A Meta-Analysis of Social Story™ Interventions on the Social Skills for Children with Autism

Proposal No: 2047
Session Leader(s): Carol Sparber
Doctoral Student
Kent State University

Abstract:
This meta-analysis examines Social Stories™ used as an intervention to improve social skills for students with Autism. Three indices of non-overlapping data were used to examine each study for effectiveness of intervention and for statistically significant maintained social outcomes.

Description:
A. Deficiencies in social skills are one of the primary characteristics of children with autism spectrum disorders. While numerous interventions and treatment procedures have been developed, it is suggested that Social Stories™ can positively affect social behaviors and improve communication skills for children with autism. Due to increasing demands in educational research for improved rigor to support evidence-based interventions, this meta-analysis examines Social Stories™ used as an intervention to improve social and communication skills for students with Autism.

B. Three indices of non-overlapping data were used to examine each study for effectiveness of intervention and for statistically significant maintained social outcomes. These results indicate the effectiveness of Social Stories™ interventions and maintenance of social outcomes that should be considered when determining appropriate interventions for students with Autism.

C. Participants
- will know the non-overlapping indices indicate the most effective method for implementation of Social Stories™ interventions
- will know the non-overlapping indices indicate the statistical significance for maintained social outcomes
- will know the importance of using non-overlapping data to examine effectiveness of interventions

D. Relevance: Due to increasing demands in educational research for improved rigor, it is imperative that interventions are examined for effect size by using statistical measures. For interventions using single case designs, indices of non-overlapping data can be used to examine the effectiveness of the intervention.

E. A poster presentation is appropriate because results are succinctly summarized and the individual Social Stories™ studies are compared in a table.

F. This study was prompted by the need for further research to discern evidence-based
practice in the use of Social Stories™. A systematic review of the literature was conducted using pre-defined inclusive and exclusive criteria. This meta-analysis examines the effectiveness of single case design studies that used Social Stories™ as an intervention for students diagnosed with autism. Three indices of non-overlapping data (PND, PAND and IRD) were used to examine the effectiveness of the intervention and for statistically significant maintained social outcomes. Social Stories™ are a promising intervention, however they are typically used with other interventions such as positive reinforcement or prompting so the results of this analysis will indicate the most effective procedure for using Social Stories™ as an intervention. This study is not yet finalized. It should be completed by September 1st.

**Primary Topic Area - Required:**
Autism Spectrum Disorder

**Secondary Topic Area - Required - Must be Different from Primary Topic:**
Special Education Schools

**Acceptance of Another Session Type:** Are you willing to accept another session format please check the appropriate box. Please note that the alternate format may be a poster session

   Yes

**Acceptance of Alternative Session Length:** If you are willing to accept another session length, e.g., 1 hour instead of 2 hours, please check the appropriate box.

   Yes

**If you are willing to be considered to be part of a multiple presentation session, please check the box below. [Click here](#) to read about Multiple Presentation Session.**

   Yes

**Primary Target Audience**
   - **Special Educators** - All Levels (or select a specific level below)

**Secondary Target Audience**
   - **Parents/Families**

convproposals2013@cec.sped.org

11:43 PM (13 minutes ago)
Dear Colleague:

Thank you for submitting a proposal for the CEC 2013 Annual Convention and Expo. Your proposal has been received. Please review the following information pertaining to your proposal:

Title: A Meta-Analysis of Social Story™ Interventions on the Social Skills for Children with Autism

You should receive an email for each proposal you submitted. If you do not receive an email message regarding each of your proposals, please contact us immediately but no later than June 14, 2012. An important reminder: As stated in item #9 of the 2013 Call for Presentations and Papers"...an individual may only be included as a session leader or presenter in TWO demonstrations, lectures, panel presentations or multi-presentation sessions, and TWO poster session."
If you have any questions, please let us know. You may contact Renee Glasby by phone at 703-264-9422 or e-mail at reneeg@cec.sped.org.

Enjoy the Summer!

**Are Social Stories Effective?**

“The need for further research is paramount in order to ensure evidence-based practice in the use of Social Stories by practitioners working with children with autism.”

- Reynhout and Carter (2009, p.250)

**What Does the Research Say?**

According to Kokina and Kern (2010, p. 825), the results from their meta-analysis on the effectiveness of Social Stories ‘confirmed previous findings regarding the questionable effectiveness of Social Story interventions for students with ASD' but they then also state that their 'results do not imply that Social Stories are ineffective'.

These two comments may seem opposing, however other reviews on Social Story interventions have drawn similar conclusions (e.g. Reynhout & Carter, 2006).

Kokina and Kern's review drew from 18 studies, totalling 47 students, and found that the stories appeared to either work well or not at all. Overall, 51% of outcomes were classed as “highly effective” while 44% were classed as “ineffective”, with the effectiveness of an additional 4% classed as “questionable”.

In a more recent meta-analysis of 62 Social Story studies, Reynhout and Carter (2010, p.13) concluded their paper stating that 'while there was considerable variation, on average, Social Stories appear to have only a small clinical effect on behaviour and practitioners should factor this consideration into decisions about appropriate interventions.’

The authors continued to say that ‘Social Stories may be attractive to practitioners because they are easy to implement and require very limited resources. Nevertheless, given the limited potential for improvements, in many cases time may be better invested in more intensive interventions that are likely to yield more substantial gains.’
Comprehension Level and Effectiveness

In Kokina and Kern’s (2010) meta-analysis, they found improved outcomes when children’s comprehension levels were checked to ensure they would understand the Social Stories. This suggests that if a child has difficulty reading or understanding spoken language, there is little point using a written story as a method of explaining social situations.

This may be one possible cause for such variance in the effectiveness of social story interventions (Chan & O’Reilly, 2008) and highlights the importance of taking each child’s reading and comprehension levels into account when creating stories (Kokina & Kern, 2010).

As an example, Quirmbach, Lincoln, Feinberg-Gizzo, Ingersoll and Andrews (2009) investigated the effectiveness of social stories on improving game play (board games) in 45 children aged 7-14 with an Autism Spectrum Disorder (ASD).

They found improvements were only evident in children that were within or above the borderline range of the Verbal Comprehension Index (VCI) scores from the Wechsler Intelligence Scale for Children-Third Edition (WISC-III). In other words, stories used with children who had reasonable verbal comprehension levels were more successful.

Difficulty Identifying Effectiveness

As can be seen in our social story case study, Social Stories can be paired with “supplementary tactics”. Although these tactics may be beneficial, they have made it difficult for researchers to clarify whether Social Stories are effective when used alone (Kokina & Kern, 2010).

For example, there is already a large body of evidence showing that imitation, prompting, priming and positive reinforcement are effective methods of teaching children with ASD (Cooper, Heron & Heward, 2007; Miltenberger, 2008). These tactics are often combined with a Social Story intervention and so it is difficult to identify if the story alone is working or whether it is the combination of tactics (Kokina & Kern, 2010).

This limitation is highlighted by reviewing authors who conclude that social stories can have positive outcomes but that much more research is needed to identify their effectiveness in controlled studies (Reynhout & Carter, 2009, 2010; Sansosti, Powell-Smith, & Kincaid, 2006).
Continued Use

Discussed by both Crozier and Tincani (2007) and Santosti, Powell-Smith and Kincaid (2004), research suggests that it may be important to continue to provide access to social stories for children with Autism Spectrum Disorders regardless of whether they have understood (mastered) them already.

For example, in Crozier and Tincani’s (2007) study, two of the three boys with whom they implemented social stories with, returned to pre-treatment levels when the social stories were no longer used. Even though these two children understood the social story, once the stories were no longer read to them their behaviours returned to the same low levels as before they were introduced to the stories.

Meta-Analysis Findings

Kokina and Kern's (2010) meta-analysis presented a large number of findings so we have summarised their main findings below to make them easier to read:

- Social Stories are primarily being used to either reduce inappropriate behaviours or to improve social skills.
- Stories used to reduce inappropriate behaviours were more successful than those for improving social skills.
- Stories used to describe single behaviours were more effective than those describing complex behaviours.
- Pre-requisite skills need to be identified before planning a social story intervention. A child may perfectly understand social situations (e.g. be able to answer questions about a social situation) but lack the actual skills to apply their knowledge.
- Stories used in general education settings were more successful than those in self-contained settings (e.g. home).
- Children allowed to work as their own “intervention agent” were more successful, i.e. the child read their own stories instead of their parent, teacher or instructor reading them out loud.
- Stories were more effective when they were read just before the child would have to engage in the target situation. This was expected given that priming effects have previously proved effective.
- Stories that used additional visual illustrations were more effective than written text alone.
- Studies that first used a Functional Behaviour Assessment (FBA) to guide the creation of the social stories were substantially more successful than those that did not.
• Comprehension checks improved the effectiveness of the social stories.

• Somewhat higher effectiveness was found for children with lower cognitive abilities.

• Children with high levels of communication skills performed better with social stories than those with low levels. This may be expected given that social stories are a language-based intervention (Kokina & Kern, 2010).

**Conclusion**

Reviewing authors typically converge on the conclusion that although Social Stories are a promising intervention option, there is still a lack of evidence identifying the specific factors that lead to their success or failure (Reynhout & Carter, 2006, 2009; Kokina & Kern, 2010).

One major reason for this lack of evidence is that they are typically used with other interventions such as prompting, positive reinforcement or modelling, and so it is difficult to identify which specific intervention element was effective.

Reviews have found the Social Stories that do not meet the guidelines and criteria put forward by Gray (2000; as cited in Reynhout & Carter, 2009) are typically more effective than those that do. This is highlighted by Reynhout and Carter (2009) who state that Gray’s ‘prescriptive guidelines for Social Story construction do not appear to have any empirical or theoretical foundation’ and hence raise ‘questions about their veracity’ (p. 249).

Reynhout and Carter (2010, p. 12) state that ‘on the balance of evidence, the present analysis confirms the findings of earlier meta-analyses that Social Stories are of questionable or mild efficacy’.

Additionally, in an earlier review, Reynhout and Carter (2009, p.250) conclude that ‘the need for further research is paramount in order to ensure evidence-based practice in the use of Social Stories by practitioners working with children with autism’.


**A Social Stories intervention package for students with autism in inclusive classroom settings.**

*Chan JM, O'Reilly MF.*
Abstract

A Social Stories intervention package was used to teach 2 students with autism to read Social Stories, answer comprehension questions, and engage in role plays. Appropriate social behaviors increased and inappropriate behaviors decreased for both participants, and the effects were maintained for up to 10 months. This intervention package appears to be useful in inclusive classroom environments and does not require intensive supervision of the child's behavior.


Social Story interventions for students with autism spectrum disorders: a meta-analysis.

Kokina A, Kern L.

Abstract

A meta-analysis of single-subject research was conducted, examining the use of Social Stories and the role of a comprehensive set of moderator variables (intervention and participant characteristics) on intervention outcomes. While Social Stories had low to questionable overall effectiveness, they were more effective when addressing inappropriate behaviors than when teaching social skills. Social Stories also seemed to be associated with improved outcomes when used in general education settings and with target children as their own intervention agents. The role of other variables of interest, such as participants' age, diagnosis, and skill development, the format of Social Stories, the length of the intervention, and the use of assessment (e.g., comprehension checks) also was explored.

Send to:
Social Stories™ to improve social skills in children with autism spectrum disorder: a systematic review.

Karkhaneh M, Clark B, Ospina MB, Seida JC, Smith V, Hartling L.

Source

Department of Pediatrics, University of Alberta, Edmonton, Canada.

Abstract

Over the past 20 years a variety of treatments have been developed to remediate deficits associated with autism. Since the early 1990s, Social Stories™ have been suggested to positively affect the social development of children with autism spectrum disorder (ASD). Despite much research, there remains uncertainty regarding the effectiveness of this modality. We conducted a systematic review of the literature using pre-defined, rigorous methods. Studies were considered eligible if they were controlled trials evaluating Social Stories™ among persons with ASD. Two reviewers independently screened articles for inclusion, applied eligibility criteria, extracted data, and assessed methodological quality. A qualitative analysis was conducted on six eligible controlled trials. Five of the six trials showed statistically significant benefits for a variety of outcomes related to social interaction. This review underscores the need for further rigorous research and highlights some outstanding questions regarding maintenance and generalization of the benefits of Social Stories™.