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DISCUSSION AND REVIEW PAPER

Social Thinking®: Science, Pseudoscience, or Antiscience?

Justin B. Leaf[1] · **Alyne Kassardjian**[1] · **Misty L. Oppenheim-Leaf**[2] · **Joseph H. Cihon**[1] · **Mitchell Taubman**[1] · **Ronald Leaf**[1] · **John McEachin**[1]

Abstract Today, there are several interventions that can be implemented with individuals diagnosed with autism spectrum disorder. Most of these interventions have limited to no empirical evidence demonstrating their effectiveness, yet they are widely implemented in home, school, university, and community settings. In 1996, Green wrote a chapter in which she outlined three levels of science: evidence science, pseudoscience, and antiscience; professionals were encouraged to implement and recommend only those procedures that would be considered evidence science. Today, an intervention that is commonly implemented with individuals diagnosed with autism spectrum disorder is Social Thinking®. This intervention has been utilized by behaviorists and non-behaviorists. This commentary will outline Social Thinking® and provide evidence that the procedure, at the current time, qualifies as a pseudoscience and, therefore, should not be implemented with individuals diagnosed with autism spectrum disorder, especially given the availability of alternatives which clearly meet the standard of evidence science.

Keywords Applied behavior analysis · Evidence based · Social behavior · Social thinking · Autism

✉ Justin B. Leaf
Jblautpar@aol.com

Alyne Kassardjian
Akautpar@aol.com

Misty L. Oppenheim-Leaf
Molbtlc@aol.com

Joseph H. Cihon
Jcihonautpar@aol.com

Mitchell Taubman
Mtautpar@aol.com

Ronald Leaf
Rlautpar@aol.com

John McEachin
Jmautpar@aol.com

[1] Autism Partnership Foundation, 200 Marina Drive, Seal Beach, CA 90740, USA

[2] Behavior Therapy and Learning Center, 200 Marina Drive, Seal Beach, CA 90740, USA

In 1996, Green wrote a seminal chapter entitled, *Evaluating Claims about Treatments for Autism*. In this chapter, Green described three levels of science (i.e., science, pseudoscience, and antiscience) which can be utilized as a guide to evaluate treatments for individuals diagnosed with autism spectrum disorders (ASD). Science was defined as relying "on direct, objective observation and measurement of phenomena, systematic arrangement of events, procedures to rule out alternative explanations for what is observed, and repeated demonstrations by individuals working independently of one another" (Green 1996, p. 15). Pseudoscience was defined as treating "phenomena that do not have the hallmarks of scientific methods or evidence as if they were scientific. Beliefs that are not based on objective facts are 'dressed up' to superficially resemble science" (Green 1996, p. 16). Antiscience was defined as "the outright rejection of the time-tested methods of science as a means of producing valid and useful knowledge" (Green 1996, p. 16).

In addition to these definitions, Green (1996) provided several hallmarks of pseudo- and antiscience, which included, but were not limited to, the promoters of the treatment: (a) claiming they can produce high levels of success quickly across a variety of disorders; (b) providing little to no objective

data to support effectiveness, but rather providing anecdotal evidence (e.g., testimonials or personal stories) to demonstrate the procedure's effectiveness; (c) stating that other proven therapies are unnecessary, harmful, or inferior with no objective proof to support these claims; (d) stating that the procedures would be difficult to evaluate using scientific methods; and (e) using slogans that have face validity as a way to market their therapy. Normand (2008) also provided several characteristics of pseudoscience while discussing some requirements to be considered evidenced based. These included, the use of testimonials in favor of objective data, dismissing scientific evidence based on unfounded problems with the experimental arrangement, and rejection as a form of evidence.

Today, there are hundreds, if not thousands, of interventions for individuals diagnosed with ASD (Freeman 2008; Lerman et al. 2008; National Autism Standards 2015; Research Autism Improving the Quality of Life 2015 http://www.researchautism.net/autism-interventions/types), many of which would be considered pseudo- or antiscience (Freeman 2008). Some have even stated, "one would be hard pressed to find an area more widely affected by rampant pseudoscience than that of autism treatment…" (Normand 2008, p. 42). One treatment approach that is gaining popularity and is being increasingly implemented with individuals diagnosed with ASD is Social Thinking®. Social Thinking® is being utilized in school districts, home programs, and clinic settings by both non-behaviorists and behaviorists; however, the question that has not been asked or answered is: Would Social Thinking® be considered science, pseudoscience, or antiscience? The purpose of this paper is to briefly evaluate Social Thinking® and attempt to determine which level of science it falls under.

Overview of Social Thinking

Social Thinking® is based on a combination of three major theories: (a) central coherence theory, (b) executive dysfunction, and (c) theory of mind. Social Thinking® also incorporates components of cognitive behavioral therapy (Winner 2007a, p. v–viii). Social Thinking® is concerned with a person's ability to gauge their own thoughts, emotions, beliefs, and social knowledge; to understand another person's thoughts in a given social situation; and to change their own social behaviors based upon their ability to think about social behaviors. Ultimately, it is a mentalistic approach; it works off the hypothesis that by changing your thought process (e.g., thinking), you can improve your social behaviors, social interactions, and relationships. Social Thinking® can be implemented with multiple populations but is commonly utilized for individuals diagnosed with ASD.

The procedure was first developed, implemented, and disseminated (through curriculum books, the internet, and workshops) by Michelle Garcia Winner (2000, 2005a, b, 2007a, b). Winner has created a framework (i.e., the I LAUGH model (Winner 2000)) and several different treatment procedures to help guide professionals; treatment procedures include teaching a Social Thinking® vocabulary (Winner 2007a), using various worksheets (Winner 2005b), exercises in theory of mind/social cognition (Winner 2005a, b), using a rubber chicken (Winner 2007a), me binders (Winner 2007a), superflex® (Madrigal and Winner 2008), and the social detective (Winner and Crooke 2008). The approach differs from applied behavior analysis (ABA) in terms of the definition of what constitutes a behavior, perspectives on how behavior change is achieved, the conceptualization of social behavior, and the approaches utilized. Behaviorists look to change the individual's environment and use consequences (reinforcement and punishment) to change social behavior; implementers of Social Thinking® want to change an individual's social cognition. Proponents of ABA define behavior as on observable and measurable event; proponents of Social Thinking® are more concerned about the internal behaviors (e.g., thought process) of the individual. From a behavior analytic perspective, behavior change is achieved when an individual demonstrates the behavior; from a Social Thinking® perspective, a change in an individual's thought process is more valued, as opposed to overt behaviors.

What is the Scientific Evidence?

To date, there have only been two published studies evaluating Social Thinking® for individuals diagnosed with ASD or any other populations. The first study was conducted by Crooke et al. (2008) and was published in the peer-reviewed *Journal of Autism and Developmental Disorders*. The second study was conducted by Lee and colleagues (2009) and was published in the non-peer-reviewed *Hong Kong Journal of Mental Health*. Both studies utilized a one-group pretest-posttest design, which is considered a pre-experimental design (Campbell and Stanley 1968). Crooke and colleagues collected objective data and found an increase in positive behaviors and a decrease in undesired behaviors following intervention. Lee and colleagues created their own subjective rating scale and found small increases in overall social behavior following intervention. Both studies had serious methodological flaws which minimize the usefulness of their findings. For one, both studies did not clearly define their independent variables, making it difficult for researchers and practitioners to replicate the procedures. The requirement for researchers to operationally define procedures so that others can replicate has long been a standard of good scientific practice. Second, only one of the studies utilized objective measurement. The use of objective measurement is also an important component of scientific standards as it helps ensure that behavior was actually changed. Third, and most importantly, both studies utilized a pre-experimental design that does not control for six of the

eight threats to internal validity and none of the threats to external validity (see Campbell and Stanley 1968). Finally, only one of the studies was published in a journal that utilizes a peer review process (i.e., Crooke et al. 2008). Therefore, there has been scarce research on social thinking, the research that has been conducted has serious methodological flaws, and the research does not meet many of the established scientific standards. Based on this information, Social Thinking®, to date, cannot be considered evidence based, empirically supported, or a scientific approach.

Characteristics of Pseudoscience or Antiscience

Does Social Thinking® Engage in Dressing Up?

Promoters of pseudoscience often dress up their treatment approach by using respected or known scientists/professionals to endorse a procedure or by using these same professionals' work to show that their own work has empirical support, when in reality it does not. First, Winner has well-known professionals endorsing Social Thinking®; these professionals include Carol Gray (Winner 2007a), Brenda Smith Myles (Winner 2005b), Partricia Prelock (Winner 2013), and Kari Burron (Winner 2007b). Although endorsements are commonly utilized for curriculum books or to note the current evidence base, they are not typically used to validate the effectiveness of a procedure. Endorsements of Social Thinking®, impart the impression that the concepts and procedures meet scientific standards. This is especially problematic given that, to date, there is no empirical evidence for Social Thinking® (see below).

Second, Winner uses known concepts such as Gestalt or areas of deficits (e.g., humor or imitation) as a way to promote her I LAUGH Framework Model (Winner 2007a), despite no evidence demonstrating that the model can be utilized to help guide treatment decisions, increase pro-social behavior, or improve an individual's quality of life. Finally, Winner frequently cites researchers or known professionals' opinions or previous research, not related to Social Thinking®, to promote concepts and/or treatment approaches of Social Thinking®; these professionals include Carol Gray (Winner 2007a, p. 71), Nathan Emery (Winner 2007a, p. 105), Simone Baron-Cohen (Winner 2013, p. 36), and Steven Gutstein (Winner 2007a, p. 19). The reference towards these researchers and professionals dress up the lack of objective scientific evidence for Social Thinking® and is a hallmark of pseudoscience (Green 1996).

Does Social Thinking® Use Anecdotal Claims with No Objective Proof?

A hallmark of pseudoscience and antiscience approaches is providing an abundance of anecdotal evidence without furnishing any empirical evidence. A common theme found in many of the Social Thinking® products are claims of importance or effectiveness based upon anecdotal information. When discussing the merits of Social Thinking® for teaching high-functioning individuals with ASD, Winner provides unfounded claims, such as, "The only teaching approach that appears to be of real help is cognitive behavioral therapy" (Winner 2007a, p. 12). Furthermore, Winner states "Social Thinking is the master key that unlocks all the other social doors" (Winner 2013, p. 25). In addition to the non-empirically based claims about the overall effectiveness of Social Thinking®, when discussing using a rubber chicken (another treatment procedure) Winner stated "…students respond to the chicken." (Winner 2007a, p. 72).

Finally, information from clinical case studies, with no actual clinical data, is also presented as further proof. In Winner's book *Thinking About You Thinking About Me* (Winner 2007a), she provides over 50 descriptions of case studies while providing no objective data. Thus, the use of anecdotal information with no objective data commonly occurs in Social Thinking® products; this characteristic is also a hallmark of pseudoscience and antiscience.

Does Social Thinking® Make Negative Statements About Other Proven Approaches with No Objective Data?

Promoters of pseudoscience or antiscience might also cover up their lack of objective data for their own approach by making statements that other proven therapies are unnecessary, harmful, or inferior to their therapies; however, they will be unable to provide any objective proof to support these claims (Green 1996; Normand 2008). Winner has provided mixed statements about ABA. For a child who is more impaired (labeled by Winner as a severely impaired perspective taker), Winner has stated that "A strong focus on behavioral teaching methods will be most effective…" (Winner 2007a, p. 6). When asked if one should choose a behavioral approach or Social Thinking® approach, Winner has answered, "rather than argue whether a student should receive ABA or Social Thinking, instead we should continue to explore how we can merge the best ideas from both treatments into one intervention approach for our higher functioning students" (Winner 2010). This, of course, goes against the empirical evidence that an eclectic approach is not an effective intervention for individuals diagnosed with ASD (Howard et al. 2014). Unfortunately, an eclectic approach can have serious negative consequences for an individual diagnosed with ASD and for their families. For one, an eclectic approach may reduce the intensity of ABA and, therefore, children will not receive the proper amount of hours necessary to make meaningful changes. Second, eclecticism may dilute the effectiveness of the ABA approach by implementing procedures that are not conceptually consistent with ABA-based procedures. Finally, it

can be a waste of both time and money for the parents as it will not have the same effects as a pure ABA approach.

The preponderance of statements that Winner has made about ABA, however, have been negative and unsupported by empirical evidence. For example, Winner claims, "students with learning challenges such as Asperger's Syndrome often find A–B–C type behavioral programs demeaning or ineffective" (Winner 2007a, p. 152). Winner also claims that skills taught with ABA "quickly lose their power among many of our brighter students with social cognitive deficits" (Winner 2007a, p. 152). Additionally, Winner has questioned if individuals diagnosed with ASD have actually made improvements with intervention based upon ABA (Winner 2013, p. 12). Finally, Winner called into question if ABA is comprehensive enough to treat all deficits associated with autism: "The principles of ABA may facilitate some level of learning for all spectrum students, but ABA does not adequately address the whole treatment program for student with ASD…" (Winner 2008, p. 13).

It is clear, based upon Winner's books, conferences, and blogs, that she does not endorse behaviourally based procedures for high-functioning individuals with ASD and, therefore, is dismissive of an intervention that has an abundance of scientific evidence. This is despite the fact that ABA procedures have empirically demonstrated improvements for specific and overall social behaviors for high-functioning individuals diagnosed with ASD (Brodhead et al. 2014; Kamps et al. 1992; Koegel et al. 1992; Koegel and Frea 1993; Laugeson et al. 2012; Leaf et al. 2015; Nikopoulous 2007; Weiss and Harris 2001).

Does Social Thinking® Outright Reject Science?

Promoters of antiscience might also outright reject the scientific method or state that standard procedures would not be able to capture the behavior change produced by their intervention. Winner's statements about scientific methods are also mixed. On the one hand, Winner has stated "Hopefully more published research as to the [Social Thinking®] treatment benefits will be forthcoming" (Winner 2007a, p. 16). The majority of statements about research and/or empirical evidence, however, have been either dismissive or negative. For example, Winner has stated that when we start off by conducting research "We have put the proverbial cart before the horse in being asked to provide scientifically rigorous evidence for an area that remains highly subjective and open to interpretation in every facet of its application" (Winner 2013, p. 229). Winner has also stated, "While we wait for research to teach us more about these complex students, we need to conduct grass roots campaigns of our own to teach educators and parents about the very challenges these students face…" (Winner 2007a, p. V). Winner has also challenged if evidence based is feasible for evaluating interventions targeting social skills, stating: "Is it even feasible to think that evidence-based practices can be developed for teaching social skills?" (Winner 2008, p. 17).

The implication of her statement is that she rejects the abundance of research demonstrating effective behaviorally based treatment methods. These statements are similar to other professionals from non-ABA fields (e.g., the Son-Rise Program) who also reject the previous ABA-based research for individuals diagnosed with ASD (Autismtreatment 2015). It is clear that proponents of Social Thinking® do not believe that science is important in making treatment decisions. Winner has also made claims that "we cannot research whether or not we made people think more about people" (Winner 2007a, p. 38). Finally, Winner has stated that we should consider moving away from science with the following statement: "If our goal is to determine the best or most promising practices, we need to consider more than the best scientific evidence." (Winner 2008, p. 107). Statements such as this suggest that proponents of Social Thinking® may believe that it would be difficult to evaluate their procedures utilizing the scientific method and that it should be abandoned.

Recommendations and Conclusions

At the present time, there are only two published studies (only one of which was published in a peer-reviewed journal) attempting to evaluate Social Thinking®, and both studies have serious methodological flaws. Although there is a perception among consumers that there is an abundance of written material supporting the efficacy of Social Thinking, the nature of the written documentation does not satisfy the requirements of evidence science. Even more concerning is that Winner's writings contain many of the components of either pseudoscience or antiscience that were identified by Green (1996) and Normand (2008). Therefore, at the present time, Social Thinking® qualifies as a pseudoscience. Additionally, the National Autism Standards Phase 2 (2015) has claimed that Social Thinking® is an unestablished intervention. The fact that Social Thinking® is an unestablished intervention and qualifies as a pseudoscience has very practical implications for behaviorists, other professionals, and parents of individuals diagnosed with ASD.

Social Thinking® lacks many of the dimensions commonly associated with ABA (Baer et al. 1968). Social Thinking® is not analytic, as there has been no evidence showing that implementers of Social Thinking® are in fact responsible for changing an individual's behavior(s). Social Thinking® is also not behavioral; the implementers are typically more concerned with what a person can be brought to say than what they can actually be brought to do. Social Thinking® is not technological as the procedures have not been clearly defined. Social Thinking® has not been empirically shown to be effective nor

is it conceptually systematic as implementers contribute change in behavior to internal processes as opposed to changes in one's environment. Finally, Social Thinking® is not scientific as there has been limited to no studies demonstrating that it is an effective procedure and several comments made about how science may not be appropriate. Therefore, Social Thinking® does not conform to the core principles of the field of ABA or scientific evidence (Baer et al. 1968; Green 1996; Normand 2008).

Behaviorists should not engage in procedures during clinical practice that would be considered pseudoscience or antiscience, as doing so can cause harm to an individual diagnosed with ASD and their family. Additionally, doing so would not align with a behaviorist's training. As such, both certified and non-certified behavior analysts should not implement, recommend, or endorse Social Thinking®; doing so would violate the ethical guidelines described by the BACB® (BACB 2015; retrieved from: http://www.bacb.com/index.php?page=57). The ethical standards of BACB state that behavior analysts have to design behavior change programs that are consistent with behavior analytic principles and indicate that endorsement of Social Thinking® would be a violation of a client's rights to effective treatment (BACB 2015; retrieved from: http://www.bacb.com/index.php?page=57). These violations could result in disciplinary action against a certified behavior analyst.

Professionals working in public school districts should also not implement, recommend, or endorse Social Thinking® as part of a student's education, as IDEA states that only evidence-based procedures should be utilized (IDEA 2004). Finally, we would encourage other professionals (e.g., speech language pathologists or social workers) and parents of individuals with ASD not to implement Social Thinking®, as the results of the intervention are unproven and would likely waste time, money, and energy on a non-scientific/non-evidence-based procedure.

When confronted by a parent or caregiver seeking a novel or alternative form of treatment, such as Social Thinking®, we recommend following a similar approach outlined by previous research (e.g., Chok et al. 2010; Lerman et al. 2008; Montee et al. 1995). First, closely examine the literature to determine the current level of scientific evidence and, if possible, guide the client to do the same. Second, if limited to no rigorous evaluations of the treatment currently exist, discuss this with the client and caution against the use of non-validated treatments. Third, if necessary and possible, research the effectiveness of the treatment utilizing Normand's (2008) approach (e.g., Chok et al. 2010; Lerman et al. 2008). Finally, disseminate the results for the consumer, scientific, and practitioner communities.

Despite Social Thinking® being a non-scientific and non-evidence-based procedure, there are valuable lessons that can be learned from Social Thinking. First, behaviorists need to do a better job of disseminating that our procedures are effective for individuals with ASD. This could be done by conducting highly controlled studies utilizing ABA-based procedures and publishing in peer-reviewed journals in the field of ABA and, more importantly, journals outside of the field of ABA. Second, we need to improve upon demonstrating we do not only teach rote social behaviors but can also teach authentic/complex social behaviors which lead to meaningful pro-social relationships. Proponents of Social Thinking® have made their treatment decisions based on clinical experience but have failed to experimentally analyze these procedures. Professionals in the field of ABA also develop new procedures clinically prior to conducting research; the difference is that we have consistently proceeded to evaluate those procedures to determine their effectiveness and generalizability (similar to Achievement Place or the Lovaas Model). Finally, Social Thinking® should be a lesson to all behaviorists that the field of ASD treatment is still saturated with pseudoscientific and antiscientific approaches; professionals in the field of ABA must do a better job of educating the public while promoting the field of ABA so that all individuals with ASD receive the most effective interventions.

Compliance with Ethical Standards This article does not contain any studies with human or animal participants performed by any of the authors.

Conflict of Interest The first, second, third, and fourth authors have no conflict of interest. The fifth, sixth, and seventh authors do have social curriculum and training materials available for purchase.

References

Autismtreatment. (2015). Published research in Autism Treatment - #9 ABA vs. Son-Rise Program [Video file]. Retrieved from https://www.youtube.com/watch?v=6D2NwgiX72Q.

BACB. (2015). *BACB Guidelines for Responsible Conduct for Behavior Analysis*. Retrieved from http://www.bacb.com/index.php?page=57.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91–97.

Brodhead, M. T., Higbee, T. S., Pollard, J. S., Akers, J. S., & Gerncser, K. R. (2014). The use of linked activity schedule to teach children with autism to play hide-and-seek. *Journal of Applied Behavior Analysis, 47*, 645–650.

Campbell, D. T., & Stanley, J. C. (1968). *Experimental and quasi-experimental designs for research*. Rand McNally College Publishing Company.

Chok, J. T., Reed, D. D., Kennedy, A., & Bird, F. L. (2010). A single-case experimental analysis of the effects of ambient prism lenses for an adolescent with developmental disabilities. *Behavior Analysis in Practice, 3*, 1–10.

Crooke, P. J., Hendrix, R. E., & Rachman, J. Y. (2008). Brief report: Measuring the effectiveness of teaching social thinking to children

with Asperger syndrome (AS) and high functioning autism (HFA). *Journal of Autism and Developmental Disorders, 38*, 581–591.

Freeman, B. J. (2008). Alternative treatments for autism spectrum disorders: what is the science? In R. Leaf, J. McEachin, & M. Taubman (Eds.), *Sense and nonsense in the behavioral treatment of autism: It has to be said*. New York: DRL. Books Inc.

Green, G. (1996). Early behavioral intervention for autism: what does research tell us? In C. Maurice, G. Green, & S. C. Luce (Eds.), *Behavioral Intervention for young children with autism: a manual for parents and professionals*. Austin: Pro-Ed.

Howard, J. S., Stanislaw, H., Green, G., Sparkman, C. R., & Cohen, H. G. (2014). Comparison of behavior analytic and eclectic early interventions for young children with autism after three years. *Research in Developmental Disabilities, 35*(12), 3326–3344.

Individuals with Disabilities Education Act, 20 U. S. C. § 1400 (2004).

Kamps, D. M., Leondard, B. R., Vernon, S., Dugan, E. P., Delquardi, J. C., Gershon, B., Wade, L., & Folk, L. (1992). Teaching social skills to students with autism to increase peer interactions in an integrated first-grade classroom. *Journal of Applied Behavior Analysis, 25*, 281–288.

Koegel, R. L., & Frea, W. D. (1993). Treatment of social behavior in autism through modification of pivotal social skills. *Journal of Applied Behavior Analysis, 26*, 369–377.

Koegel, L. K., Koegel, R. L., Hurley, C., & Frea, W. D. (1992). Improving social skills and disruptive behaviour in children with autism through self-management. *Journal of Applied Behavior Analysis, 25*, 341–353.

Laugeson, E. A., Frankel, F., Gantmart, A., Dillion, A. R., & Mogil, C. (2012). Evidence based social skills training for adolescents with autism spectrum disorders: the UCLA PEERS program. *Journal of Autism and Developmental Disorders, 42*, 1025–1036.

Leaf, J. B., Taubman, M., Oppenheim-Leaf, M., Leaf, J., Townley-Cochran, D., Milne, C., Leaf, R., & McEachin, J. (2015). The effects of a social skills group for individuals diagnosed with autism: a randomized control trial. Paper presented at the meeting of the Association of Behavior Analysis, San Antonio, TX.

Lee, K. Y. S., Lui, A. L. Y., Kan, P. P. K., Luke, K. L., Mak, Y. M., Cheung, P. M. P., Cheng, L., & Wong, I. (2009). A case series on the social thinking training of mainstreamed secondary school students with high-functioning autism. *Hong Kong Journal of Mental Health, 35*, 10–17.

Lerman, D. C., Sansbury, T., Hovanetz, A., Wolever, E., Garcia, A., O'Brien, E., & Adedipe, H. (2008). Using behavior analysis to examine the outcomes of unproven therapies: an evaluation of hyperbaric oxygen therapy for children with autism. *Behavior Analysis in Practice, 1*, 50–58.

Madrigal, S., & Winner, M. G. (2008). *Superflex®... a superhero Social Thinking ® curriculum*. San Jose: Think Social Publishing, Inc.

Montee, B. B., Miltenberger, R. G., Wittrock, D., Watkins, N., Rheinberger, A., & Stackhaus, J. (1995). An experimental analysis of facilitated communication. *Journal of Applied Behavior Analysis, 28*(2), 189–200. doi:10.1901/jaba.1995.28-189.

National Autism Center. (2015). *Findings and conclusions: national standards project phase 2*. Randolph: Author.

Nikopoulous, C. K. (2007). Use of video modelling to increase generalization of social play by children with autism. *The Journal of Speech and Language Pathology, 2*, 195–212.

Normand, M. P. (2008). Science, skepticism, and applied behavior analysis. *Behavior Analysis in Practice, 1*, 42–49.

Research Autism Improving the Quality of Life. (2015). *Intervention Types*. Retrieved from: http://www.researchautism.net/autism-interventions/types.

Weiss, M., & Harris, S. L. (2001). Teaching social skills to people with autism. *Behavior Modification, 25*, 785–802.

Winner, M. G. (2000). *Inside out: what makes the person with social cognitive deficits tick?* San Jose, CA: Think Social Publishing, Inc.

Winner, M. G. (2005a). *Think Social! A Social Thinking® curriculum for school-age students*. San Jose: Think Social Publishing, Inc.

Winner, M. G. (2005b). *Thinksheets for teaching social thinking and related skills*. San Jose: Think Social Publishing, Inc.

Winner, M. G. (2007a). *Thinking about you thinking about me*. San Jose: Think Social Publishing, Inc.

Winner, M. G. (2007b). *Social Behavior Mapping© connecting behavior, emotions, and consequences across the day*. San Jose: Think Social Publishing, Inc.

Winner, M. G. (2008). *A politically incorrect look at evidence-based practices and teaching social skills: a literature review and discussion*. San Jose: Think Social Publishing, Inc.

Winner, M. G. (2013). *Why teach Social Thinking®?* San Jose: Think Social Publishing, Inc.

Winner, M. G., & Crooke, P. (2008). *You are a social detective! Explaining social thinking to kids*. San Jose: Think Social Publishing, Inc.