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**The Effectiveness of Social StoriesTM on children  
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# **The Effectiveness of Social Stories<sup>TM</sup> on children with Autism Spectrum Disorders**

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## **Περίληψη (Abstract)**

Over the last two decades, a variety of different interventions have been suggested for children with Autism Spectrum Disorders (ASD). Social Stories are brief individualized stories which were introduced by Carol Gray in 1991. Originally were designed for children with Autism Spectrum Disorders (ASD). Gray described ten guidelines - defining criteria for Social Stories<sup>TM</sup>. They are based on the Theory of Mind, the theory of the Weak Central Coherence and the difficulty of questioning skills and social interaction of children with ASD.

Social Stories is a popular intervention for the enhancement of social skills of these children, which was characterized as an effective treatment by the National Autism Centre in 2009. However, social story's effectiveness and the research evidence to support this intervention is still under investigation.

The purpose of this literature review focuses on Social Stories and their effectiveness on children with ASD. Firstly, a reference on the history and the guidelines of Social Stories is provided. Next, the difficulties and deficits of ASD children in conjunction with the underpinning theories of Social Stories are illustrated and finally, an investigation is outlined behind the effectiveness of social stories and the fact that their popularity exceeds their evidence-base. It seems that the popularity of social stories exceeds, to a small degree, the evidence-base of this intervention. The reason why this happens is still under investigation. Last, a number of methodological weaknesses still remain apparent in research.

**Λέξεις-Κλειδιά (Keywords):** Social Stories; Autism Spectrum Disorders

effectiveness; evidence-base

## **1. Introduction**

Over the last two decades, a variety of different interventions have been suggested for children with Autism Spectrum Disorders (ASD) (Karkhaneh, Clark, Ospina, Seida, Smith and Hartling, 2010). Social Stories is a popular intervention for the enhancement of social skills of these children (Sansosti, Powell-Smith and Kincaid, 2004), which was characterized as an effective treatment by the National Autism Centre in 2009. However, social story's effectiveness and the research evidence to support this intervention is still under investigation (Sansosti et al., 2004).

The purpose of this assignment is to provide a written commentary on a presentation focusing on Social Stories and their effectiveness on children with ASD. Firstly, a reference on the history and the guidelines of Social Stories is provided. Next, the difficulties and deficits of ASD children in conjunction with the underpinning theories of Social Stories are illustrated and finally, an investigation is outlined behind the effectiveness of social stories and the fact that their popularity exceeds their evidence-base.

## **2. Social Stories<sup>TM</sup>**

Social Stories were introduced by Carol Gray in 1991. Originally, they were designed for children with ASD, describing a social situation and helping them understand why these situations occur and what happens in general (More, 2011), but experience showed that they may be helpful for adults with ASD or children with other difficulties (Gray, 2004). According to Gray (2004:2), “A Social Story<sup>TM</sup> describes a situation, skill, or concept in terms of relevant social cues, perspectives, and common responses in a specifically defined style and format”. Guidelines of Social Stories were set in 1993, which due to their popularity and extensive use, were later formulated in ten defining criteria (Gray, 2004) (see Appendix A).

They are brief individualized stories, written by professionals, such as teachers, speech and language therapists and/or parents, targeting specific skills and behaviours of a child identified by his/her responses and experiences within social contexts. They have a specific topic with introduction, body and conclusion (Ali and Frederickson, 2006; Gray, 2004). When compared to other interventions, they seem to be less-expensive (cost-effective) and need less time (time-effective) for preparation and implementation (Scattone, Wilczynski, Edwards and Rabian, 2002). Moreover, this intervention is suggested to be an effective tool for the facilitation of ASD students' inclusion in the mainstream schools (Sansosti et al., 2004), by enhancing their social skills or by helping them establish strategies to overcome unpleasant social situations in school (Adams, Gouvousis, VanLue and Waldron, 2004).

## **3. Guidelines for Social Stories<sup>TM</sup>**

In the original format (Gray and Garand, 1993), Social Stories contained three types of sentences: **descriptive** (statements of facts about people's actions and situations);

**directive** (that provide the child with expected responses in a specific situation, which often begin with 'I'); **perspective** (that describe others' feelings, thoughts, reactions and motivation). Over time, three more types of sentences were suggested (Gray, 2004) that of **affirmative** (that express values or opinions shared in a culture, complementing the meaning of surrounding sentences), **cooperative** (that explain what others can do to assist the child) and **control sentences** (that are developed by the child himself to apply strategies and information to a situation). Gray (2004) categorized the sentences into those which *describe* (descriptive, perspective, cooperative and affirmative sentences) and those which *direct* (directive and control sentences). The number of descriptive and directive sentences depends on the needs of each child. However, Gray (2004) proposed a formula, suggesting a ratio of two or more descriptive sentences for every directive sentence.

Though, at the beginning Gray and Garand (1993) did not favor the use of illustrations in social stories, later they suggested that illustrations could be used but with caution (Gray, 2004). They stressed the fact that pictures should not distract the child, should only represent the information that they accompany and what is more, they should be realistic and as close as possible to the child's culture (More, 2011). Moreover, the pictures should not in any way reduce the child's ability to generalize the information beyond the context being depicted (Norris and Dattilo, 1999).

As following the guidelines has shown to be a useful tool in writing an effective social story, creativity is also an important component in the composition of personalized social stories (Gray and Garand, 1993). After the composition, the implementation of the social story follows, which is introduced according to the needs of the child. Approaches that have been used in the literature are: the reading of the social story by the child or an adult, its presentation through a computer presentation format, the videotaping of social stories or audio recording social stories (Sansosti et al., 2004). Finally after the implementation, the comprehension of the child is usually checked by the use of questions, checklists or even role play, which according to Norris and Dattilo (1999) is an essential part of the social story's process.

#### **4. Autism Spectrum Disorders: The rationale for Social Stories<sup>TM</sup>**

Across the Autism Spectrum, individuals may be different from each other, but are all characterized by a 'Triad of Impairments': impairments of social communication, impairments of social interaction and impairments of imagination (Worth, 2005). In social communication, a variation in the development of language is observed with a difficulty in understanding non-verbal communication (Gray and Garand, 1993; Worth, 2005). In social interaction, a difficulty in keeping eye-contact, comprehending one's facial expressions and moreover, fitting-in are all addressed (NIASA, 2003). Last, in social imagination we observe repetitive and ritualistic types of behaviours, difficulty in changes, a preference for routine and what is more, high rates of anxiety (Reid and Lannen, 2012).

The rationale behind social stories is based on the 'deficit' of social cognition in children with ASD. Their impairments in social skills and interaction are suggested to spring from their inability to 'read' social cues and situations and respond

appropriately to them (Gray and Garand, 1993). The ability of someone to be in the position of someone else and understand his feelings, thoughts and beliefs, has been defined as the Theory of Mind (Colle, Baron-Cohen and Hill, 2007). Baron-Cohen, Leslie and Frith (1985) highlighted that this ability to predict what others will do and believe, is an important component of social skills. Based on this, children with ASD do not have a “theory of mind” in terms of being able to take the perspective of others and represent their mental states (Baron-Cohen et al., 1985; Perner, Frith, Leslie and Leekam, 1989). Based on this, social stories try to provide children with ASD with an accurate understanding of what a social situation is by targeting specific behaviours (Gray and Garand, 1993).

Moreover, Beh-Pajoooh, Ahmadi, Shokoohi-Yekta and Agary (2011) suggested that some elements of the theory of the Weak Central Coherence may be found behind social stories. According to this theory, children with ASD do not focus on the most significant item and have a difficulty in extracting ideas and information in order to be able to process them into a whole meaning (Happe, 1996).

In addition to these theories, Gray and Garand (1993) and Hurtig, Ensrud and Tomblin (1982) mentioned the difficulty these children have with questioning skills and how they cannot understand the process of using questions to extract information from others. For this reason, social stories provide information, answering all the ‘wh’ questions - the people that are involved (who), the time and place-setting (when and where), actions, behaviours and activities (what) and the reasons behind the actions (why) – and hence, assisting in the analysis of social behaviour (Gray, 2004; Sansosti et al., 2004).

Last, given the deficits of ASD children in social interaction, the instructions of a social story are in written format, so as to be less invasive, by limiting the confusing verbal and social instructional interactions (Scattone et al., 2002). Moreover, as Gray (2004) highlighted, the format of the social story (length, vocabulary and structure), should be tailored to the abilities of the child and as a result to some characteristics of the autism spectrum. Specifically for the structure, the elements of rhythm, repetition and rhyme are organization elements that most social stories include as they match the characteristics of ASD students who want to follow a routine. Concerning the vocabulary, the sentences should be accurate, as children with ASD usually interpret the words literally (Gray and Garand, 1993).

## **5. The Effectiveness of Social Stories<sup>TM</sup>**

### **5.1. What evidence is there to support Social Stories<sup>TM</sup>?**

Results from recent studies are promising and show moderate to positive outcomes<sup>1</sup>. The studies have targeted specific behaviours of each child with ASD and most of them seem to focus on the decrease of challenging or disruptive behaviours. Ozdemir(2008), Kuoch and Mirenda(2003) and Scattone et al.(2002), -with multiple-

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<sup>1</sup> Studies that have been conducted from 2002-2013 on children with ASD, which followed the guidelines of Carol Gray (2004) and were available to the author of this project, are included in this review.

baseline designs across three participants (3-15 years old) on each study- found that social stories were effective in substantially reducing the challenging behaviours of all participants involved in these studies. The only variation in the level of improvement among the three participants of the study was identified in Scattone's et al. (2002) research.

Some of the studies found moderate results, specifically, in Beh-Pajooh's et al. (2011) and Adams' et al. (2004) study. These moderate effects of the social story intervention strategy on the frustrated behaviours were observed in participants aged between seven and nine. In the first study, the reduction was successful in two out of the three participants, whereas in the second study a reduction in the challenging behaviours was observed after the second trial of the intervention. However, in a study conducted by Chan, O'Reilly, Lang, Boutot, White, Pierce and Baker (2011), even the moderate results that were observed, from the peer comparison data, on the performance of the three-eight year old participants with mild and severe autism, had shown an improvement, to such a degree bringing their behaviours close to that of their peers.

Other studies focused on the increase of social interaction and language skills from which moderate to positive results were observed as well. According to Scattone, Tingstrom and Wilczynski's (2006) and Sansosti and Powell-Smith's (2006) studies, two out of the three participants in each study aged from 8-13 showed an increase in appropriate social interactions with peers (reciprocal conversation, playing with them), whereas the third child did not show significant improvement. Especially, in the second study, the levels of social engagement were close to those of their peers, but the results showed a short-term maintenance. On the other hand, Adams et al. (2004) and Reichow and Sabornie (2009) observed a boost in the communication and language skills of a 7 and 11 year-old participant respectively. Especially in the second study, they witnessed enhanced verbal greeting initiations which, however, did not last.

Finally, there are studies with positive outcomes in decreasing challenging behaviours (Reynhout and Carter, 2007; Chan and O'Reilly, 2008; Lorimer, Simpson, Myles and Ganz, 2002) or in increasing social engagement of children (Delano and Snell, 2006; Barry and Burlew, 2004; Crozier and Tincani, 2007). However, certain factors in the studies question the effectiveness of the social stories as intervention. It seems that in addition to this intervention, other strategies were used, such as verbal prompts (Reynhout and Carter, 2007), task analysis and priming (Barry and Burlew, 2004) or role playing (Chan and O'Reilly, 2008). This detail blurs the extent to which social story intervention is effective on each own or in combination with other strategies. Moreover, in Delano and Snell's (2006) and Lorimer's et al. (2002) study, other interventions namely: speech and language therapy and behavioural and occupational therapy, were used simultaneously which are believed to have affected the experimental control of the studies and the results too.

As mentioned above and as Ali and Frederickson (2006) have highlighted, social stories show promising outcomes and seem to display mostly a positive effect on changing the behaviour of children with autism. Even though the theories behind the autism spectrum are still under research, the theoretical background of social stories seems to be strong. Moreover, social stories are perceived as an effective and acceptable intervention by teachers and it has been claimed that the teachers choose

this intervention due to its easy construction and implementation (Reynhout and Carter, 2009). In addition, Smith (2001) highlighted that social stories seem to be beneficial to helping teachers clarify the specific skills and behaviours that each child with ASD demonstrates, by identifying these targeted behaviours that need to be changed or enhanced.

However, reviews conducted on this topic, highlight that the research evidence to support this intervention as well as the extent to which it is effective on ASD children, need further investigation (Styles, 2011; Ali and Frederickson, 2006; Reynhout and Carter, 2006). Despite the popularity of social stories, the methodological issues in these studies such as the additional strategies mentioned above, the study's design, the participants' characteristics, the generalization and maintenance, all compromise the evidence-base of this intervention (Reynhout and Carter, 2006).

## **5.2. Limitations of Social Stories™**

### **5.2.1. Study design**

All the above mentioned studies used single-case experimental designs for their evaluation of the social stories intervention strategy. Most had three participants with ASD, whereas others one or two. Moreover, although most studies used multiple-baseline designs, there were some with simpler designs such as ABAB (Adams et al., 2004; Crozier and Tincani, 2007; Lorimer et al., 2002) or withdrawal designs (Reichow and Sabornie, 2009), which raised questions of whether these designs were the most appropriate to demonstrate the relationship between the intervention and the behaviours.

The fact that there are no randomized control studies, or studies with larger samples compromises the research evidence of social stories. However, the nature of social stories, as an individualized intervention, suggests that the single-case design is the most appropriate approach for the evaluation of social stories (Styles, 2011). In addition, this approach is commonly used in intervention studies and in studies with ASD children due to the heterogeneity of the sample of participants (Ali and Frederickson, 2006). The basic criticism here is not the choice of design but rather that some studies lack internal validity or treatment integrity (Ali and Frederickson, 2006). This lack of experimental control, which has limited the research evidence of the intervention, has not facilitated a clear connection between the changes in behaviour and that of the social story intervention (Reynhout and Carter, 2007). The reliability, on the other hand, was assessed in all the studies included in this project.

### **5.2.2. Generalization and maintenance**

Although it is desirable to secure generalization of the positive effects of an intervention, social stories are individualized stories which focus on a specific targeted behaviour. So, due to the nature of social stories, any generalization is beneficial, but not a prerequisite. Two studies namely: Adams et al. (2004) and

Delano and Snell (2006), observed a generalization of the positive outcomes in the general classroom settings.

On the other hand, the maintenance of the positive effects of social stories is more important in terms of understanding the extent to which these are sustained after the implementation of the intervention (Styles, 2011). Karkhaneh et al. (2011) highlighted that in most studies the positive effects showed a short-term maintenance rather than a long-term one. The maintenance data varied across participants. Five studies (Beh-Pajoooh et al., 2011; Reichow and Sabornie, 2009; Ozdemir, 2008; Crozier and Tincani, 2007; Sansosti and Powell-Smith, 2006) found that the positive effects did not sustain in the follow-up phase, whereas four studies (Chan and O'Reilly, 2008; Reynhout and Carter, 2007; Delano and Snell, 2006; Kuoch and Mirenda, 2003) observed maintenance of the positive outcomes. The rest of the studies did not assess the maintenance data.

### **5.2.3. Participants' characteristics**

The particular characteristics and the level of communication and cognitive skills of the ASD participants were not clearly provided in all studies (Reynhout and Carter, 2006). Moreover, the authors of the studies that found moderate effects of social stories (Beh-Pajoooh et al., 2011; Crozier and Tincani, 2007; Scattone et al., 2006; Sansosti and Powell-Smith, 2006), indicated that it is possible that the particular characteristics of the children concerned may have had an impact on the results. Hence, the lower language and communication skills of some of the participants compared to others could possibly justify these outcomes. Gray and Garand (1993:2) supported that "social stories are most likely to benefit students functioning intellectually in the trainable mentally impaired range or higher who possess basic language skills". However, studies later conducted, found that social stories are effective in children with limited language skills (Barry and Burlew, 2004; Kuoch and Mirenda, 2003; Reynhout and Carter, 2007) or cognitive skills as well (Scattone et al., 2002). Especially in Scattone's et al. (2002) study, the student with the greatest improvement was the one with the lowest cognitive score and functional communication skills. It seems that the extent to which the participants' characteristics are associated with the effectiveness of social stories is being questioned and needs further research.

## **6. Conclusion**

The empirical studies about the effectiveness of social stories show promising outcomes about ASD students (Sansosti and Powell-Smith, 2006). It seems that the popularity of social stories exceeds, to a small degree, the evidence-base of this intervention. The reason why this happens is still under investigation. One underlying reason behind such concern could be the strong theoretical background and the nature of social stories as an intervention that keep them popular despite their shortcomings for an evidence-based practice. Furthermore, their low cost and easy preparation and implementation may have played a determining factor in why teachers perceive social stories as an effective and acceptable intervention.

However, a number of methodological weaknesses still remain apparent in research. For the enhancement of the research evidence of this intervention more investigation, using as well the qualitative research paradigm, is essential in order to come to more generalized conclusions (Styles, 2011). Future research should further investigate all the methodological issues mentioned above. Finally, future research should identify the extent to which additional strategies, when being used in conjunction with social stories, have an impact on the effectiveness of social stories.

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## **Appendix A**

### **The Ten Defining Criteria of a Social Story™**

(Adapted from Gray, 2004 p.21)

1. The story meaningfully shares information with an overall patient and reassuring quality.
2. The story has a topic, an introduction, a main body and conclusion.
3. The story answers all the “wh” questions (where, when, why, who).
4. The story is written from a first person perspective.
5. The story uses positive language, omitting descriptions or references to challenging behaviours in favor of identifying positive responses.
6. There are sentences which describe (descriptive, perspective, affirmative and cooperative sentences) and sentences that direct (directive and control sentences).
7. There is a formula of two or more descriptive sentences for one directive sentence.
8. The story matches the interests and ability of the child and is literally accurate.
9. The illustrations are carefully selected.
10. The title follows the defining criteria as well.