items that pertained to counseling groups, and the items had individual factor loading ranging from .63 to .85. The initial eigenvalue for this factor was 1.15 and 29.6% of the variance of the counseling items was explained by this factor. A Cronbach's reliability coefficient demonstrated excellent reliability among these items ($\alpha = .85$).

One item, "Counsel with students identified with ASD regarding substance abuse issues" did not have an acceptable factor loading (loading $> .50$) on either factor and was eliminated from the analysis.

Table C.48
Principle Component Analysis of Counseling Items

| Items | Factor Loading |
|---|----------------|
| <i>Counseling Roles: Individual Students (% Variance = 36.4%, Cronbach's $\alpha = .87$)</i> | |
| Counsel with students identified with ASD regarding school behavior. | .90 |
| Counsel with students identified with ASD regarding social relationships (e.g., family, friends, romantic). | .85 |
| Counsel with students identified with ASD regarding personal/family concerns. | .73 |
| Counsel with students identified with ASD regarding crisis/emergency issues. | .68 |
| Follow-up on students with ASD whom have participated in individual and group counseling. | .65 |
| Counsel with students identified with ASD regarding academic issues. | .51 |
| <i>Counseling Roles: Groups (Variance Explained = 29.6%, Cronbach's $\alpha = .85$)</i> | |
| Provide small group counseling with students with ASD regarding academic issues. | .85 |
| Conduct small groups with students identified with ASD regarding family/personal issues (e.g., divorce, bereavement). | .83 |
| Conduct small groups with students identified with ASD regarding bullying issues. | .76 |
| Provide small group counseling addressing relationships/social skills with students identified with ASD. | .63 |

A Principle Components exploratory factor analysis was also conducted on the consultation roles items (see Table C.49). Factors with initial eigenvalues greater than 1.00 were extracted, resulting in only one factor made up of all the consultation items. The items had individual factor loading ranging from .56 to .87. The initial eigenvalue for this factor was 4.23 and 60.4% of the variance of the counseling was explained by this factor. A Cronbach's reliability coefficient demonstrated excellent reliability among these item ($\alpha = .88$).

Table C.49

Principle Component Analysis of Consultation Items

| Items | Factor Loading |
|--|----------------|
| <i>Consultation (Variance Explained = 60.4%, Cronbach's $\alpha = .88$)</i> | |
| Consult with parents regarding child development issues in relation to ASD. | .87 |
| Consult with school staff concerning behavior of students identified with ASD. | .82 |
| Coordinate referrals for students identified with ASD and/or their families to community or education professionals (e.g., mental health, speech pathology, medical assessment). | .81 |
| Participate in team / grade level / subject team meetings focused on students with ASD. | .79 |
| Provide consultation for administrators (regarding school policy, programs, staff and/or students) focused on ASD. | .76 |
| Consult with community and school agencies concerning individual students identified with ASD. | .76 |
| Assist in identifying exceptional children (special education). | .56 |

A third Principle Components exploratory factor analysis was conducted on the curriculum roles items (see Table C.50). Factors with initial eigenvalues greater than 1.00 were extracted, resulting in only one factor made up of all the curriculum items. The items had individual factor loading ranging from .63 to .92. The initial eigenvalue for this factor was 5.50 and 68.8% of the variance of the counseling was explained by this factor. A Cronbach's reliability coefficient demonstrated excellent reliability among these items ($\alpha = .93$).

Table C.50

Principle Component Analysis of Curriculum Items

| Items | Factor Loading |
|---|----------------|
| <i>Curriculum (Variance Explained = 68.8%, Cronbach's $\alpha = .93$)</i> | |
| Conduct lessons on relating to others (family, friends) in classrooms which include students identified with ASD. | .92 |
| Conduct lessons on conflict resolution in classrooms which include students identified with ASD. | .90 |
| Conduct lessons on various personal and/or social traits (e.g., responsibility, respect, etc.) in classrooms which include students identified with | .88 |
| Conduct lessons on personal growth and development issues in classrooms which include students identified with ASD. | .85 |
| Conduct classroom lessons on personal safety issues in classrooms which include students identified with ASD. | .84 |
| Conduct activities to introduce yourself and explain the counseling program in classrooms which include students identified with ASD. | .82 |
| Conduct lessons addressing career development and the world of work in classrooms which include students identified with ASD. | .76 |
| Conduct classroom lessons on substance abuse in classrooms which include students identified with ASD. | .63 |

A principle components exploratory factor analysis was conducted on the coordination roles items, see Table C.51. Factors with initial eigenvalues greater than 1.00 were extracted. The first factor was made up of the items that pertained to coordination activities involving students specifically with ASD. The items had individual factor loading ranging from .55 to .81. The initial eigenvalue for this factor was 4.65 and 37.3% of the variance of the counseling was

explained by this factor. A Cronbach's reliability coefficient demonstrated excellent reliability among these items ($\alpha = .87$). The second factor was made up of the items that pertained to coordination of large groups and the items had individual factor loading ranging from .54 to .81. The initial eigenvalue for this factor was 1.42 and 13.3% of the variance of the counseling items was explained by this factor. A Cronbach's reliability coefficient demonstrated poor reliability among these items ($\alpha = .48$), indicating that perhaps these items should be removed from the coordination items, or the wording of the items adjusted.

Table C.51

Principle Component Analysis of Coordination Items

| Items | Factor Loading |
|--|----------------|
| <i>Coordination Roles: Students with ASD (Variance Explained = 37.3%, Cronbach's $\alpha = .87$)</i> | |
| Inform teachers/administrators about the role, training, program, and interventions of a school counselor specific to ASD within the context of your school. | .81 |
| Inform parents about the role, training, program, and interventions of a school counselor specific to ASD within the context of your school. | .75 |
| Conduct or coordinate parent education classes or workshops specific with topics applicable to ASD. | .74 |
| Coordinate with an advisory team to analyze and respond to school counseling program needs specific to working with students with ASD. | .73 |
| Formally evaluate progress of students identified with ASD. | .72 |
| Conduct or coordinate teacher in-service programs specific to topics applicable to ASD. | .67 |
| Conduct needs assessments and counseling program evaluations specific to the | .66 |

needs of students identified with ASD.

Attend professional development activities covering ASD topics. .65

Keep track of how time is being spent on the functions that you perform with students identified with ASD. .55

Coordination Roles: General (*Variance Explained = 13.3%, Cronbach's $\alpha = .48$*)

Coordinate special events and programs for school around academic, career, or personal/social issues (e.g., career day, drug awareness, test prep). .81

Coordinate and maintain a comprehensive school counseling program. .73

Coordinate school-wide response for crisis management and intervention. .54

APPENDIX D
EXTENDED DISCUSSION

Personal experience, networking with colleagues, combined with relevant literature in the field regarding ESC and students with disabilities, lead the researcher to conduct this investigation. The results revealed many similarities to the experiences the researcher has had in the field. The most salient implication of this overall project were results revealing that ESC do perform a significant number of activities contained within the roles they perform in the education of students with ASD. Encouraging, were results that ESC overall answered most of the knowledge (Understanding Regarding ASD) questions correctly, and that higher total knowledge was indeed a predictor of performing more roles. Unsurprising was the finding that ESC have a limited amount of graduate training in the area of special education, and hardly any coursework specific to ASD. Knowledge obtained appeared to occur through self-education, which is both encouraging and troublesome. Attitudes of ESC revealed many uncertainties, which may be related to uncertainties about inclusion topics and their own abilities to provide competent services for students identified with ASD. Encouraging, is that overall, attitudes were more positive in nature. Because education policies and procedures are established through each individual state, it is logical to conclude that roles of ESC vary according to US regions and geographical area. There has been much debate in the field regarding the roles of ESC, with the ASCA endeavoring to bring consistency to the field through the National Framework (2005).

The study's focus was driven by ASCA competency statements aligned with TPB (1991). In reviewing the four linear regressions, it is clear that intentions to perform behaviors (roles) were predicted with accuracy from ESC knowledge regarding ASD, and background and training variables. Attitudes did not predict overall roles, however, higher total roles scores were

associated with higher (or more positive) attitude total scores. This indicates that although the attitudes of ESC were not shown to be predictive of intentions to perform roles, ESC who did have more positive attitudes towards serving students identified with ASD, also appeared to perform more total roles with these students.

This investigation further looked at variables considered likely to predict the roles that ESC perform in the education of students with ASD. The rationale for isolating these predicting variables was to provide a blueprint of the components that were evidenced as significant for those in higher education. In turn, they may enact policy changes in graduate preparation in the needed areas. Furthermore, from an applied viewpoint, recognizing the variables shown to predict roles may enact changes by practicing ESC.

Finally, the overall intention of this research is to lay a foundation for ESC performing active and effective involvement in the education of students with ASD, who will undoubtedly benefit from the involvement. In order to provide a more thorough discussion of the results, each research question, except the research question (number four) that was discussed in the publishable unit is examined below.

Research Question 1: What Knowledge do ESC Possess Concerning ASD?

The most relevant finding within this component was the majority of ESC understand the difficulty students with ASD have in developing friendships. ESC are typically involved with the social-emotional lives of their students and therefore, may have a wealth of experience in this area to assist children with ASD.

Encouragingly, the majority of ESC answered most of the knowledge items correctly, indicating they are aware of many of the defining characteristics of ASD, although some ESC

may have perceptions of what specific criteria utilized to make a diagnosis. This is evidenced by the majority of ESC not indicating that for a diagnosis, repetitive behaviors/interests must be present. This is understandable given that although ESC may be a relevant member of the multidisciplinary team, other members, such as the school psychologist would typically hold the responsibilities for conducting the evaluations and having the most input to the overall eligibility determination in the school setting.

Unfortunately, some ESC still are unclear on several misconceptions about the etiology of ASD, common myths surrounding this group of disorders, that has long been dispelled. This finding may be due to ESC not looking at research based literature and prescribing to unfounded societal embellishments which may hold critical implications for the students and families they serve. An accurate knowledge base established in research based findings is important for ESC to possess.

Contained within Question 1 was the hypothesis stating that the more knowledge ESC have, the more roles they will perform with students identified with ASD. Results revealed that higher roles scores were associated with higher total knowledge scores, indicating this hypothesis was accurate.

The total knowledge score for ESC participants was a significant predictor of total counseling, consultation, and curriculum roles indicating that higher total knowledge was associated with performing more roles. Although, knowledge is a difficult construct to measure the finding is relevant in terms of demonstrating that the participants in this study's knowledge and roles were significantly associated giving more credibility to previous literature citing that the more knowledge in the area of disabilities a school counselor possesses, the more roles

they tend to perform (Milsom, & Sunde, 2006; Milsom, 2006). Knowledge is gained through a variety of ways, the hypothesis contained within research question two focuses on knowledge gained through graduate training. First, it was necessary to investigate what training experiences, both in graduate training and professional development ESC contained.

Research Question 2: What educational training and professional development experiences do ESC receive specific to ASD?

Unfortunately, this question yielded responses indicating that ESC did not receive adequate graduate training in special education issues, and hardly any receiving coursework specific to ASD. An especially interesting finding to this researcher was the majority of rural ESC were found to have taken no coursework specific to ASD. The implication of this finding is the ESC is often the designated advocate for parents of children with special needs (Erford, House, & Martin (2003) and even more so in rural areas (Monteiro-Leitner, Asner-Self, Milde, Leitner, & Skelton, 2006). If ESC have had no coursework in this area, they may be less able to adequately assist these families, which may be related to the finding of the majority of ESC participating in self-education. This finding is encouraging in that ESC appear to have an interest in the area and are taking steps on their own to become more well-informed in this area.

It is difficult to know the quality of coursework regarding ASD that was taken, and what the course was about (i.e., characteristics, interventions, social skills, etc.) since the question did not ask respondents to specify. However, there was no significant difference found regarding hypothesis two. This finding could also have resulted because of the small amount of participants who had taken coursework in the area of ASD.

Research Question 3: What attitudes do ESC possess regarding ASD?

The overall responses demonstrated inconsistencies with attitudes regarding inclusion philosophies, and with their own competencies regarding assisting this population of students. Noteworthy was the finding that ESC who had participated in more conference trainings and self-education showed higher rates of agreement on the attitude scale. This indicates that with more exposure to ASD topics, attitudes of ESC tend to be more realistic and positive in nature. Similarly, ESC who were directly involved with five or more students with ASD, revealed higher rates of agreement on the scale, indicating that the more experience with students identified with ASD, the more positive and confident attitudes of ESC tended to be. Attitude scores were not shown to be predictive of roles performed in the education of students with ASD.

Research Question 5: What variables predict the roles that ESC perform in counseling activities, consultation activities, curriculum activities, and coordination activities?

The variable that was shown to be predictive of all four roles performed by ESC was having students with ASD on their caseload. Experience with students with disabilities has previously been shown to increase the number of roles school counselors engage with these students (Nichter & Edmonson, 2005). Bowen (1998) asserted that graduate preparation should include direct experiences with students with disabilities. During the same time period Greene and Valensky (1998) conducted a study with ESC with results revealing pre-service with disability issues, as well as direct service with students positively influenced attitudes and roles.

As previously discussed in the above section, knowledge was a significant predictor of overall counseling, consultation, and curriculum roles. The reason for coordination not being

included may be due to the activities contained within this role. Many of the coordination activities are performed school-wide and are not easily adaptable to one specific population.

Participating in conferences on ASD topics was also a significant predictor of counseling, consultation, and coordination roles. The reason for curriculum not being included is also logical when thinking about the activities contained within this role domain. Most conference trainings would be related to ASD characteristics, or possibility interventions (mainly academic, behavior, or social related), that have been found to be effective and not in reference to guidance lessons. Self-education was also a significant predictor of total consultation roles, possibly signifying that ESC are participating in self-education that promotes consultation.

Additionally, U.S. region was only a significant predictor of total counseling roles. As previously discussed geographic area was only a significant predictor of curriculum roles. These findings may be more representative of the individual participants that responded and not of the overall profession.

Years practiced was also a predictor of consultation, curriculum, and coordination roles. Different number of years was shown to predict different roles.

Limitations

It is possible that some questions may have been confusing to participants. For example, two questions (13 and 14), asked about the number of ASD courses completed, with the first question specifying the course needed to be included in the school counseling degree program. However, the confusion occurs with the second question not specifying if participants completed courses in an additional graduate degree program, or if participants answered both questions related to the master's degree they held, which for the majority of participants was

limited to the school counseling degree. This was done to assess if participants had coursework within their school counseling graduate degree, and to assess if there were differences between respondents who had coursework specific to ASD in other graduate degree programs. The limited amount of participants with additional graduate degrees rendered the comparative analysis inconsequential.

Additionally, participants were asked questions in the study without operationally defining this term. Similarly, the questions contained within the Understanding Regarding ASD component were similar to items from Schwartz & Drager (2008), which was based upon Stone's Autism Survey (1987). However, both of these studies utilized the scale only specific to autism, therefore, utilizing items specific to ASD poses issues to the reliability and validity of this component.

Implications and Future Directions

Five decades ago, Wren, (1962) accounted in his seminal text, that school counselors needed more training in disability issues, as the practitioners in the field were going to be performing key roles in the education of these students. However, the discrepancy still exists between what roles school counselors are expected to perform in the education of students with disabilities and the amount of graduate preparation in this area they receive. Because ASD is the fastest growing developmental disability, ESC are logically going to encounter students on the spectrum who need their assistance. As shown in this study, ESC are performing counseling, consultation, curriculum, and coordination roles with students currently, indicating that although they may not have the background and training in this area, they are performing roles with this population. Changes to curriculum for school counseling graduate preparation

has been recommended before, with this research giving more credibility that this change needs to emerge. However, given no changes have been made to date, other training possibilities have emerged that ESC may aspire to take advantage of. There are grants currently available for teachers in rural areas to gain specific ASD related coursework. This research would request that ESC continue to be eligible for these types of grants also. ESC who are interested in specializing with students with disabilities, especially in the area of ASD, will find a plethora of research-based web offerings that are free to utilize. Future research in the area of the specific self-education that ESC are participating in may be very beneficial to filling the gaps in knowledge areas that this research highlighted.

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