® The SCERTS Model and Evidence-Based Practice

The SCERTS Model is a comprehensive, multidisciplinary, educational approach for individuals with ASD and related disabilities. SCERTS provides a scope and sequence of developmentally grounded goals and objectives, as well as a framework and specific guidance for selecting ***evidence-based*** strategies or elements of practice to meet these goals and objectives. The result is a comprehensive program for supporting children and their families that focuses on meaningful, authentic progress within everyday routines at school, home, and in the community.

How are the goals and objectives within the SCERTS curriculum informed by evidence?

The scope and sequence of the goals and objectives that are targeted in the SCERTS curriculum is based upon published, peer reviewed longitudinal group research studies that document that these developmental achievements are predictive of gains in social communication, language and socioemotional development, adaptive functioning, academic achievement, and later vocational success. Furthermore, the highest priorities chosen for a child's program are based on parent as well as professional input as part of a systematic assessment process. Thus, the goals and objectives within the SCERTS Model are functional and meaningful in a child's life, provide the foundation for social and emotional competence, and are informed by evidence and draw from large group and longitudinal studies that show correlations with these abilities. That is, progress in SCERTS Model goals and objectives is most likely to have a broad ranging impact in the most critical areas of development for individuals with ASD.

How are the learning support strategies within the SCERTS model informed by evidence?

The SCERTS model provides a framework for educational teams and families to select interpersonal and learning supports that are evidence-based for their effectiveness in supporting progress in the most critical domains for individuals with ASD, i.e., Social Communication and Emotional Regulation. Furthermore, specific guidance is provided for individualizing supports to accommodate the unique strengths and needs of a child and the priorities and preferences of the family. Practice in the SCERTS Model is informed by findings from published efficacy research studies (both group treatment and single case designs) in the fields of applied behavior analysis (ABA), developmental psychology, speech-language pathology, special education, neurodevelopmental science, occupational therapy, and mental health. For a summary of these studies, please refer to Table 1 of this document.

What is the <u>quality</u> of evidence of the research that has been integrated into the SCERTS framework?

The SCERTS model incorporates evidence-based practices consistent with the recommendations of the National Research Council (NRC, 2001) of the National Academy of Sciences. These recommendations were derived from its review of educational treatments for children with ASD and more current research. The three domains of the SCERTS framework,

Social Communication, Emotional Regulation and Transactional Support, and the goals and objectives in the curriculum are based on a large number of group treatment and single case design studies that examine specific intervention strategies that are incorporated in the SCERTS model. SCERTS also is informed by descriptive group studies that document core deficits of ASD as well as significant predictors of outcome for individuals with ASD. Chapter 6 of The SCERTS Manual is devoted to discussing how The SCERTS Model is consistent with current evidence-based practice guidelines.

Using a framework adapted from Kazdin (2003) and Smith et al. (2007), we have developed two tables to summarize research studies that support the validity of focusing on the domains of the SCERTS model. Peer-reviewed research may vary as to level of evidence provided, therefore, it is important to consider the quality of research evidence when developing "standards" of practice. The SCERTS collaborators have considered research according to the following levels of evidence, with I being the highest and IV being the lowest:

I. True experimental group treatment designs with randomized clinical trials to document group treatment effects under controlled conditions,
II. Quasi-experimental group treatment designs to demonstrate the feasibility of implementing the model and document group treatment effects,
III. Single-case experimental treatment designs to examine specific intervention strategies that are incorporated in the SCERTS model, and
IV. Case-control cross-sectional or longitudinal descriptive group research designs that document core deficits of ASD or significant predictors of outcome for individuals with ASD that are targeted in the SCERTS model.

Table 1 consists of a matrix with the 4 levels of evidence and 3 domains of the SCERTS model—Social Communication, Emotional Regulation, and Transactional Support, and lists references for each level. Table 2 provides an alphabetical listing of the complete references, the level of research evidence, and the SCERTS domains and components supported by each reference.

Where does the SCERTS Model, as a comprehensive educational program, fit within the current landscape of approaches informed by evidence and evidence-based practice?

Methods for evaluating treatment efficacy generally emphasize evidence derived from empirical research methodology that has addressed internal and external validity and generalization of findings (American Psychological Association, 2000; Lonigan, Elbert & Johnson, 1998). As evident in Table 1, there is great depth within the treatment efficacy literature related to focused or specific intervention strategies, or strategies that aim to either reduce challenges associated with ASD or improve specific skills. Learning strategies within the SCERTS Model are informed by this body of evidence.

Comprehensive educational models, such as the SCERTS Model, focus on a broad scope of skills, aimed at improving an individual's overall course of functioning, long-term outcomes and quality of life. A comprehensive model should be strongly grounded in evidence derived from research on more focused intervention strategies and longitudinal studies informing targeted goals and objectives. Evidence-based *practice* also relies on well-controlled, randomized control group studies in order to justify whether a particular comprehensive model is more effective than others. To date, only a few carefully controlled experimental designs involving comprehensive educational programs for children with ASD have been conducted. On the basis of a contemporary review of comprehensive approaches for children with ASD, Prizant and Wetherby (1998) made the following conclusions that were also supported in the review of educational and treatment research in ASD conducted by the national panel of experts appointed by the National Academy of Sciences (NRC, 2001), and remain relevant today:

1. Research has supported the effectiveness of a range of approaches that differ in underlying philosophy and practice (e.g., developmental and behavioral);
2. No evidence exists that any one approach is more effective than any other; and
3. Not all children with ASD have benefited to the same degree from a specific approach and even the most positive outcomes are in the range of about 50% of children across different studies utilizing very different approaches.

These conclusions remain accurate and relevant at the time of this writing. Furthermore, of those published randomized control group studies of comprehensive approaches, *none* have been conducted with school-aged children and none which have been conducted in "real world," public school settings, relying instead on the unique conditions of laboratory settings (National Standards Report, 2009). This was a primary impetus for developing the SCERTS Model, as the framework was designed to be implemented in "real-world" settings. The focus is on enabling families, service providers, and members of the community to effectively implement strategies, informed by experimental evidence, in the "real world" activities and settings where individuals with ASD live and learn. Several well controlled, randomized trials are currently grant funded and underway investigating the SCERTS Model as a comprehensive educational approach for children both under the age of three as well as school-aged population (Kindergarten through 2nd grade) in public school settings.

How is the SCERTS Model consistent with recommendations of National Research Council (2001), National Standards Project (2009) and other guidelines for evidence-based practice?

The National Research Council (2001) of the National Academy of Sciences identified a number of critical features that were a result of the convergence of evidence available. The SCERTS Model was designed, in part, to directly address the recommendations of this committee. These characteristics of effective interventions include:

1. Entry into intervention services as early as possible

2. Active engagement in intensive instruction for at least 25 hours a week, 12 months a year
3. Repeated, planned teaching opportunities with sufficient, daily individualized attention
4. Systematically planned developmentally appropriate activities aimed toward identified objectives
5. Inclusion of a family component
6. Mechanisms for ongoing program evaluation of a child's progress, with adjustments in programming at least every 3 months.
7. Specialized instruction in settings in which ongoing interactions occur with typically developing children to the extent that it leads to the specified educational goals.

The NRC Committee (NRC, 2001) went on to identify six instructional priorities, and practice in the SCERTS Model is consistent with these priorities. These priorities include:

Priority # 1: Functional, spontaneous communication
Priority # 2: Social instruction in various settings
Priority # 3: Teaching of play skills (i.e., appropriate use of toys and play with peers).
Priority # 4: Instruction leading to generalization in natural contexts.
Priority # 5: Positive approaches to address problem behaviors
Priority # 6: Functional academic skills when appropriate

Finally, the NRC (NRC, 2001) also recommended that educational approaches should address the core "deficits" core challenges faced by children with ASD, and that meaningful outcome measures must address the following two areas:

1. Gains in initiation of spontaneous communication in functional activities.
2. Generalization of gains across activities, interactants (adults and peers), and environments.

The SCERTS model addresses these recommendations in the following ways:

1. Priority goals are established to address the core challenges of ASD, building on a child's capacity to initiate communication with a presymbolic and/or symbolic communication system, and to regulate attention, arousal and emotion.

2. Individualized intervention is provided based on a child's strengths and weaknesses and is guided by research in child development and developmentally appropriate practices.

3. The SCERTS Model incorporates intervention strategies derived from empirically-supported practices of developmental social-pragmatic and contemporary behavioral approaches.

4. Generalization is addressed through transactional supports and progress is measured in functional activities with a variety of partners across a variety of settings.

The National Standards Project (2009) also identified numerous "established" and "emerging" interventions that may be incorporated as strategies or elements of practice as part of a SCERTS Model program (note: the SCERTS Model (2006) was not considered in the National Standard Project's review of intervention approaches as publication of The SCERTS Model manuals and our subsequent ongoing research has occurred since the National Standards Project commenced in 2005).

What research is currently being conducted using the SCERTS Model?

In the relatively short time since the publication of the SCERTS Model manuals, a number of large group research initiatives have been launched, and small sample studies are becoming available. Currently, large group experimental longitudinal research is in progress to specifically address the efficacy of the SCERTS Model as a comprehensive treatment program in early intervention populations under a grant funded by the National Institute of Mental Health and Autism Speaks (Principal Investigators: A. Wetherby & C. Lord). A federally funded, large, randomized controlled trial is also underway to document the efficacy of the SCERTS Model in public school settings from Kindergarten through 2nd grade. This study commenced in the 2010 – 2011 school year. It also is our hope that the SCERTS Model manuals will serve as an impetus for further treatment research designed to address many of the acknowledged inadequacies of available research. When a treatment is approach is "manualized" (i.e., treatment research is guided by a detailed comprehensive manual), it ensures for greater fidelity of practice, thereby improving the quality of the research in question. The SCERTS Model manuals allow the methodology to be systematically implemented and include measures of treatment fidelity.

What is the best way to stay current on The SCERTS Model and Evidence-Based Practice?

The official SCERTS website, www.SCERTS.com, includes a "Research Corner" that is designed to provide researchers, practitioners and parents with the most up to date information on research with the SCERTS Model. As of September, 2010, this version (v.1) of "The SCERTS Model and Evidence-Based Practice" is considered to be the most current statement by the SCERTS Collaborators on how the SCERTS Model addresses tenets of evidence-based practice. This document will be updated periodically, and each new version will supersede prior versions.

References

Kazdin, A. (2003). *Research Design in Clinical Psychology* (4th edition). Boston: Allyn & Bacon.

National Research Council (2001). *Educating children with autism*. Committee on Educational Interventions for children with autism. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

National Standards Project (2009). National *standards report on autism interventions*. Randolph, MA : National Autism Center.

Prizant, B.M., & Wetherby, A.M. (1998). Understanding the continuum of discrete-trial traditional behavioral to social-pragmatic developmental approaches in communication enhancement for young children with autism/PDD. *Seminars in Speech and Language*, 19, 4, 329-353.

Prizant, B. M., Wetherby, A.M., Rubin, E., Laurent, A.C., & Rydell, P. (2006). *The SCERTS Model: A Comprehensive Educational Approach for Children with Autism Spectrum Disorders*. Baltimore, MD: Paul H. Brookes Publishing.

Smith, T., Scahill, L., Dawson, G., Guthrie, D., Lord, C., Odom, S., Rogers, S., & Wagner, A. (2007). Designing research studies on psychosocial interventions in autism. *Journal of Autism and Developmental Disorders*, *37 354-66.*

Table 1. Matrix of References for the 4 Levels of Research Evidence and 3 SCERTS Domains			
Level of Research Evidence	**Social Communication (SC)**	**Emotional Regulation (ER)**	**Transactional Support (TS)**
I. Experimental group treatment with randomized clinical trials to document treatment effects under controlled conditions	**Aldred**, Green, & Adams, 2004; **Drew** et al., 2002; **McConachie**, Randle, Hammal, & Le Couteur, 2005	**Escalona**, Field, Singer, Strunck, Cullen, & Hartshorn, 2001	**Aldred**, Green, & Adams, 2004; **Drew** et al., 2002; **Escalona**, Field, Singer, Strunck, Cullen, & Hartshorn, 2001; **Koegel**, Bimbela & Schreibman, 1996; **McConachie**, Randle, Hammal, & Le Couteur, 2005
II. Quasi-experimental group treatment to demonstrate the feasibility of implementing the model and document treatment effects	**Mahoney** & Perales, 2005; **McGee**, Morrier, & Daly, 1999; **Ozonoff** & Miller, 1995; **Wetherby** & Woods, in press	**Mahoney** & Perales, 2005; **Solomon**, Goodlin-Jones, & Anders, 2004	**Mahoney** & Perales, 2005; **McGee**, Morrier, & Daly, 1999; **Ozonoff** & Miller, 1995; **Solomon**, Goodlin-Jones, & Anders, 2004; **Wetherby** & Woods, in press
III. Single-case experimental treatment designs that examine specific intervention strategies that are incorporated in the SCERTS model	**Barnhill**, Cook, Tebbenkamp, & Myles, 2002; **Barry** et al., 2003; **Carr** & Durand, 1985; **Charlop** & Walsh, 1986; **Hsiao** & Bernard-Opitz, 2000; **Kaiser**, Hancock, & Nietfeld, 2000; **Kashinath**, Woods, & Goldstein, 2006; **Laski**, Charlop & Schreibman, 1988; **O'Reilly**, 2005; **Whalen**, & Schreibman, 2003	**Bauminger**, 2002; **Bieberich** & Morgan, 2004; **Braithwaite** & Richdale, 2000; **Bryan** & Gast, 2000; **Carr** & Durand, 1985; **Durand** & Carr, 1987; **Frea**, Arnold, & Vittimberger, 2001; **MacDuff**, Krantz, & McClanahan, 1993; **O'Reilly**, 2005; **Pierce** & Schreibman, 1994; **Scattone**, Wilczynski, Edwards, & Rabian, 2002; **Wantanabe** & Sturmey, 2003	**Barnhill**, Cook, Tebbenkamp, & Myles, 2002; **Barry** et al., 2003; **Braithwaite** & Richdale, 2000; **Bryan** & Gast, 2000; **Charlop** & Walsh, 1986; **Durand** & Carr, 1987; **Frea**, Arnold, & Vittimberger, 2001; **Hsiao** & Bernard-Opitz, 2000; **Kaiser**, Hancock, & Nietfeld, 2000; **Kashinath**, Woods, & Goldstein, 2006; **Laski**, Charlop & Schreibman, 1988; **MacDuff**, Krantz, & McClanahan, 1993; **Pierce** & Schreibman, 1994; **Scattone**, Wilczynski, Edwards, & Rabian, 2002; **Wantanabe** & Sturmey, 2003; **Whalen**, & Schreibman, 2003
IV. Descriptive group research designs that document core deficits of ASD or significant predictors of outcome for individuals with ASD that are targeted in the SCERTS model	**Bono**, Daley, & Sigman, 2004; **Charman** et al., 1997; **Charman**,et al., 2005; **Dawson**, Hill, Spencer, Galper, & Watson, 1990; **Dawson** et al., 2004; **Klin**, Jones, Schultz, Volkmar & Cohen, 2002; **Mundy**, Sigman, & Kasari, 1990; Sigman & Ruskin, 1999; **Reese**, Richman, Belmont, & Morse, 2005; **Sigman**, Dijamco, Gratier, & Rozga, 2004; **Siller** & Sigman, 2002; **Stone**, Ousley, Yoder, Hogan, & Hepburn, 1997; **Stone**, & Yoder, 2001; **Swettenham**, et al., 1998; **Wetherby**, Prizant, & Hutchinson, 1998; **Wetherby**, Watt, Morgan, & Shumway, in press; **Wetherby** et al., 2004; **Yirmiya**, Sigman, Kasari & Mundy, 1992	**Bauminger**, 2004; **Begeer**, 2006; **Bodfish**, Symons, Parker, & Lewis, 2000; **Capps**, Yirmiya, & Sigman, 1992; **Dawson**, Hill, Spencer, Galper, & Watson, 1990; **Dawson** et al., 2004; **Downs** & Smith, 2004; **Gillott**, Furniss, & Walter, 2001; **Gritti** et al. 2003; **Kientz** & Dunn, 1997; **Reese**, Richman, Belmont, & Morse, 2005; **Sigman**, Dijamco, Gratier, & Rozga, 2004; **South**, Ozonoff, & McMahon, 2005; **Yirmiya**, Sigman, Kasari & Mundy, 1992	**Begeer**, 2006; **Kientz** & Dunn, 1997; **Mundy**, Sigman, & Kasari, 1990; **Reese**, Richman, Belmont, & Morse, 2005; **Sigman** & Ruskin, 1999; **Siller** & Sigman, 2002; **Stone**, & Yoder, 2001

Table 2. Level of Evidence and SCERTS Domains and Components for each Reference			
References	**Level of Research Evidence**	**SCERTS Domain**	**SCERTS Component**
Aldred, C., Green, J., & Adams, C. (2004). A new social communication intervention for children with autism: Pilot randomized controlled treatment study suggesting effectiveness. *Journal of Child Psychology & Psychiatry, 45,* 1420–1430.	Level I	SC TS	JA IS LS
Barnhill, G., Cook, K., Tebbenkamp, K., & Myles, B.S. (2002). The effectiveness of social skills intervention targeting nonverbal communication for adolescents with Asperger syndrome and related pervasive developmental delays. *Focus on Autism and Other Developmental Disabilities, 17*, 2, 112-118	Level III	SC TS	JA SU IS LS
Barry, T., Klinger, L., Lee, J., Palardy, N., Gilmore, T., & Bodin, S. (2003). Examining the effectiveness of an outpatient clinic-based social skills group for high-functioning children with autism. *Journal of Autism and Developmental Disorders*, 33, 6, 685-701.	Level III	SC TS	JA SU IS LS
Bauminger, N. (2002). The facilitation of social-emotional understanding and social interaction in high-functioning children with autism: Intervention outcomes. *Journal of Autism and Developmental Disorders*, *32*, 283-298.	Level III	SC ER TS	JA SU MR SR IS LS
Bauminger, N. (2004). The expression of and understanding of jealousy in children with autism. *Developmental Psychopathology, 16,* 157-177.	Level IV Core deficits	ER	MR SR
Begeer, S. (2006). Attention to facial emotion expressions in children with autism. *Autism, 10*, 37-51.	Level IV Core deficits	ER TS	MR SR IS LS
Bieberich, A. & Morgan, S. (2004). Self-regulation and affective expression during play in children with autism or Down Syndrome: A short- term longitudinal study. *Journal of Autism and Developmental Disorders, 34*, 439-448.	Level IV Predictive relations	ER	MR SR
Bodfish, J., Symons, F.J., Parker, D. E., & Lewis, M.H., (2000). Varieties of repetitive behavior in autism: Comparisons to mental retardation. *Journal of Autism and Developmental Disorders, 30*, 237-243.	Level IV Core deficits	ER	SR
Bono, M., Daley, T. & Sigman, M. (2004). Relations among joint attention, amount of intervention and language gain in autism. *Journal of Autism and Developmental Disorders, 34,* 495-505.	Level IV Predictive relations	SC	JA

Table 2 *continued*

Braithwaite, K. & Richdale, A. (2000). Functional communication training to replace challenging behaviors across two behavioral outcomes. *Behavioral Interventions, 15*, p21-36.	Level III	ER TS	MR IS
Bryan, L.C., Gast, D.L. (2000). Teaching on-task and on-schedule behaviors to higher functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders, 30,* 553-567.	Level III	ER TS	SR IS LS
Capps, L., Yirmiya, N., & Sigman, M.D. (1992). Understanding of simple and complex emotions in non-retarded children with autism. *Journal of Child Psychology and Psychiatry, 33*, 1169-1182.	Level IV Core deficits	ER	MR SR
Carr, C.G. & Durand, V.M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis, 18*, 111-126.	Level III	SC ER	JA SU MR
Charlop, M., & Walsh, M. (1986). Increasing autistic children's daily spontaneous speech. *Journal of Applied Behavior Analysis, 19*, 307-314.	Level III	SC TS	JA SU IS
Charman, T., Swettenham, J., Baron-Cohen, S., Cox, A., Baird, G., & Drew, A. (1997). Infants with autism: An investigation of empathy, pretend play, joint attention, and imitation. *Developmental Psychology, 33*, 781-789.	Level IV Core deficits	SC	JA SU
Charman, T., Taylor, E., Drew, A., Cockerill, H., Brown, J., & Baird, G. (2005). Outcome at 7 years of children diagnosed with autism at age 2; predictive validity of assessments conducted at 2 and 3 years of age and pattern of symptom change over time. *Journal of Child Psychology and Psychiatry, 46*, 500-513.	Level IV Predictive relations	SC	JA
Dawson, G., Hill, D., Spencer, A., Galper, L.,& Watson, L. (1990). Affective exchanges between young autistic children and their mothers. *Journal of Abnormal Child Psychology, 18*, 335-345.	Level IV Core deficits	SC ER	JA MR
Dawson, G., Toth, K., Abbott, R., Osterling, J., Munson, J., Estes, A. & Liaw, J. (2004). Early social attention impairments in autism: Social orienting, joint attention, and attention to distress. *Developmental Psychology, 40*, 271-283.	Level IV Core deficits & Predictive relations	SC ER	JA SU MR SR
Downs, A. & Smith, T. (2004). Emotional understanding, cooperation, and social behavior in high-functioning children with autism. *Journal of Autism and Developmental Disorders, 34,* 625-635.	Level IV Core deficits	ER	MR SR
Drew, A., Baird, G., Baron-Cohen, S., Cox, A., Slonims, V., Wheelwright, S., Swettenham, J., Berry, B., & Charman, T. (2002). A pilot randomized control trial of a parent training intervention for pre-school children with autism: Preliminary findings and methodological challenges. *European Child and Adolescent Psychiatry, 11*, 266-272.	Level I	SC TS	JA SU IS

Table 2 *continued*

Durand, V.M., & Carr, E.G. (1987). Social influences on "self-stimulatory" behavior: Analysis and treatment application. *Journal of Applied Behavior Analysis, 20*, 119-132.	Level III	ER TS	MR SR IS LS
Escalona, A., Field, T., Singer, Strunck, R., Cullen, C., & Hartshorn, K. (2001). Brief report: Improvements in the behavior of children with autism following massage therapy. *Journal of Autism and Developmental Disorders, 31*, 513-516.	Level I	ER TS	MR SR IS LS
Frea, W.D., Arnold, C. & Vittimberger, G.L. (2001). A demonstration of the effects of augmentative communication on the extreme aggressive behavior of a child with autism within an integrated preschool setting. *Journal of Positive Behavior Interventions, 3,* 194-198.	Level III	ER TS	MR SR IS LS
Gillott, A., Furniss, F., & Walter, A. (2001). Anxiety in high-functioning children with autism. *Autism, 5*, 277-286.	Level IV Core deficits	ER	MR SR
Gritti, A., Bove, D., Di Sarno, A.M., D'Addio, A.A., Chiapparo, S., & Bove R.M. (2003). Stereotyped movements in a group of autistic children. F*unctional Neurology, 18*(2), 89-94.	Level IV Core deficits	ER	MR SR
Hsiao, Y. & Bernard-Opitz, V. (2000). Teaching conversational skills to children with autism: Effect on the development of a theory of mind. *Journal of Autism and Developmental Disorders, 30*, 6, 569-583.	Level III	SC TS	JA SU IS LS
Kaiser, A., Hancock, T., & Nietfeld, J. (2000). The effects of parent-implemented enhanced milieu teaching on the social communication of children who have autism. *Early Education and Development, 11*, 423-446.	Level III	SC TS	SU IS
Kashinath, S., Woods, J., & Goldstein, H. (2006). Enhancing generalized teaching strategy use in daily routines by caregivers of children with autism. *Journal of Speech, Language, and Hearing Research*, *49,* 466-485.	Level III	SC TS	JA SU IS
Kientz, M.A. & Dunn, W. (1997). A comparison of the performance of children with and without autism on the Sensory Profile. *American Journal of Occupational Therapy, 51*, 530-537.	Level IV Core deficits	ER TS	SR IS
Klin, A., Jones, W., Schultz, R., Volkmar, F. R., & Cohen, D. J. (2002). Visual fixation patterns during viewing of naturalistic social situations as predictors of social competence in individuals with autism. *Archives of General Psychiatry, 59,* 809–816.	Level IV Core deficits	SC	JA

Table 2 *continued*

Koegel, R. L., Bimbela, A., & Schreibman, L. (1996). Collateral effects of parent training on family interactions. *Journal of Autism and Developmental Disorders, 26*, 347–359.	Level I	TS	IS
Laski, K., Charlop, M., & Schreibman, L. (1988). Training parents to use the natural language paradigm to increase their autistic children's speech. *Journal of Applied Behavior Analysis, 21*, 391-400.	Level III	SC TS	SU IS
MacDuff, G.S., Krantz, P.J., & McClanahan (1993). Teaching children with autism to use photographic activity schedules: Maintenance and generalization of complex response chains. *Journal of Applied Behavior Analysis, 26*, 89-97.	Level III	ER TS	SR IS LS
Mahoney, G., & Perales, F. (2005). Relationship-focused early intervention with children with pervasive developmental disorders and other disabilities: A comparative study. *Developmental and Behavioral Pediatrics, 26*, 77-85.	Level II	SC ER TS	SU SR MR IS
McConachie, H., Randle, V., Hammal, D., & Le Couteur, A. (2005). A controlled trial of a training course for parents of children with suspected autism spectrum disorders. *Journal of Pediatrics, 147*, 335-340.	Level I	SC TS	JA IS
McGee, G., Morrier, M., & Daly, T. (1999). An incidental teaching approach to early intervention for toddlers with autism. *Journal of the Association for Persons with Severe Handicaps, 24*, 133–146.	Level II	SC TS	SU IS LS
Mundy, P., Sigman, M., & Kasari, C. (1990). A longitudinal study of joint attention and language development in autistic children. *Journal of Autism and Developmental Disorders, 20*, 115-128.	Level IV Predictive relations	SC TS	JA SU IS
O'Reilly, M. (2005). An examination of the effects of a classroom activity schedule on levels of self-injury and engagement for a child with severe autism. *Journal of* Autism *& Developmental Disorders, 35*, 305-11.	Level III	ER TS	SR IS LS
Ozonoff, S. & Miller, J. (1995). Teaching theory of mind: A new approach to social skills training for individuals with autism. *Journal of Autism and Developmental Disorders, 25*, 4, 415-433.	Level II	SC TS	JA IS LS
Pierce, K. & Schreibman, L. (1994). Teaching daily living skills to children with autism in unsupervised settings through pictorial self-management. *Journal of Applied Behavior Analysis, 27*, 471-482.	Level III	ER TS	SR LS
Reese, R., Richman, D., Belmont, J., & Morse, P. (2005). Functional characteristics of disruptive behavior in developmentally disabled children with and without autism. *Journal of* Autism *and Developmental Disorders, 35*, 419-428.	Level IV Core deficits	SC ER TS	JA MR SR IS LS

Table 2 *continued*

Scattone, D.; Wilczynski, S.M; Edwards, R.P., & Rabian, B. (2002) Decreasing disruptive behaviors of children with autism using social stories. *Journal of Autism and Developmental Disorders, 32*, 535-543.	Level III	ER TS	MR SR IS LS
Sigman, M., & Ruskin, E. (1999). Continuity and change in the social competence of children with autism, Down syndrome, and developmental delays. *Monographs of the Society for Research in Child Development,* 64.	Level IV Predictive relations	SC TS	JA SU IS
Sigman, M., Dijamco, A., Gratier, M., & Rozga, A. (2004). Early detection of core deficits in autism. *Mental Retardation and Developmental Disabilities Research Reviews, 10*, 221-233.	Level IV Core deficits	SC ER	JA SU MR
Siller, M. & Sigman, M. (2002). The behaviors of parents of children with autism predict the subsequent development of their children's communication. *Journal of Autism and Developmental Disorders, 32*, 77-89.	Level IV Predictive relations	SC TS	JA SU IS
Solomon, M., Goodlin-Jones, B., & Anders, T.F. (2004). A social adjustment enhancement intervention for high functioning autism, Asperger's Syndrome, and pervasive developmental disorder NOS. *Journal of Autism and Development Disorders, 34*, 649-668.	Level II	ER TS	MR SR IS
South, M., Ozonoff, S., & McMahon, W.M. (2005). Repetitive behavior profiles in Asperger Syndrome and high-functioning autism. *Journal of Autism and Developmental Disorders, 35*, 145-158.	Level IV Core deficits	ER	SR
Stone, W., Ousley, O., Yoder, P., Hogan, K. & Hepburn, S. (1997). Nonverbal communication in 2- and 3-year old children with autism. *Journal of Autism and Developmental Disorders, 27*, 677-696.	Level IV Core deficits	SC	JA SU
Stone, W. & Yoder, P. (2001). Predicting spoken language level in children with autism spectrum disorders. Autism, 5(4), 341-361.	Level IV Predictive relations	SC TS	SU IS
Swettenham, J., Baron-Cohen, S., Charman, T., Cox, A., Baird, G., Drew, A., et al. (1998). The frequency and distribution of spontaneous attention shifts between social and nonsocial stimuli in autistic, typically developing, and nonautistic developmentally delayed infants. *Journal of Child Psychology and Psychiatry, 39*, 747-753.	Level IV Core deficits	SC	JA
Wantanabe, M., & Sturmey, P. (2003). The effect of choice making opportunities during activity schedules on task engagement of adults with autism. *Journal of Autism and Developmental Disorders, 33*, 535-538.	Level III	ER TS	MR SR IS LS

Table 2 *continued*

Wetherby, A. M., Prizant, B. M., & Hutchinson, T. (1998). Communicative, social-affective, and symbolic profiles of young children with autism and pervasive developmental disorder. *American Journal of Speech-Language Pathology, 7*, 79-91.	Level IV Core deficits	SC	JA SU
Wetherby, A., Watt, N., Morgan, L., & Shumway, S. (in press). Social communication profiles of children with autism spectrum disorders late in the second year of life. *Journal of Autism and Developmental Disorders*.	Level IV Core deficits & Predictive relations	SC	JA SU
Wetherby, A. & Woods, J. (in press). Effectiveness of early intervention for children with autism spectrum disorders beginning in the second year of life. T*opics in Early Childhood Special Education*.	Level II	SC TS	JA SU IS LS
Wetherby, A., Woods, J., Allen, L., Cleary, J., Dickinson, H., & Lord, C. (2004). Early indicators of autism spectrum disorders in the second year of life. J*ournal of Autism and Developmental Disorders, 34*, 473-493.	Level IV Core deficits	SC ER	JA SU SR MR
Whalen, C., & Schreibman, L. (2003). Joint attention training for children with autism using behavior modification procedures. *Journal of Child Psychology and Psychiatry, 44*, 456–468.	Level III	SC TS	JA SU IS LS
Yirmiya, N., Sigman, M.D., Kasari, C., & Mundy, P. (1992). Empathy and cognition in high-functioning children with autism. *Child Development, 63*, 150-160.	Level IV Core deficits	SC ER	JA MR