THE EXTENT OF CALIFORNIA STATE UNIVERSITY SACRAMENTO’S CURRICULUM ADDRESSING AUTISM SPECTRUM DISORDERS IN THE MASTERS OF SOCIAL WORK PROGRAM

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THE EXTENT OF CALIFORNIA STATE UNIVERSITY SACRAMENTO’S CURRICULUM ADDRESSING AUTISM SPECTRUM DISORDERS IN THE MASTERS OF SOCIAL WORK PROGRAM

A Project

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Division of Social Work
Abstract

of

THE EXTENT OF CALIFORNIA STATE UNIVERSITY SACRAMENTO’S CURRICULUM ADDRESSING AUTISM SPECTRUM DISORDERS IN THE MASTERS OF SOCIAL WORK PROGRAM

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Social workers can play a pivotal role in recognizing signs of autism spectrum disorders (ASD) in children on his or her caseload, with the proper education. Without exposure to information on ASD, the social worker may not notice signs of ASD, which can lead to the client or family not obtaining necessary assessments and service referrals. The purpose of this study was to better understand the depth of knowledge obtained by MSW students on the issue of autism and ASD advocacy. The study utilized both qualitative and quantitative data methods. The information gathered measured if ASD was discussed in classroom material, and if so, to what degree? Results suggested that MSW students are not being exposed to adequate or appropriate ASD curriculum. The participants of were both first and second year MSW students, comprised of Title IV E, Mental Health Stipend Program students, as well as non-cohort students.

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Chapter 1

INTRODUCTION

Introduction

This researcher developed a interest in the topic of Autism Spectrum Disorders (ASD) which encompasses Autism, Pervasive Developmental Disorder not otherwise specified, (PDD-NOS), Asperger’s Syndrome, and Childhood Disintegrative Disorder (CDD), through professional and educational experiences. The topic was chosen because this researcher has worked as a Behavioral Consultant working with children who have received an ASD diagnosis and has also encountered numerous children on the Autistic Spectrum during her internships as a MSW. This researcher has 4 years experience as a Behavioral Consultant and feels believes that autism intervention, awareness/research, and possible cures are extremely important for social workers to have current knowledge on.

It is this researcher’s experience that the overall population of MSW students at California State University, including Title IV E students and Mental Health Stipend students do not have the education to recognize the symptoms of autism or how/where to refer children with ASD to the proper resources. This opinion has been developed over the past two years of master’s level education in the area of social work, when this researcher observed fellow MSW students confused about symptoms and behaviors related to ASD. This researcher has been asked numerous times by fellow MSW students
if this researcher knows which services are available for children displaying ASD characteristics, and how to discern these characteristics from other diagnosis.

Over the past two years, and prior to this project, this researcher has informally questioned fellow MSW students about their knowledge of ASD. It was through this questioning that this researcher became aware that few MSW students have received autism spectrum disorder training/education during their time in the master’s of social work program.

The goal of this research project was to determine the current level of autism awareness and knowledge of the current MSW and BSW students, and how or if they received this information during their MSW courses at California State University Sacramento.

Relevance

This topic is highly relevant to the field of social work, due to the drastic increase of autism diagnosis in the last 12 years and the need for social workers to recognize and understand this disorder, so that they may help children and families dealing with possible or current ASD diagnosis. Recognition of individuals with ASD has increased markedly over the last decade and it is now known that there are significant numbers of individuals who need appropriate services and support (Fombonne, 2003).

Stephens in his 2006 article titled *The Critical Role in Early Intervention in Autism* stated, “When treatment is begun immediately, the early identification of autism can have a profound effect on a child’s overall development. There is much research and scientific evidence validating that children with autism have a greater chance for
successful outcomes when intervention are started at an early age (before 5 years of age)”. With this said, this writer feels that it would be highly beneficial for the division of social work as well as faculty to take a look at the importance of introducing curriculum on autism into their classes. A vast majority of the Title IV E student work with adolescent aged children and many of the Mental Health Stipend students also work with children. In addition to these two stipend programs, students who are interested in hospital social work as well as social work that addresses issues related to geriatrics. Autism is everywhere, and this writer feels that it would greatly benefit all social workers to have a basic level of knowledge on the matter.

**Background of the Problem**

After reviewing the syllabus’s from CSUS master’s level Practice classes (SWRK 204A, 204B, 204C, and 204D), Policy courses (SWRK 250 and 251), Human Behavior in the Social Environment courses (SWRK 235A and 235B), Research courses (SWRK 210 and 211), Social Work with Diverse Populations (SWRK 202), Advanced Mental Health courses (SWRK 224), and DSM IV courses (SWRK 223) there has been little to no acknowledgement or education delivered in the area of autism or on topics related to ASD diagnosis.

It is also this researchers understanding that at least half of the internship placements within the MSW program have a moderate to high level of interaction with children ages 4-17 within the various school districts. This researcher can only question why autism diagnosis and treatments are not treated with the importance and urgency necessary for early intervention within the CSUS Master’s in Social Work curriculum.
There are various interventions that may be implemented when ASD is suspected, but the clinician must first be able to recognize the characteristics of the disorder. Not only do the children with the disorder need to be recognized but their families must also be acknowledge and referred to the appropriate physical and mental health resources available to address their struggles.

**Statement of Research**

The students in the Mater’s of Social Work program at California State University Sacramento do not receive education in the area of autism. The lack of education on this issue enables them to recognize signs of childhood or adult autism and refer to appropriate resources. Clients and families may be overlooked due to this lack of recognition and may not get referred to the appropriate services, including applied behavior analysis, speech, or occupational therapy and their families may not be referred to appropriate respite care, mental health counseling, or sibling support groups.

**Purpose of the Study**

The purpose of this project was to show the lack of curriculum addressing ASD in the Division of Social Work Master’s Program. It is this researchers hope that this information will encourage the social work division to implement curriculum addressing ASD so that social workers graduating the Master’s of Social Work program are equipped with not only the knowledge to recognize ASD characteristics but also have an understanding on the basic interventions that address the client and family needs.
Theoretical Frameworks

This writer feels that the Client Centered Theory is a good lenses to view this study through due to the focus it has on addressing each individual and their needs uniquely but it also adjusts for the behavioral and intellectual spectrum of clients and families dealing with a ASD diagnosis. Carl Rogers Client Centered Theory has a few basic views and beliefs. The view on human nature is that “the organism has an inherent actualization tendency, which facilitates growth naturally, in a positive, constructive manner. This theory operates under the belief that people can set their own goals and control their behavior (Palmers, 2000). Key Concepts include: the actualizing tendency is the motivating force in the client; the client uses innate personal strengths to reach goals. The therapist must communicate congruence, unconditional positive regard and empathy toward the client’s internal frame of reference (Palmers, 2000).

Another key aspect to Client Centered Theory is the view of the Therapists/Helpers role. Palmer (2000) states the therapists/helpers role is to “act as a facilitator for the client’s actualizing process. The unconditional positive regard exhibited by the therapist facilitates the client’s change. The helper creates a free and open climate, where otherwise socially unacceptable feelings can be exhibited and discussed”.

Definition of Key Terms

Autism Spectrum Disorder (ASD). Persons diagnosed with autism that function with varying degrees of ability. They are said to be on a spectrum according to the language acquisition and socialization.
Applied Behavioral Analysis (ABA) Therapy. Intensive hands-on therapy, which focuses on task mastery and repetition.

Asperger’s Syndrome. A developmental disorder in which people have difficulties understanding how to interact socially. People with Asperger’s syndrome have some traits of autism, especially weak social skills and preferences for sameness and routine. Unlike those with autism, children and adults with Asperger’s syndrome usually start to talk at the approximate age of 2 years of age (age at which speech normally develops). They have normal to above-normal intelligence (Reid, 2006).

Childhood Disintegrative Disorder (CDD). A rare, regressive form of autism, which affects one in each 100,000 persons in the general population.

Occupational Therapy (OT). Therapy which addresses psychological, social, and environmental factors that may hinder and individual’s functioning in various ways.

Speech Therapy (ST). Therapy, which treats problems in the area of articulation, oral-motor, speech, and voice; and receptive and expressive language disorders.

**Justification**

This researcher feels that this project will benefit not only the CSUS Master’s in Social Work curriculum, but will also benefit the graduates of the program. By understanding the lack of curriculum within the MSW program and by implementing curriculum addressing ASD it will help graduates differentiate ASD from other common childhood and adult diagnosis and allow them to refer clients and families that they may work with to the appropriate resources, thus supporting the client and family more efficiently.
Limitations

This project does not include any interviews with families of children/adults with autism diagnosis or children/adults themselves with an ASD diagnosis. All subjects who participated in this project, are Master’s of Social Work students at California State University Sacramento. The sample size of this project is 75, which is approximately half of the MSW II students at CSUS but results do not represent the all of the MSW II knowledge of ASD.
Chapter 2

LITERATURE REVIEW

Introduction and Definition

Autism spectrum disorders (ASD) have a rising profile in terms of recognition, definition and public knowledge, which has greatly increased the importance of ASD both in society in general and in education in particular. Research into autism has grown significantly in the last five to ten years. Prevalence figures have changed from showing autism as a low-incidence set of difficulties, to defining autism as ‘not uncommon’. Internationally, figures suggest that ASD is now recognized as a major problem (Gerlai & Gerlai, 2003) demanding further research and informed intervention.

In this time of increased awareness of autism, history provides us the understanding that autism is not new (Frith, 1989). In 1906 the Swiss psychiatrist Eugene Bleuler as cited by (Ritvo, 1976) used the word autism to describe patients in clinical reports. From the 1920s onwards, several concepts had appeared in the literature all referring to similar or over-lapping patterns of personality traits and problematic behaviors in children (mostly boys). However the main thrust to define autism began in the 1940s with the seminal work of Leo Kanner (1943) and Hans Asperger (1944) Kanner (1943) presented 11 children (up to the age of 11) with unusual behavior patterns that had been present from early childhood. Asperger’s original paper gave detailed descriptions highlighting extreme autism, obsessiveness, good relationships with objects,
a desire for sameness, stereotypy and echolalia in individuals each of who he considered to have ‘good cognitive potentialities’ (p.247). All of the traits described were present to some degree in each of the eleven cases.

A year later Asperger published his original paper in which he described 4 slightly older and very intellectually able individuals. In his summary of the typical features of the group Asperger writes about the children’s appearance, their distinct functioning including their learning difficulties and attention problems, their problematic behavior in social situations and their impairment of emotions and instincts: behavior patterns that differed but overlapped with Kanner’s autism group.

In 1956 Kanner modified his original criteria regarding and coined the term ‘early infantile autism’ (Eisenberg & Kanner, 1956) and so influenced perceptions of autism as a childhood disorder. His reformulated criteria were-

1- "Extreme detachment from human relationships".
2- "Failure to use language for the purpose of communication".
3- "Anxiously obsessive desire for the maintenance of sameness, resulting in a marked limitation in the variety of spontaneous activity".
4- "Fascination for objects, handled with skill in fine motor movements".
5- "Good cognitive potentialities" (Kanner, 1956 p.109-110).

In a retrospective study analyzing 74 clinical case records written by Asperger and his team, Hippler and Klicpera (2003) conclude that today’s ICD 10 (World Health Organization, 1993) and DSM IV (American Psychiatric Association, 1994) criteria for Asperger syndrome (AS) do not quite fit for the individuals described by Asperger and
his team. They feel that motor and social clumsiness and speech and communication ‘deviances’ should be taken into account in future discussion of diagnostic criteria for AS. ICD 10 and DSM IV appear to differentiate between autism and AS mainly on the onset criteria which points to a mixture of symptoms being regarded as common in AS and autism. This suggests that Asperger syndrome and autism cannot be clearly distinguished from each other, except in the case of ‘classic’ or Kanner’s autism where areas of difference could be attributed to differences in intellectual function. The current concept of autism is broad. It ranges from those with severe disabilities to those with more subtle problems of understanding and limited social skills. Autism may exist alongside learning disabilities or other developmental disorders and can occur with other physical or psychological difficulties. Due to this range and the interaction with other difficulties, a concept of a spectrum has evolved and the terms ‘autistic spectrum disorders’ or ‘autism spectrum’ are often preferred to autism.

Wing (1979) proposed a spectrum of autistic disorders with a triad of impairments, namely impairment of social interaction, communication and imagination. The term ‘Triad of Impairment’, coined by Wing and Gould (1979), describes the three key areas and the wide range of behaviors which are affected in individuals with ASD. Autism is defined using behavioral descriptions since no specific biological markers are known. Due to overlapping conditions, changes in individuals over time, the range of severity in the ASD and the ways in which education can modify individual presentation, the behavioral descriptions have been found to be very wide (Hill & Frith, 2003). The ‘triad of impairment’ (based on Wing & Gould and below drawn from Knott & Dunlop,
represents three broad and interacting aspects of ASD, all of which will be inconsistent with the presenting individual’s mental age. Many people with an ASD also have an increased sensitivity to sound, smells, touch, taste and visual stimulation. Changes also occur in individual presentation with age. The “triad” includes the following

1) Social development is different, delayed or atypical. Social interaction difficulties are seen during interaction with same-aged peers and as a result, developing and maintaining friendships is often problematic. These individuals also struggle with reciprocity, shown by lack of empathy or failure to adapt their behavior according to social context.

2) Difficulties in communication may be pervasive and occur in both verbal and non-verbal modes. Pragmatic aspects of communication such as appropriate use of eye contact, facial expression, gesture and prosody may all cause difficulties. Functional use of language skills may present difficulties including reciprocal aspects of communication such as initiating and turn taking in conversation, negotiating a shared topics and topic maintenance, and in readily recognizing what the listener knows. Those with good language skills may nevertheless interpret language in a literal manner, and may struggle to understand idiom, metaphor or sarcasm.

3) Difficulties with thinking and behavior characterize the third element of the triad. Poor imaginative skills may lead to restricted repetitive, stereotyped patterns of behavior. Impoverished imagination skills range from absence of functional or
symbolic play to difficulties with the social use of imagination. Interests tend to be circumscribed and intense, often not reflecting cultural norms. A preoccupation with routine and structure is also common (Wing and Gould, 1979, p 11-20).

Individuals diagnosed with high functioning autism or Asperger syndrome share difficulties on the triad of impairment, but usually attend mainstream school. Although their problems are considered to be 'subtle' in comparison to those with classic autism, their difficulties should not be underestimated. Their difficulties often impact on the 'ordinary' activities of life, while their academic abilities, particularly in their areas of special interest can be excellent. This makes it harder for individuals with ASD to integrate, as those they come into contact with at home or school may fail to understand the gap caused by ASD between their abilities, and their social naivety or awkwardness.

These individuals often experience difficulties making friends and can experience loneliness (Bauminger, 2003) and frustration as a result. Errors of judgment about social situations are common (for instance, failing to distinguish between friendly teasing and bullying) and individuals often do not recognize that their interests are not shared by others. They commonly experience difficulties organizing themselves and comprehending day-to-day social situations for which the 'rules' are never made explicit.

**Identification**

Autistic Disorder (‘classic autism’) is diagnosed principally in terms of the two international classification systems, ICD-10 and DSM-IV. Both describe behavioral criteria and specify expected age of onset. The International Classification of Diseases 10 (ICD-10) and the Diagnostic and Statistical Manual of Mental Disorders 4th Edition
(DSM-IV) have similar criteria for the diagnosis of autistic spectrum disorders. These are both based on the triad of impairments described above, with certain diagnostic categories further expanded. ICD-10 is most commonly used in the United Kingdom and is endorsed by the World Health Organization. In ICD-10 autistic spectrum disorders are included under the broader heading of pervasive developmental disorders (PDD).

The definition of Asperger Syndrome is less straightforward, and is confused by the introduction and use of several diagnostic criteria, including Gillberg and Gillberg’s criteria of 1989 (outlined in Gillberg 1991), the criteria of Szatmari and Nagy . (1989), ICD-10 (World Health Organization 1992, 1993) and DSM IV (American Psychiatric Association 1994) criteria. For a diagnosis of Asperger’s disorder to be made, both ICD 10 and DSM IV require at least two manifestations of social impairment and one area of restricted interest or behavior from a list of symptoms originally defining autistic disorder (Kanner syndrome). In contrast to autistic disorder, language development in AS is not supposed to be delayed and normal cognitive and self-help skills should be present in the first 36 months. Gillberg and Gillberg’s (1989) and Szatmari’s criteria do not require ‘normal’ early development for a diagnosis of Asperger syndrome to be made. Indeed they view language and communication differences to be a defining feature, and additionally the Gillbergs expect motor clumsiness, better theory of mind and higher intellectual functioning to be present in this group. However in many way diagnosticians are more readily able to identify the classic Kanner group at an earlier age than the Asperger or atypical individuals.
The broadening of terminology to ASD has brought ongoing diagnostic debate which adds to the complexities of understanding autism. Such debate includes discussion of children who appear to show variation in degrees of impairment at differing ages (Bishop & Frazier Norbury, 2002) and individuals who present with some of the core features of autism, but have functional difficulties due to another disorder such as Attention Deficit Hyperactivity Disorder (ADHD). Autistic Spectrum Disorders are a lifelong, complex spectrum of disorders, with long term implications for those affected.

**Prevalence**

Recognition of individuals with ASD has increased markedly over the last decade and it is now known that there are significant numbers of individuals who need appropriate services and support, however as yet the prevalence of autism in the population is not well described (Fombonne, 2003). Prevalence figures estimate numbers in a population and depend on the age of the people involved and on the assessment tools and ascertainment methods used. Variations across studies reflect the different approaches and criteria employed. Recent reviews provide agreement that ASD affect approximately 60 per 10,000 under 8 years, of whom 10-30 per 10,000 children have ‘narrowly defined autism’ (Baird, Charman & Baron-Cohen, 2000; Scott, Baron-Cohen & Bolton, 2001; Bertrand, Mars, and Boyle, 2001; Chakrabarti & Fombonne, 2001). In this group there is an overlapping with a population that would previously have acquired a more general diagnosis of learning disability, and it may be that as figures for autism have increased figures for learning disability alone have gone down. Estimates confirm that ASD is far more common than was previously generally recognized (MRC, 2001).
Prevalence figures for presentation of ASD in boys and girls have consistently shown that ASD is more common in boys, and that there is a significant preponderance of boys in more able individuals. Literature suggests a ratio of 4:1 for classic autism and 9:1 for AS (Ehlers & Gillberg, 1993). More recently Gillberg (University of Strathclyde, Course Conference, 2005) has speculated that there may be an under diagnosis of more able females with Asperger syndrome whose presentation may be different in nature from their male counterparts.

The prevalence figures also raise the question of whether there are interventions that are more or less suitable for particular sub-groups of individuals with ASD. Experience seems to suggest highly individualized approaches, however a more verbal population may be able to participate better in group settings, another group may require considerable visual support and individually there may be sensory issues which cut across all kinds of interventions.

Causes

As of yet no specific biological marker for autism has been identified, though the neuropathology of autism suggests prenatal onset of the disorder (Nelson, 2001). The literature also suggests that while the evidence for genetic factors in ASD is overwhelming, it is clear that the environment may also contribute: the ways in which this happens is debated, but toxins, infections, autoimmune problems, metabolic problems and exposure to vaccines have all been cited in what are currently both a scientific and a media debate. Indications in the literature suggest that further understanding of autism may come from the rapidly expanding knowledge of the biology
of early brain development, and shared understandings across a range of disciplines including developmental neurobiology, neuro-epidemiology, genetics, psychiatry and psychology. Research into the genetics of autism suggest familial links (Baily, 2000), particularly where a broader phenotype of autism is concerned. With the exact causes of autism still unknown, lines of evidence suggest that ‘autism is one of the most heritable complex neuropsychiatric conditions’ (Spence, 2004, p.196).

**MMR Vaccine and Mercury Exposure**

Interest in the risks and causes of autism was stimulated by a 1998 report of a small series of cases of autism that were related in time to receipt of the MMR vaccine, with subsequent development of a chronic intestinal disorder (A., Wakefield, A Anthony, S H Murch, M Thomson, S M Montgomery, S Davies, J J O'Leary, M Berelowitz and J A Walker-Smith, 1998). That report resulted in many parents choosing not to vaccinate their children, and in subsequent outbreaks of the illnesses that would have been protected by the vaccines; it also led to over 25 studies that were conducted to see if there was indeed a relationship between the vaccine and autism; the studies consistently found no evidence of a link (Child Health Alert; 2010). Over the years, most of Dr. Wakefield's colleagues have admitted that the interpretation of their findings was incorrect, but Dr. Wakefield refused to retract his findings, leaving many parents to believe that, despite all the other studies, there may be truth to the original Lancet report. Wakefield, Murch, et al, publications have been shown to be more correlation than causational. In addition to their research being unfounded and biased in how they selected their research population.
Heavy metals are rumored throughout literature to be a factor. The source of heavy metals is not entirely clear, and remains puzzling. For mercury, prenatal exposure to metal such as that released from maternal dental amalgams is a source of metal exposure, as well as organ mercury contained in medications such as Rho immunoglobulin, have been identified as specific risk factors (Palmers, Blanchard, Stein, Mandell, and Miller, 2006).

Along with heavy metals and mineral deficiencies, chemical pollutants are very likely to be second factors. There is evidence for chemical toxin exposure in ASD, though no two cases show the same combination of toxic agents in excess of norms (Palmers, et al, 2006).

**Genetics**

It is widely accepted that most cases of autism arise because of a complex genetic predisposition. Since autism was first described in 1943, hypotheses’ about its etiology have ranged from the psychological to the biological. During the 1970’s and 1980’s, however, twin and family studies provided evidence for a genetic component to autism susceptibility.

In the first three epidemiological, same sex twin studies of autism; all twins who lived in a geographically defined area were sought out. Such a sampling was used to reduce bias, because twins recruited through advertisement yield a biased sample. The study yielded a concordance of 96% vs. 0%, confirming the high heritability of the disorder (National Center for Health Statistics, Centers for Disease Control and Prevention, 2004).
It has been reported that close relatives of subjects with autism have an elevated frequency of Asperger and schizoaffective and anxiety disorders (Fombonne, E. 2003). With this said, genetic risk factors for ASD may extend to the brain conditions that are diagnostically distinct. In Hans Asperger’s original study group of “autistic” subjects his notes record that in the majority of cases there was a resemblance between the subject and one or more family members—fathers (52%) were reported as having similar personalities with some deviant behaviors or low social competence (Hippler, and Klicpera, 2003).

A second line of evidence comes from the finding that far more boys are affected by ASD than girls are. Consistently across the published literature the incidence of autism is higher in males than in females. One study put the male to female ratio at 2.6 to 1 another at 4.1 to 1 (Kopp and Gillberg, 2003). The excess of males suggests that the sex chromosomes play a part in establishing the risk of ASD development.

A potentially difficulty in identifying genetic loci in a disorder with heterogeneous presentation such as autism, is that the brain development occurs in probabilistic fashion, such that specific phenotypes cannot be predicted (Cook, Jr., 1998). The most productive method of untangling the complexities of phenotypic heterogeneity may be to identify groups of individuals with autism with specific behavioral features for genetic investigation, rather than to use diagnosis criteria alone. Latent class analysis methods have been used to estimate that probably 2 to 5 genes are responsible for producing an autistic phenotype. However, as many as 10 to 12 genes may be
implicated, and it is not predicted that the same genes would consistently be involved (State, Lombroso, Pauls, & Leckman, 2000).

**Diagnosing ASD**

The trend toward very early diagnosis has been fueled by increased knowledge of typical and atypical social and communication development patterns, legally mandated services for children with special needs, and greater sophistication of parents, coupled with the internet-based information explosion. In the past, a diagnosis by age 5 was considered reasonable, even though most parents had suspected that something was wrong 2 to 3 years prior. Currently, it is common to have diagnosis established at least by the age of 3 (Rogers, 2000). With a better understanding of significant developmental markers such as joint attention, eye contact and gaze, and other aspects of nonverbal communication and greater awareness in the professional community of what constitutes the boundaries of autism-spectrum disorders, we can expect to see more emphasis on early diagnosis. At the same time, caution is needed in regards to over diagnosis or premature diagnosis on the basis of too few signs or developmental irregularities or delays that may improve spontaneously (Burack, J. A. 2001).

**Atypical behaviors in Children under 36 months**

Stone (2001) reported a number of behaviors that distinguished infants and toddlers with autism from other children. With respect to social behaviors, early signs of autism include poor imitation, abnormal eye contact, ignoring or being unresponsive to others, little interest in social games, bland affective expression, and preference for being alone. Atypical communication behaviors include delays in speech, little use of gestures,
and failure to attract attention of others to own activities (Filipek et al, 2000). Many times atypical behaviors are ignored at early ages and expected to be overcome. This can hinder the child in that he or she will not receive immediate intervention and symptoms are often left to manifest.

Interventions

It is clear from practice knowledge and from the review that follows that there is a very wide range of options for education and therapy for ASD. Rooted in different theoretical bases, all of these options lay claim to some success for some children (Howlin, 1998; Jordan et al., 1998). The assertion that intervention based upon a behavioral model currently enjoys the strongest research validation for effectiveness in ASD (Schreibman, 2000) remains largely unchallenged.

As early as 1977 Schreibman claimed that relatively large and permanent gains in combating the effects of social disadvantage could be achieved if:

1) The child is enrolled in the programmed from an early age

2) The parent is closely associated with the programmed and used as a co-therapist, and if "home-rearing" is considered as a major variable in the

3) program/intervention

4) The program has specifically and developmentally appropriate objectives and is based on relatively systematic teaching approaches rather than general enrichment.

5) The program is maintained over long enough periods of time

6) Steps are provided for generalization of the learning to new situations.
7) Families are likely to seek help, but early specialist support is not always available to them. Current provision for young children with ASD appears to be ‘patchy and underdeveloped’ (Evans, Cook, Cohen, Orne, & Orne. Appetitive and replacement naps: EEG 1977, 197, 687-689).

Support for families should ideally bring them into the system at an early stage in keeping with national policies on inclusion, and there is some evidence to suggest that suitable early intervention is likely to increase the likelihood of later inclusion in mainstream (Charman & Baird, 2002; Dawson & Osterling, 1997).

**The range of approaches used to teach children with autism**

Rutter and Bartak indicated in 1973, that children with autism benefit from a more structured approach to teaching, providing a basis for a range of interventions to support the social interaction, communication and education of people with autism over the years. It is also recognized that intervention, and particularly early intervention can influence social, communicative and imaginative abilities in a child with autism and help with enabling social integration, friendships, self-esteem, well-being and access to education and employment. Earlier identification can lead to challenges for interventions (Volkmar, Chawarski & Klin, 2005), and although there can be concerns about labeling a young child with an ASD, the earlier the diagnosis of ASD is made the earlier needed interventions can begin.

**Early Intensive Behavioral Intervention**

Early Intensive Behavioral Intervention (EIBI) is a comprehensive Applied Behavior Analysis program for young children based on the work of Lovaas and
colleagues at the UCLA Young Autism Project, now the Lovaas Institute (Lovaas, 1987; Lovaas, et al., 1981). EIBI is intensive and highly individualized with 40 hours per week of 1:1 direct instruction recommended that can be delivered at school and in-home. The treatment begins early, preferably before age three and continues for at least two years (Eikeseth, Smith, Jahr, & Eldevik, 2002; Howlin, Magiati, & Charman, 2009). Parental involvement is a key component to the program; parents are trained alongside the therapist for four hours per week so they may use the interventions at home and in the community, thereby generalizing the treatment’s effects to the child’s typical environment. Treatment begins by using discrete trials to teach simple skills like responding to basic requests, and progresses to more complex skills such as initiating verbal behavior and engaging in imaginative play (Eikeseth, et al., 2002).

**Childhood and Adolescent Behavioral Approaches**

Behavioral approaches rest on the theory of Skinner (1957) that learning is developmentally, and all behavior is learned. Using associative learning and operant conditioning, behavioral responses can be modified by positive and negative reinforcement. This approach was developed on the theoretical basis that persons with autism had not learned the behaviors of typically developing children because they could not respond to the typical environment, and, so, it was necessary for the environmental input to be altered to condition behavioral responses (Lovaas, 1987). A particular behavioral approach, ‘Applied Behavioral Analysis’, (ABA) is used by Lovaas and colleagues (Lovaas, 1981) which involves breaking a skill into small steps and teaching each step a discrete trial technique. Prizant, Wetherby and Rydell (2000) draw a
distinction between the earlier discrete trial training (DTT) behaviorist approach, and the contemporary applied behavior analysis (CABA) approach, which involves behavioral reinforcement for appropriate responses but also uses naturalistic settings and minimally structured interactions.

**Applied Behavior Analysis for Challenging Behavior**

Behavior such as aggression, property destruction, disruptive vocalizations, stereotypic behavior (e.g. flapping), and self-injury are common in children with ASD (Lord, et al., 2002; Myers, 2007). These behaviors can cause injury to the child and/or others as well as interfere with the child’s education and community life. Behaviors may be caused by a physiological condition, such as a pain (Myers, et al., 2007), or by a concurrent mental health condition. However, challenging behaviors are oftentimes triggered or exacerbated by environmental factors.

ABA has been documented in numerous studies as an effective method to diminish or eliminate problematic behaviors. The Campbell Review is one such study that analyzed 117 studies using 181 individuals and concluded that applied behavior analytic interventions are effective in addressing problem behaviors in children with ASD. Mean age of the participants was 10 years old, with an age range of 5 to 15 years old. Campbell’s analysis found that subjects averaged a 76% reduction in challenging behaviors. The Committee did not have the expertise or resources to review a literature that is so extensive and based solely on single subject designs. Therefore, the Committee decided to rely on the conclusions of the Campbell review (2003) for the level of evidence rating.
Applied Behavior Analysis for Communication

Challenges in communication skills are a core manifestation of ASD. Communication challenges in children with ASD extend beyond vocal speech because “language” encompasses non-verbal communication such as gestures and facial expressions as well as eye contact and inflection. Some common communication deficits in children with ASD include difficulties engaging in social communication, echolalia (parroting), associating words with particular events (idiosyncratic language), and problems interpreting figures of speech and metaphorical language (The National Autistic Society - U.K., 2006).

Based on a review of six studies of strong and adequate research strength, it was found that ABA has established evidence for improving communication skills in children with ASD. Outcomes were defined differently across studies but all fell under the same general communication rubric. Several studies were effective in increasing spontaneous speech using methods such as incidental teaching and time delay (Charlop & Carpenter, 2000; Charlop & Trasowech, 1991; Jones, Feeley, & Takacs, 2007). Another study the Committee used Reciprocal Imitation Training (RIT) to increase children’s imitation of descriptive gestures during communication (Ingersoll, Lewis, & Kroman, 2007).

Picture Exchange Communication System (PECS)

As an additional tool for aiding in the communication process the use of PECS may be helpful. The Picture Exchange Communication System (PECS) is a visual communication system designed to increase a child’s use of spontaneous and functional communication in their child’s everyday environment (Ostryn, Wolfe, & Rusch, 2008).
The child uses PECS to exchange pictures of items to obtain desired objects and otherwise get his or her needs met. PECS does not necessarily aim to increase vocalization, but to help children improve their ability to spontaneously communicate in a functional manner during their day-to-day lives (Ostryn, 2008). PECS is delivered in six sequential phases, beginning with teaching requests and progresses to more sophisticated skills such as answering questions (Bondy & Frost, 2002). Social skills deficits are another core deficit of ASD and remain one of the most difficult areas to treat (Weiss & Harris, 2001). Children with ASD struggle when initiating and responding to social interaction, understanding facial expressions and other non-verbal social cues, establishing joint attention, and engaging in play.

Without early and continued intervention, these challenges are often profound and persist over time (Myers, et al., 2007). Due to the pervasiveness of social skills deficits in children with ASD, much attention has been given to treatment in this area (Weiss & Harris, 2001). ABA has been shown to be effective with skills from establishing eye contact to more complex skills such as responding to bids for joint attention and engaging in complex play sequences.

**Applied Behavior Analysis for Vocational Skills**

The ability to gain meaningful employment is important for a successful transition to adulthood. Planning for transition to adult roles such as work is part of the Individualized Education Plan (IEP) process through the schools and should begin by age 14. Vocational activities and goals are often included on IEPs for children with ASD.
Cognitive-Behavioral Therapy for Anger Management

Children with ASD often suffer from anxiety and depression (Wood, 2009). Children and adolescent’s with Asperger’s Syndrome are at risk of developing a concurrent mood disorder (American Psychiatric Association, 2000). These youth have difficulty identifying and understanding the thoughts and feelings of themselves and others which contributes to feelings of confusion and uncertainty (Sofronoff, Attwood, Hinton, & I., 2007). As a result, they often struggle with a sense of distress, anger, and anxiety. Youth with Asperger’s Syndrome and high-functioning autism tend to react quickly and without stopping to think reflexively when feeling angry or upset (Sofronoff, et al., 2007). Cognitive-Behavioral Therapy is a proven treatment method that helps people, including those with high functioning ASD accurately perceive the emotions and thoughts of themselves and others. It also helps develop the ability to control actions and reaction in response to stress.

Psychopharmacologic Research

Psychopharmacologic research in autism is punctuated by initial case reports and open studies that demonstrate dramatic treatment benefits. The best treatments seem to work in only 50% to 60% of participants. There is no evidence that any particular pharmacologic treatment will dramatically change the core symptoms or course of autism. However, suggestions that very early treatment with agents such as selective serotonin reuptake inhibitors may have more profound effects are promising and need to be investigated further (Schopler, Yirmiya, Shulman, & Marcus, 2001)
Dimethylglycine

Dimethylglycine (DMG) is a natural substance thought to inhibit the build-up of certain amino acids in the body and enhance the immune response in children with ASD. Anecdotal reports have suggested that use of DMG results in improved social behavior, frustration tolerance, speech, and reduced aggressive behavior. However, two RCTs that qualified for the review found no significant differences in behavior after taking DMG (Bolman & Richmond, 1999).

Intravenous Chelation using Edetate Disodium

Chelation agents such as Edetate Disodium were developed to treat lead poisoning. The question of a connection between heavy metals and ASD has led to the use of chelation for children with ASD. Chelation agents work by encouraging the excretion of toxic metals through urination and/or the liver and gallbladder (Brown, Willis, Omalu, & Leiker, 2006). Edetate Disodium is delivered intravenously and carries a risk of lowering the amount of calcium in the bloodstream if not delivered and monitored correctly. In extreme cases, improper administration of Edetate Disodium can lead to cardiac arrest. Two deaths have been reported in children administered Edetate Disodium, one of whom was a 5-year-old boy being treated for autism. While there are no controlled trials of intravenous chelation using Edetate Disodium, the literature suggests that there is enough documented risk of harm to recommend that this procedure should be avoided. The American Academy of Pediatrics has taken the position that children should never be administered Edetate Disodium for chelation therapy (Brown, 2006).
**Diet and Nutritional Approaches**

Dietary and nutritional therapies fall into a category of approaches commonly termed Complementary and Alternative Medicine (CAM), which are defined as medical and health-related practices and products not considered part of mainstream medical treatment (Myers, et al., 2007). These approaches are commonly used by children with ASD; one study found that 74% of surveyed families were using CAM practices for their autistic children (Hanson, et al., 2007). CAM approaches related to diet and nutrition include nutritional supplements and restriction diets.

Elimination of gluten and casein from diets are believed by some to prevent symptoms of ASD linked to opioid activity that is triggered by the peptides in both gluten and casein (Millward, Ferriter, Calver, & Connell-Jones, 2008). A recent high-quality clinical trial of a gluten/casein free diet did not detect any significant differences in behavior or other symptoms of ASD (Harrison, et al., 2006), while another study showed positive results but had some concerning methodological flaws (Knivsberg, Reichelt, Hoien, & Nodland, 2003). A recent review concluded that the evidence for these diets is poor and more research is needed (Millward, et al., 2008). A large clinical trial of gluten- and casein-free diets is currently underway.

**Omega-3 Fatty Acid Supplements**

Deficiencies in Omega-3 fatty acids have been theorized to play a role in certain mental health conditions, including ASD (Politi, 2008). One strong study of children receiving Omega-3 fatty acid supplements had a small, exclusively male sample (Amminger, et al., 2007). This raises concerns about whether the outcomes could...
generalize to females. There was no benefit of Omega-3 on behavior or other symptoms, but the researchers found a small effect on one subscale after reanalyzing the data. The data proves to be inconclusive and requires further investigation.

**Vitamin B6-Magnesium Supplements**

Vitamin B6-Magnesium has been anecdotally linked to improvement in speech and language performance as well as social skills (Nye & Brice, 2005). Various researchers in the 1970s and 1980s published observations of improvement in social and behavioral functioning in patients with schizophrenia and autism, leading to wider use of the megavitamins.

Most of the RCTs reviewed found no significant improvements in behavior following use of Vitamin B6-Magnesium supplements. However, Kuriyama and colleagues (2002) found that children who received the supplement improved in verbal IQ scores but not in functional IQ or social behavior. Due to mixed results and the limited number of published studies that met criteria for review, the Committee concludes that there is not sufficient research at this time to draw conclusions on the impact of Vitamin B6-Magnesium.

**Vitamin C (Ascorbic Acid) Supplements**

Researchers have theorized that nutrients such as Vitamin C may modulate certain neurotransmitters, thereby inhibiting problematic behavior associated with ASD such as stereotypy. Vitamin C is thought to modulate levels of dopamine, a neurotransmitter that plays a role in controlling voluntary movement, mood, sleep, and attention. One positive RCT that met criteria for review found that children receiving supplemental doses of
Vitamin C had a significant reduction in sensorimotor symptoms (Dolske, Spollen, McKay, Lancashire, & Tolbert, 1993). However, there was no significant improvement in any of the other subscales of autistic behavior. Using peers to model and teach social skills is a trend emerging in the field that has shown encouraging results (Pierce & Schreibman, 1995; Pierce & Schreibman, 1997). Modeling skills through video (video modeling) is also proving effective, with studies using the technique to teach play sequences to toddlers and social initiation skills, among other abilities (D'Ateno, Mangiapanello, & Taylor, 2003; Gena, Couloura, & Kymissis, 2005). Finally, ABA is now being extended to help children develop the ability to understand another person's perspective (Yun Chin & Bernard-Optiz, 2000).

**ASD Family and Parent Stressors**

Raising a child with autism is one of the hardest things a parent will ever have to do. It is an overwhelming challenge physically and emotionally adding anxiety on the person caring for the child. Raising a child with autism often contributes to marital problems, problems with other children, and job instability (National Autism Society, 2009). Unfortunately, there are no reliable treatments for autism, and the responsibility of upbringing, developmental and behavioral problems of the autistic child falls largely on the family. Although there is nothing that we can do to change the origin of the problem, there are strategies which family members can do to reduce the level of abnormal behavior and increase the child's ability to cope.

Research indicates that parents of children with autism experience greater stress than parents of children with learning disabilities. An individual with autism may not
express their basic wants or needs in a way that one would expect. Therefore, parents are left playing a guessing game. Is the child crying because he/she is thirsty, hungry, or sick? When a parent cannot determine their child's needs, both are left feeling frustrated. The child's frustration can lead to aggressive or self-injurious behaviors that threaten their safety and the safety of other family members (e.g. siblings).

Autism characteristics and compulsive behaviors concern parents since they seem odd and obstruct with performance and learning. More parents are raising children with a diagnosis of autism and families often find themselves dealing with financial and social challenges, as well. Daily care routine, economic problems, receiving appropriate help and education are the basic hardships of the parents of a disabled child. The additional stress can be significant; taking its toll on the whole family and even contributing to a high divorce rate (CDC, 2009). Fifteen years ago, the incidence of autism was 1 in 5,000, compared to today's rate of 1 in 150, according to the Centers for Disease Control and Prevention. While an ASD diagnosis can alter parents' dreams for their children, they should be optimistic. Much has been learned about ADS in the last 15 years and research into causes and interventions continues to grow.

This is all in addition to the stress that comes with balancing the child’s busy appointment schedule. Most children with ASD require frequent school meetings and Individualized Education Plan (IEP) meetings. The child might also attend speech therapy, social skills classes or play groups, occupational therapy, as well as regular visits with medical personal, which can also prove to be stressful in juggling.
Need for Autism Curriculum

After an extensive search for information on other State College’s Schools of Social Work curriculum on autism, this researcher found little data showing that any college in the Master’s of Social Work program was exposed to or received curriculum addressing issues related to ASD. There is extensive coverage in most colleges who have degrees in special education as well as Speech Therapy, Occupational Therapy, but there is no information on Social Work programs adopting curriculum on ASD.

The United States Center for Disease Control and Prevention (USCDCP) (2006) maintains records on autism and offers the following information about the prevalence of autism, on a national level: “The rate of autism diagnosis in the United States increased 600% between 1994 and 2007” (p.1). In addition the Autism Society of America (2006) discusses particular stressors on families of children with autism:

It is said that raising a child with autism is more difficult than raising a child with mental retardation or Downs Syndrome. Children with autism cannot communicate with caregivers and are difficult to take to public places because of tantrums, running away and inappropriate, or no interaction with members of the general public (p.1).

The Autism Society of America (2006) concludes by listing sorrows on holidays, financial difficulties, sibling stress, concerns over future care giving, and strained marital relationships as stressors on the on the family of the autistic child.

Due to the increasingly high rates of autism diagnosis and stressors that an ASD diagnosis can cause a family this researcher finds it imperative that social workers be
educated on the issues of autism. There is a high probability that most specialized areas of social work such as Child Welfare, Mental Health, and even Geriatric social workers will encounter clients or families of clients with an ASD diagnosis.

It is because of the increasing statistics of ASD diagnosis that this writer feels it necessary for the CSUS Master’s of Social Work Program to implement curriculum on ASD. It will highly benefit the Title IV E program due to the high rate of child abuse in children with ASD. The Child Welfare worker will have a higher possibility of recognizing the characteristics of autism and will in turn be able to refer the family and child to the appropriate services.

It will also help the Mental Health Stipend Program in that the mental health clinician will be able to make an appropriate differential diagnosis for children displaying behaviors that can often be confused with Oppositional Defiant Disorder, ADD/ADHD, or Obsessive Compulsive Disorder. In addition to appropriate behavioral diagnosis, the Mental Health Stipend student will also be more aware of the emotional and physical support the child’s family may need and be better able to provide appropriate referral services.

A large majority of social work students are placed in internships that work directly with children. It would be beneficial for these students to have information on ASD due to the fact that the ratio of ASD children to non ASD children is so high. In 2009 the Center for Disease Control (CDC) reported that approximately 1 out of 80 children qualify for the diagnosis of ASD. With the statistic so high, this researcher feels
that it is the responsible choice for the CSUS Master’s of Social Work Program to require and implement curriculum on the topic of ASD.
Chapter 3

METHODS

In the review of literature on autism, it was clearly stated that the rate of autism diagnosis in the United States is increasing. It was also stated consistently that early intervention offers children on the autistic spectrum a better chance for a successful life.

This project is important to the CSUS Master’s of Social Work program because it would determine the current level of awareness of knowledge that the MSW students have in the area of ASD. As a result, it is hoped that the division of social work will acknowledge the lack of curriculum within the MSW program and require implementation of ASD units within the various classes in the program. Being prepared to differentiate ASD from other possible disorders and be equipped with the knowledge to help the client and client’s family who is faced with the challenges that come with an ASD diagnosis.

This project was modeled after Earl Babbie’s research model. This is a quantitative descriptive survey research design. Numerical values were attached to the answers in order to statistically analyze the data collected rather than observations or interviews. According to Rubin and Babbie (2008), description survey research typically refers to characteristics of a population. This project was exploratory and utilized quantitative methodologies in the collection and analysis of data. This researcher gathered the quantitative data from three 204D Social Work Practice classes which consisted of both Title IV E students, Mental Health Stipend students and general MSW
students in the Division of Social Work at Sacramento State University. Graduate students were asked to participate in an 8-question survey inquiring their exposure of curriculum throughout their time in the MSW program at California State University Sacramento. This researcher finds the exploratory design to be useful because the response of the participants add experiential data to preliminary data gathered during the review of literature. The understanding of the knowledge or lack thereof in the area of ASD among MSW II students allows for a better understanding on how and where curriculum needs to be changed or added.

**Study Variables**

This researcher knows of no similar survey instrument being used to gain knowledge of information obtained by students in the area of autism through the California State University Sacramento MSW program. Demographic criterion was part of the survey. The demographic areas were: 1) age of student; 2) Student level in the MSW program; 3) Gender of student. These areas were chosen to analyze to better understand the demographics of 2011/2012 professional social workers after graduation.

The area of Social Work each student is most likely to go into after graduation was also included in the questionnaire. The areas included: Child Welfare/CPS, Hospital Social Work, Elementary/Middle/High Schools, Children/Families, Chemical Dependency, Mental Health, LCSW Counseling, Geriatric, Veteran, Homeless, Developmental Disabilities, and Macro Social Work/Policy.

In addition to demographics and post graduation area of work interests, students were also asked to use a Likert scale to indicate the degree to which the field of Autism
Spectrum Disorder applies to each client population. These areas included Child Welfare/CPS, Hospital Social Work, Elementary/Middle/High Schools, Children/Families, Chemical Dependency, Mental Health, LCSW Counseling, Geriatric, Veterans, Homeless, Developmental Disabilities and Macro Social Work/Policy.

**Instrumentation**

Structured Likert survey questions as well as yes or no questions were asked of each participant. Participants were also asked to identify specific delivery methods that autism curriculum. The following structured survey questions were asked, and participants were asked to rank the degree to which the field of ASD applies to various client populations. Participants were asked to rank each client population from 0 (does not apply at all) to 4 (completely applies). In addition each participant was asked to rate the level to which ASD was addressed within various classes throughout the MSW program. Answer options were; superficially addressed; moderately addressed; well addressed; or completely addressed. A copy of the questionnaire in its entirety can be found in Appendix B.

1. In your practice class was content on Autism Spectrum Disorder discussed?
2. In your policy classes was content on Autism Spectrum Disorder discussed?
3. In your Human Behavior in the Social Environment class was content on Autism Spectrum Disorder presented? (i.e Sensory Needs, Social Delays, Common and Distinctive Behaviors associated with ASD.)
4. In your research class was content on Autism Spectrum Disorder presented? (i.e., evidence based behavioral/pharmaceutical interventions with clients, etc.)
5. In your diversity class was content on Autism Spectrum Disorder presented?

6. In your three electives classes was content on Autism Spectrum Disorder presented?

**Study Population and Sample**

The participants in this project consisted of Title IV-E students, Mental Health Stipend students, as well as general Master of Social Work students. These students were presented with a questionnaire inquiring on the knowledge gained in the area of ASD during their time in the Master of Social Work program.

**Protection of Human Subjects**

The Protection of Human Subjects was submitted and approved by the Division of Social Work Internal Review Board Committee. The protection of human subjects was approved and was assigned the approval number of 10-11-098 prior to the delivery of the questionnaire on Autism Spectrum Disorder. There was very low psychological risk to graduate students participating in the questionnaire. The low psychological risk was due to the questionnaire only inquiring on the participant’s educational experience with ASD and not personal experiences.

**Limitations**

The sample size of this project was less than half of the total MSW population and may not be representative of all social workers in the MSW program at California State University Sacramento.
Data Analysis

The data collected followed standard quantitative data analysis techniques. The responses were coded. After the coding the questions were removed resulting in raw data. The codes were corresponded to survey questions which resulted in quantitative data.

The answers to the questionnaire allowed for a way to measure the quality and quantity of information presented in regards to ASD. The response by each questionnaire participant were recorded and put into graphs to show the quality and quantity of knowledge gained on ASD while in the MSW program at California State University Sacramento. The data was entered into a statistical probability program and the results measured the statistics on if the topic of ASD was being covered in California State University, Sacramento Division of Social Work curriculum, and if so to what degree.
Chapter 4

FINDINGS AND INTERPRETATION

The previous chapter discussed the design, subjects and data gathering procedures of this study. The purpose for this chapter is to present the results of the analyzed quantitative and qualitative data collected.

Analysis of Data

Data was analyzed according to the following themes: 1) Demographics; 2) Interests in Social Work; 3) Relevance to Social Work and 4) Coverage of Autism Spectrum Disorders in MSW Core Courses. This chapter will detail the questions asked and the frequency of responses in percentages.

Demographics

The researcher surveyed 51 students in the California State University, Sacramento, Social Work graduate program. Most of the students are in the second year of the program; 57% MSW II (n = 29), 43% (n = 22) MSW I and part time students.

Females represent 75% (n = 38) of the sample and 25% are males (n = 6) or declined to state (n = 7). They range in age groups of 18-24 years and 55-64 years with 77% (n = 39) being between 25-44 years old.
Table 1

Post-Grad Pursuits

<table>
<thead>
<tr>
<th>Area</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
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</tr>
<tr>
<td>Child Welfare/CPS</td>
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<td>15.7</td>
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<tr>
<td>Hospital Social Work</td>
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<td>11.8</td>
<td>11.8</td>
<td>27.5</td>
</tr>
<tr>
<td>K-12 schools</td>
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<td>7.8</td>
<td>7.8</td>
<td>35.3</td>
</tr>
<tr>
<td>Children/Families</td>
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<td>5.9</td>
<td>5.9</td>
<td>41.2</td>
</tr>
<tr>
<td>Chemical Dependency</td>
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<td>2.0</td>
<td>2.0</td>
<td>43.1</td>
</tr>
<tr>
<td>Mental Health</td>
<td>10</td>
<td>19.6</td>
<td>19.6</td>
<td>62.7</td>
</tr>
<tr>
<td>LCSW Counseling</td>
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<td>19.6</td>
<td>19.6</td>
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</tr>
<tr>
<td>Geriatric</td>
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<td>2.0</td>
<td>84.3</td>
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<tr>
<td>Veterans</td>
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<td>3.9</td>
<td>88.2</td>
</tr>
<tr>
<td>Homeless</td>
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<td>92.2</td>
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<tr>
<td>Macro Social Work / Policy</td>
<td>4</td>
<td>7.8</td>
<td>7.8</td>
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</tr>
</tbody>
</table>

Post-Graduate Interests in Social Work

What area of social work are you MOST likely to pursue after graduation?

Forty percent of students reported the areas of mental health (n = 10) and LCSW counseling (n = 10) as the areas most likely to pursue after graduation. Another 16% reported child welfare/CPS (n = 8) and 12% reported hospital social work (n = 6) as likely post graduate pursuits. Less than 10% of these areas were chosen: 8% will likely pursue K-12 schools (n = 4) and macro social work (n = 4); 6% chose children and
families (n = 3) 4% chose veterans (n = 2) and homeless (n = 2) and 2% will likely work with the geriatric population (n = 1) and in a chemical dependency program (n =1).

**Relevance to Social Work**

Respondents were asked to indicate, using the Likert scale, the degree to which the field of Autism Spectrum Disorders applies to each of the client populations and post graduate pursuits provided.

Most of the respondents feel Autism Spectrum Disorders is very much or extremely important in dense child populations. Children and families 94% (n = 48); developmental disabilities 94% (n = 48); K-12 school aged 92% (n = 48); child welfare/CPS 76% (n = 39) and mental health 71% (n = 36). However there is a stark contrast in these areas: chemical dependency 14% (n = 7); geriatrics 10% (n = 5); veterans 10% (n = 5); homeless 27% (n = 14). The areas where approximately half of the respondents feel the disorder is of great importance are: LCSW licensing 59% (n =30); hospital social work 47% (n = 24) and macro social work/policy 39% (n = 20).

**Coverage of Autism Spectrum Disorders in MSW Core Courses**

Respondents were asked to indicate the degree to which they received information on Autism Spectrum Disorders in social work practice, policy, diversity, human behavior in social environments, research and electives courses during graduate study.

The general response from the sample is that they did not receive adequate information regarding the ASD. Of those who did, the content was reported to be superficially addressed.
Table 2

**Practice Course Content**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
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<td>3</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>No</td>
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<td>94.1</td>
<td>94.1</td>
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</tr>
<tr>
<td>Total</td>
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<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In your Practice class was content on ASD discussed?

Practice Course Content: 6% (n = 3) received information on the disorders through reading, lecture and video/DVD/CD.

Table 3

**Policy Course Content**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
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<td>Valid</td>
<td>Yes</td>
<td>3</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>94.1</td>
<td>94.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In your policy class was content on ASD discussed?

Policy Course Content: 6% (n = 3) received information only thorough lecture.
Table 4

**HBSE Course Content**

<table>
<thead>
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<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<tr>
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<tr>
<td></td>
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<td>37</td>
<td>72.5</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In your Human Behavior in Social Environment class was content on ASD discussed?

Human Behavior in Social Environments: 28% (n = 14) received information through reading, lecture, guest speaker and vignettes. Approximately 30% of the sample that received information from this course feels that the content was moderately or well addressed.

Table 5

**Research Course Content**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Yes</td>
<td>3</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>48</td>
<td>94.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In your research class was content on ASD discussed?
Research Course Content: 6% (n = 3) received information on the disorders through lecture and vignettes. There was equal distribution superficially, moderately and well addressed responses.

Table 6

Diversity Course Content

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Yes</td>
<td>10</td>
<td>19.6</td>
<td>19.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>41</td>
<td>80.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In your Diversity class was content on ASD discussed?

Diversity Course Content: 6% (n =10) received information on the disorders through reading, lecture, and video/DVD/CD. Approximately 12% (n = 6) of the sample that received information from this course feels that the content was moderately or well addressed.

Table 7

DSM Course Content

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>No Response</td>
<td>21</td>
<td>41.2</td>
<td>41.2</td>
</tr>
<tr>
<td></td>
<td>223 DSM</td>
<td>24</td>
<td>47.1</td>
<td>88.2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>6</td>
<td>11.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
In your DSM class was content on ASD discussed?

DSM IV Course Content (elective): 47% (n = 24) received information on the disorders through reading, lecture, video/DVD/CD, guest speaker and vignettes. The sample was split with half feeling the content was superficially addressed and the other half feeling the content was addressed moderately or better.

Table 8

**Family Intervention Course Content**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid No Response</td>
<td>43</td>
<td>84.3</td>
<td>84.3</td>
<td>84.3</td>
</tr>
<tr>
<td>Yes 226 Family</td>
<td>2</td>
<td>3.9</td>
<td>3.9</td>
<td>88.2</td>
</tr>
<tr>
<td>Intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>11.8</td>
<td>11.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In your electives, class was content on ASD discussed?

Family Intervention Course Content (elective): 4% (n = 2) received information on the disorders through lecture and feel the content was both moderately and superficially addressed by lecture material.
Table 9

*Elective Course Content*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 0</td>
<td>28</td>
<td>54.9</td>
<td>54.9</td>
<td>54.9</td>
</tr>
<tr>
<td>Superficially Addressed</td>
<td>12</td>
<td>23.5</td>
<td>23.5</td>
<td>78.4</td>
</tr>
<tr>
<td>Moderately Addressed</td>
<td>8</td>
<td>15.7</td>
<td>15.7</td>
<td>94.1</td>
</tr>
<tr>
<td>Well Addressed</td>
<td>3</td>
<td>5.9</td>
<td>5.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In your electives class was content on ASD discussed?

School Social Work (elective): 2% (n = 1) received information on the disorders through reading and lecture. This single subject feels the content was moderately addressed.
### Table 10

**Adv Mental Health Course Content**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid No Response</td>
<td>47</td>
<td>92.2</td>
<td>92.2</td>
<td>92.2</td>
</tr>
<tr>
<td>Yes 224 Adv Mental Health</td>
<td>3</td>
<td>5.9</td>
<td>5.9</td>
<td>98.0</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>2.0</td>
<td>2.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In Advanced Mental Health class was content on ASD discussed?

Advanced Mental Health (elective): 6% (n = 3) received information on the disorders through reading and lecture and each feels the content was superficially addressed.
Table 11

Public Child Welfare Course Content

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid No Response</td>
<td>33</td>
<td>64.7</td>
<td>84.6</td>
<td>84.6</td>
</tr>
<tr>
<td>Yes Public Child Welfare</td>
<td>2</td>
<td>3.9</td>
<td>5.1</td>
<td>89.7</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>7.8</td>
<td>10.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>76.5</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>12</td>
<td>23.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In your Public Welfare class was content on ASD discussed?

Public Child Welfare (elective): 4% (n = 2) received information on the disorders through reading and vignettes. The content was both moderately and superficially addressed.

Courses submitted by less than 10% of the sample respondents as write in electives with no Autism Spectrum Disorders information were Advanced Policy: Child and Families and Social Welfare. Interestingly, Chemical Dependency and International Social Work superficially addressed the disorders through lecture.

Student Feedback

Frequent in the commentary given by the respondents is the need for course content on Autism Spectrum Disorders. Due to heightened awareness of the disorders, “teaching specific interventions” along with demographic and descriptive course content
is desired because “social workers should be more knowledgeable” about these pervasive developmental disorders, as stated by CSUS research participants.

Overall findings show that ASD curriculum is only superficially covered by less than ¼ of the Division of Social Work Master’s program. The outcome of this research shows that both MSW I and MSW II students are not being exposed to appropriate and functional ASD curriculum leaving them at a disadvantage when working with child and family systems.
Chapter 5

RECOMMENDATIONS AND IMPLICATIONS

Summary

The general social worker will be and is exposed to children with developmental disabilities, including children who have a diagnosed, or undiagnosed, autism spectrum disorder.

The number of children on the autism spectrum is increasing, and early intervention, including speech, occupational, and applied behavior analysis therapies, offer these children the best chance for successful outcomes for their futures. Without proper education, the social worker may not recognize symptoms of ASD and may not refer the child or the child’s/client’s family to the necessary services.

Children who do not receive services, in a timely manner, may develop into adults with autism, whose low functioning status costs society more than what it would cost to implement early intervention.

Conclusions

Due to the exploratory nature of this study and the lack of similar studies conducted in the past, it was difficult to compare and contrast the results of data collected, with any previous data.

The review of the data reveals that students in the MSW program are reporting that virtually no ASD curriculum exists within the California State University Sacramento, Division of Social Work Mater’s program. Major core classes are neglecting to adequately cover pertinent issues of ASD. The study participant’s data
shows that there is a desire for ASD curriculum, unfortunately this is not being recognized within the division.

**Recommendations**

This researcher believes this project to be important to the education of future CSUS Division of Social Work Master’s level students, especially those whose focus is in working with children and families. Results from this research show that MSW students at California State University, Sacramento, are not receiving adequate “basic” level education on ASD issues.

Knowledge on ASD is important on not only the micro level of social work but also the mezzo and macro levels as well. This includes school and local policies and resources in addition to state and national policies and resources.

It is this researcher’s recommendation that the Division of Social Work consider implementing ASD curriculum within the “core” classes of the Master of Social Work program. By implementing this curriculum the Division would be providing students with clinical skills to work with ASD clients and family members, advocacy skills to direct and obtain appropriate and necessary resources for the client and or family, as well as political knowledge on laws and funding on the increasingly important social and educational topic of ASD.

**Implications for Future Research**

It is the opinion of this researcher that the ASD questionnaire should be delivered to a larger group of students that would include undergraduate social work students. This would allow future researchers to determine if education on ASD issues at the
undergraduate level. This researcher feels that it would also be beneficial for future research to include questions in future questionnaires that inquire on the personal knowledge of the students on the topic of ASD to better understand how MSW students are supplementing their education with readings and trainings outside of the CSUS curriculum.
APPENDIX A

LETTER OF CONSENT
Consent to Participate in Research

You are being asked to participate in research which will be conducted by Jennifer Tune, a second year MSW student in Social Work at California State University, Sacramento. The study will examine the extent to which Autism Spectrum Disorders are infused with the Master’s of Social Work curriculum.

You will be asked to complete a questionnaire about the curriculum content in each of your core Social Work courses as well as in your elective courses. This questionnaire will take between five and fifteen minutes of your time. After completion, please place the filled out questionnaire in the manila folder pointed out by the researcher.

By taking this questionnaire, you may gain insight into your own professional development and find that you would benefit from seeking additional training in this area. Additionally, the Social Work Department at CSUS may benefit from the illumination of any weak spots in the curriculum.

Confidentiality and anonymity will be maintained. Please do not write your name or any other identifying marks on the questionnaire. After completion, place the questionnaire into the manila envelope at the front of the room. After data processing is completed all questionnaires will be destroyed.

You will not be receiving any compensation for your participation, but it will be greatly appreciated by the researcher.
If you have any questions about this research you may contact Jennifer Tune at (559) 273-1517 or at ibjennalee@netzero.com. You can also access David Demetral, faculty advisor, LCSW, PhD at demetral@csus.edu or by phone at 916-278-7168. 

Your participation in this research is entirely voluntary. Your completion of this questionnaire will show consent to participate in this research.

The following questionnaire will examine the prevalence of Autism Spectrum Disorders in the Master’s level Social Work curriculum. It is the intention of the researcher to examine where and to what extent the broad area of Autism is addressed in the Masters of Social Work curriculum at California State University, Sacramento. For the purposes of this study Autism Spectrum Disorders will go by the following definition provided by the Encyclopedia Britannica:

“Autism Spectrum Disorders, sometimes called Pervasive Developmental Disorders (PDD), are a range of neurological disorders that most markedly involve some degree of difficulty with communication and interpersonal relationships, as well as obsessions and repetitive behaviors. As the term "spectrum" indicates, there can be a wide range of effects. Those at the lower-functioning end of the spectrum may be profoundly unable to break out of their own world and may be described as having Kanner's autism. Those at the higher-functioning end, sometimes diagnosed with Asperger Syndrome (AS), may be able to lead independent lives but still be awkward in their social interactions. Other, more rare, autism spectrum disorders include Rett
Syndrome (RS), which affects mostly girls, and Childhood Disintegrative Disorder (CDD), which affects mostly boys; in both cases, there is a period of normal development before the onset of autistic symptoms. Pervasive Developmental Disorder-Not Otherwise Specified may be diagnosed when a child has autistic symptoms but does not fit into another Autistic Spectrum Disorder diagnosis.”

Please, take a few moments to complete this questionnaire and return it to the envelope in the front of the room. Your filling out this questionnaire is completely voluntary, anonymous, and confidential. By filling out this form in part or in whole you are willingly consenting to participate in this thesis research. In no way will your responses be used to identify you. As such, please do not write your name or other identifying marks on the form. Please retain a copy of the consent form for your records.

Thank you for your time,
Jennifer Tune, MSW II
APPENDIX B

QUESTIONNAIRE ON AUTISM CURRICULUM
Inclusion of Autism Spectrum Disorder in MSW Curriculum

Section I: Student Demographics
**Directions:** Please mark the following categories that apply to you.
1. Student Level: ____ MSW I  ____ MSW II  ____ MSW Part Time
2. Age: ____ (18-24)  ____ (25-34)  ____ (35-44)  ____ (45-54)  ____ (55-64)  ____ (65+)
3. Gender: ____ Female  ____ Male  ____ Decline to state

Section II: Interests in Social Work
**Directions:** For question 1, please mark the answer that applies to you.
1. What area of Social work are you MOST likely to pursue a job after graduation?
   ____ Child Welfare/CPS  ____ Hospital Social Work  ____ Elementary/Middle/High
   Schools  ____ Children/Families  ____ Chemical Dependency  ____ Mental Health
   ____ LCSW Counseling  ____ Geriatric  ____ Veterans  ____ Homeless
   ____ Developmental Disabilities  ____ Macro Social Work/Policy

Section III: Relevance to Social Work
**Directions:** Use the Likert Scale below to mark your answers from (0-4)
1. Using the Likert scale below, please indicate the degree to which the field of Autism Spectrum Disorder applies to each client population.
   0=Not at all  1=Slightly  2=Somewhat  3=Very Much
   4=Extremely
   ____ Child Welfare/CPS  ____ Hospital Social Work  ____ Elementary/Middle/High
   Schools  ____ Children/Families  ____ Chemical Dependency  ____ Mental Health
   ____ LCSW Counseling  ____ Geriatric  ____ Veterans  ____ Homeless
   ____ Developmental Disabilities  ____ Macro Social Work/Policy

Section IV: Coverage of Autism Spectrum Disorders in MSW Core Courses
**Directions:** For parts “a” and “b”, “c”: please mark the answer(s) which applies. For part “c”: please use the likert scale to indicate the degree to which you received information on Autism Spectrum Disorders in that course. **For the questions** marked “Elective”: please write in the course number in the space provided. Please keep in mind ALL aspects of Autism Spectrum Disorders.
1. Practice Courses (SWRK 204A, 204B, 204C, and 204D)
   a. In your practice classes was content on Autism Spectrum Disorder
      ____ Yes  ____ No
      (If “No”, please move on to question 2.)
   b. If yes, please check below in what format the content was presented:
(Check as many that apply)

___Reading(s)  ___Lecture(s)  ___Video(s)/DVD/CD  ___Guest Speaker(s)
___Vignettes

c. Do you think the content:

(Click one)

___Was Superficially Addressed
___Was Moderately Addressed
___Was Well Addressed
___Was Completely Addressed

2. Policy Courses (SWRK 250, SWRK 251)
   a. In your policy classes was content on children with Autism Spectrum Disorder discussed

___Yes  ___No
   (If “No”, please move on to question 3.)

b. If yes, please check below in what format the content was presented:

(Click as many that apply)

___Reading(s)  ___Lecture(s)  ___Video(s)/DVD/CD  ___Guest Speaker(s)
___Vignettes

c. Do you think the content:

(Click one)

___Was Superficially Addressed
___Was Moderately Addressed
___Was Well Addressed
___Was Completely Addressed

3. HBSE- Human Behavior in Social Environments (SWRK 235A, SWRK 235B)
   a. In your HBSE class was content on Autism Spectrum Disorder presented (i.e. Sensory Needs, Social Delays, Common and Distinctive Behaviors associated with ASD.)

___Yes  ___No
   (If “No”, please move on to question 4.)

b. If yes, please check below in what format the content was presented:

(Click as many that apply)

___Reading(s)  ___Lecture(s)  ___Video(s)/DVD/CD  ___Guest Speaker(s)
___Vignettes

c. Do you think the content:

(Click one)

___Was Superficially Addressed
___Was Moderately Addressed
___Was Well Addressed
___Was Completely Addressed
4. Research (SWRK 210, SWRK 211)
   a. In your research class was content on Autism Spectrum Disorder presented
      (i.e., evidence based behavioral/pharmaceutical interventions with clients, etc.)
      ___Yes  ___No
      (If “No”, please move on to question 5.)
   b. If yes, please check below in what format the content was presented:
      (Check as many that apply)
      ___Reading(s)  ___Lecture(s)  ___Video(s)/DVD/CD  ___Guest Speaker(s)
      ___Vignettes
   c. Do you think the content:
      (Check one)
      ___Was Superficially Addressed
      ___Was Moderately Addressed
      ___Was Well Addressed
      ___Was Completely Addressed

5. Social Work with Diverse Populations (SWRK 202)
   a. In your diversity class was content on Autism Spectrum Disorder presented
      ___Yes  ___No
      (If “No”, please move on to question 6.)
   b. If yes, please check below in what format the content was presented:
      (Check as many that apply)
      ___Reading(s)  ___Lecture(s)  ___Video(s)/DVD/CD  ___Guest Speaker(s)
      ___Vignettes
   c. Do you think the content:
      (Check one)
      ___Was Superficially Addressed
      ___Was Moderately Addressed
      ___Was Well Addressed
      ___Was Completely Addressed

6. Elective (SWRK _______)
   a. In your elective class was content on Autism Spectrum Disorder presented
      ___Yes  ___No
      (If “No”, please move on to question 7.)
   b. If yes, please check below in what format the content was presented:
      (Check as many that apply)
      ___Reading(s)  ___Lecture(s)  ___Video(s)/DVD/CD  ___Guest Speaker(s)
      ___Vignettes
   c. Do you think the content:
      (Check one)
      ___Was Superficially Addressed
      ___Was Moderately Addressed
      ___Was Well Addressed
7. Elective (SWRK _______)
   a. In your elective class was content on Autism Spectrum Disorders presented
      ___Yes    ___No
      *(If “No”, please move on to question 8.)*
   b. If yes, please check below in what format the content was presented:
      *(Check as many that apply)*
      ___Reading(s)   ___Lecture(s)   ___Video(s)/DVD/CD   ___Guest Speaker(s)
      ___Vignettes
   c. Do you think the content:
      *(Check one)*
      ____Was Superficially Addressed
      ____Was Moderately Addressed
      ____Was Well Addressed
      ____Was Completely Addressed

8. Elective (SWRK _______)
   a. In your elective class was content on Autism Spectrum Disorder presented
      ___Yes    ___No
      *(If “No”, please move on to the next Section.)*
   b. If yes, please check below in what format the content was presented:
      *(Check as many that apply)*
      ___Reading(s)   ___Lecture(s)   ___Video(s)/DVD/CD   ___Guest Speaker(s)
      ___Vignettes
   c. Do you think the content:
      *(Check one)*
      ____Was Superficially Addressed
      ____Was Moderately Addressed
      ____Was Well Addressed
      ____Was Completely Addressed

Section V: Please use the space below to write comments about the courses above. This could be concerning the professors, comments on how to improve the curriculum, what you found helpful, what was not helpful, etc.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
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