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Teaching choice and play skills to children with autism using social stories

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Abstract

Social stories have become increasingly popular for teaching appropriate skills to children with autism, yet little empirical evidence is available that documents effects. In this study, a special education teacher used social stories in her classroom to teach two children with autism how to a) make activity choices from a picture menu, b) play appropriately with materials chosen, and c) play appropriately with peers in an ESE classroom. The classroom teacher and a teacher's aid measured student abilities in choice making and time spent playing appropriately during independent classroom playtime. The researchers found support for the use of social stories, as described here, to teach choice making and play skills for youngsters with similar needs.

Social Stories: The search for empirical evidence

A popular trend in special education is the use of social stories or scripts to teach appropriate social skills to children with autism (Gray, 1995; Schuler & Wolfberg, 2000). Social stories were developed originally to teach children with autism how to play games with the intent to increase their ability to interact socially with others (Gray, 1994). Social stories have been applied to many social situations to teach children with autism the cues and behaviors they need to know to be socially appropriate. Current literature on social stories describes the potential benefits but cautions that there is little empirical evidence demonstrating the effects of the strategy (Elder, 2002; Yarnall, 2000). In light of the many fleeting “treatments” for autism that have come and gone, it is important for those who work in the field to require empirical evidence for any strategy before accepting it as a beneficial tool.

Considering this caveat, there are good reasons to believe that social stories benefit children with autism. By deconstructing the component parts of a social story, it is evident that the strategy incorporates instructional tools that are established best practices in the field of special education and in treatment of autism specifically.

Social learning theory, a powerful and established model for social learning, contains four main premises. The first premise is that social learning takes place when social behaviors are modeled (Bandura, 1969). Modeling is most effective for an individual when the model is easy to identify with by having similar attributes or by having attributes that the individual admires and would like to emulate (Bandura, 1971). Social stories may help children with autism by providing a model of appropriate behavior (Feinberg, 2002; Rogers & Myles, 2001). Functioning as a behavioral model,

the social story depicts the targeted child or a character that the child may identify with and then describes that character's behaviors, thoughts, and feelings as they accomplish the behavioral goals outlined in the story. In the same way that children can learn social skills from reading children's literature (Cartledge & Kiarie, 2002), the social story provides a specifically catered behavioral model for children to follow.

A second premise of social learning theory is that social learning requires retention of the behavior that is modeled. Retention can be achieved through repetition of modeling and practice and by coding the information in several forms including words, labels, and images. Accordingly, social stories are taught using repetition with opportunities to practice or rehearse. Social stories also code the modeled behaviors in both words and images. Social stories incorporate pictures that illustrate the component skills in a way that the individual student may identify with (Gray, 1995). These illustrations can be catered to the individual student by using pictures of the student, a favorite character, or friend. Combining the visual cues with the verbal cues and directives in a social story likely helps children with autism to better understand the behavioral skills described in language (Grandin, 1995).

A third premise of social learning theory is the need for accurate corrective feedback for social learning to take place (Bandura, 1971). Social stories are taught with opportunities for practice and corrective feedback to clarify the individual's attempts at imitating behaviors.

The fourth premise of social learning theory is the need for motivation (Bandura 1971). For a behavior to be learned and applied, the environment must provide reinforcement for exhibiting the learned behaviors. Behaviors learned through social

stories may be reinforced in any number of ways. Commonly, the teacher in the situation provides verbal praise, along with the natural consequences of performing the behavior such as social attention from peers, participating in a desired activity, or successfully and appropriately avoiding an undesirable activity.

Beyond social learning theory, social stories also incorporate the use of task analyses to breakdown behavioral goals into discrete component skills. The task analysis is a central tool used in special education that enables the continuous assessment of component skills which, when chained together accomplish a specific social skill (). Similar to the task analysis, social stories are written in language that breaks down the larger behavioral goal into component skills. Language used in social stories include (a) descriptions of environmental, social, and/or behavioral cues that a student can learn to identify and discriminate from other stimuli, (b) directive statements that instruct the student how to respond to the cues described, and sometimes (c) statements that describe other people's thoughts, feelings, and behaviors (Gray, 1995).

After dissecting the social story, it is apparent that the strategy was developed with the key elements of social learning theory. Contrary to the indications in current literature, social stories are documented and supported by empirical research. That research can be found by looking at the use of stories in teaching social skills. The social story is not an isolated tool, but is part of a larger family of strategies that use stories to teach appropriate behavior following social learning theory.

Stories have been used to teach children about specific social skills (Cartledge & Kleefeld, 1994), cultural diversity (Cartledge, 1996), moral values (Kirpatrick, Wolfe, &

Wolfe, 1994), prejudice, human rights and the holocaust (Petovello, Taranko, & Nichols, 1994).

Method

Participants

Holly. Holly was a seven-year-old first grade student placed in a self-contained Exceptional Student Education (ESE) class in a Florida school district. At the initiation of the study, Holly had been in the ESE class for two months. An independent physician had diagnosed Holly with Autism Spectrum Disorder. Holly lived in a two parent, upper-middle class household. She was able to repeat any language that was spoken to her. Holly would follow most verbal requests but would not initiate speech herself. She could count to 100 and could recognize 100 sight words. Holly was able to complete visual matching tasks and responded to visual cues. She would put her fingers in her ears and say, “No!” when she did not want to do a task.

Aaron. Aaron was an eight-year-old student placed in the same self-contained ESE class for the same period of time at his parent’s request for a less restrictive environment. Previously, Aaron had been in a self-contained autism only special day classroom. An independent physician had diagnosed Aaron with Autism Spectrum Disorder. Aaron also lived in a two parent, upper-middle class household. Aaron was documented as speaking only by repeating words or phrases initially spoken to him. Aaron could not recognize any sight words but would respond to picture prompts. Aaron was able to complete visual matching tasks. Aaron demonstrated these skills inconsistently. Aaron exhibited several self-stimulating behaviors including spitting, vocalizations, and running in circles.

Setting

The study took place in the first grade ESE classroom setting. Nine play centers were established in the classroom at the beginning of the school year, 2-months prior to the initiation of the study. The intervention and all observations took place at these play centers. The centers were used 3 days a week for 30-minutes. Activities available at the centers were a Lego table with Lego toys, tape recorded stories and a head set for listening, a writing or drawing table equipped with paper and utensils for drawing or writing, a play house setting with a kitchen, table, and phone, an animal station with toy animals, a collection of puzzles, a small library of books w/ props to help tell or retell the story, a collection of toy cars, or an area where toy blocks could be used.

Materials

Social stories were created using paper, pens, computer and photographs or drawings. A communication option that was already used in the classroom was a choice board that used pictures of the children and the centers. After placing the pictures to indicate a request, the student would be prompted verbally by a teacher to use the words that matched the pictures.

Design

This study used an ABCA multiple baseline across two participants design to assess the effects of teaching through social stories on student's ability to independently make choices and play appropriately during free play time in the ESE classroom. The study consisted of a baseline A phase, a teacher led instructional B phase focusing on choice making and appropriate play with materials, A teacher led instructional C phase focusing on play with peers, and a return to baseline A phase.

Dependent Variables

Choice making. Choice making was defined using a scale rating the amount of prompting necessary prior to a choice being made. Five levels of prompting were identified. A rating of 1 was given for choice making if the participant did not respond to all prompting and/or engaged in self-stimulatory behaviors rather than making a choice. A rating of 2 was given if the student would not make a choice but would follow teacher led physical prompts guiding them to a given center. A rating of 3 was given if the student would make a choice after a teacher led gesture prompt of pointing to the pictures on the choice board and verbally prompting the participant to make a choice. The teacher gave a rating of 4 if the student made a choice using the choice board with a verbal prompt made directly to that student. A rating of 5 was given if the student independently made a choice and went to the chosen center without any prompting beyond the teacher led verbal prompt given to the entire class to begin center time.

Appropriate play. Appropriate play was defined specifically for each center available in the classroom. Broadly, appropriate play was defined as interacting with the materials and/or peers at a given center in ways that other children in a general education classroom would typically exhibit. When applied to a given center, the definition was specified to that center. For instance, appropriate play at the lego center was defined as manipulating lego pieces to create larger objects, using the lego pieces or larger constructions in imaginary play, or sorting the legos by color, size, or shape.

Appropriate play was measured using duration during the 30 minutes of free play offered to the class. The timing of duration ended if (a) attention, defined as looking at or

touching the materials, stopped for longer than 5 seconds, (b) the child left the learning center, or (c) the child initiated self-stimulatory behaviors.

Procedures

Phase A. During phase A of the study, the classroom teacher and teachers aide observed the participants and recorded the participants level of prompting needed to make a choice and their duration of appropriate play. Participants were in the ESE classroom environment with peers. In the classroom setting, the teacher would announce to the class that it was time for learning centers. Then the teacher provided a specific verbal prompt to the class by saying, "Go to the choice board and choose a center". Multiple children could choose a specific center so that choices were not limited.

If a participant did not follow the verbal prompt within 5-7 seconds, a verbal prompt was given specifically to that participant. If the participant did not follow the prompt within 5-7 seconds, a gesture prompt was used to prompt choice. If the participant did not follow the gesture prompt within 5-7 seconds, the teacher choose a center she thought the child would enjoy and then asked them to go there. If the student did not follow the verbal prompt to go to the center of the teacher's choice, the student was physically prompted to a center.

Once participants were at a center, the teacher and aide observed and recorded the duration of appropriate play exhibited. No intervention was used for inappropriate behaviors while at a center. The teacher would have intervened had the participants engaged in behaviors that were dangerous to themselves or others, however both participants either played appropriately or engaged in self-stimulatory behaviors that were not dangerous.

Phase B. Two social stories were introduced in the B phase that focused on choice making and appropriate play with materials at each learning center. Each participant was taught using each social story through repetition and practice with corrective feedback. First, the stories were read to the individual participant daily and on occasion in a small group or whole classroom environment. Then, the classroom teacher created opportunities for each participant to practice the specific behaviors described in each story during the learning center time. All instruction was consistent with or used the actual words and pictures in the social story. In this teacher led phase, the teacher prompted participants to practice what they had just heard in the social story. The same prompting hierarchy described in the A phase was used to initiate the children's behavioral responses. Then, corrective feedback was used as mistakes were made. Verbal praise was provided if the children accomplished the behavioral skills. The teacher and an assistant recorded the level of prompting necessary for each participant to choose a center as well as the duration of appropriate play once at that center.

Phase C. A third social story was introduced in the C phase that described how to play with a peer and included sharing materials, taking turns, and talking to a peer. The teacher assistant read the social story with each participant and as a class on a daily basis. Then, the participants were provided opportunities to practice with corrective feedback during the learning center time. The teacher and teacher assistant recorded the level of prompting needed to make a choice and the duration of appropriate play exhibited by each participant.

Results

Figure 1 displays the performance of each participant in choice making by documenting the level of prompting needed to make a choice. Figure 2 displays the performance of each participant on duration of appropriate play throughout each phase of the study. During the first A phase, neither participant was able to make independent choices. With a physical prompt, Holly would go to a center chosen by the teacher but would not play in it. She would then run to her seat and put her fingers in her ears. She was easily led to another center but would not stay. Aaron would not go to a center at all. He engaged in self-stimulating behaviors such as making loud chirping sounds, running in circles, and/or rattling papers.

In phase B Holly was able to consistently make choices with only the verbal prompt. In this phase she predominately chose Books/Stories or Writing ? % of the time? Aaron also increased his independence by requiring less intrusive prompts to make a choice of learning center. Aaron also began to increase the time he spent playing appropriately at the learning center he chose.

In the C phase, Holly began to wait to choose a center until another student, Rebecca, chose her center. Holly would wait to see what choice Rebecca made and would then make the same choice ? % of the time?. In the C phase, Holly could also choose to play with a student from another class named Kymberli. Throughout the C phase, Holly demonstrated her ability to make independent choices. The centers she chose in the C phase were more interactive like the housekeeping or the story telling center. Aaron continued to increased his independence by requiring less intrusive prompts to make a choice. He also increased the time spent playing appropriately at a center as shown in

figure 2. Anecdotally, Aaron was able to choose a puzzle, put the pieces on his desk, work the puzzle, and put the puzzle in the rack. He did this independently, taking five minutes, on two occasions. Aaron was also able to turn the pages of a book at the reading center but required an adult to read the story to him. He increased his duration of appropriate play from a mean of one minute to over eight minutes during the course of the study (Figure 2).

In the second A phase, Holly continued to demonstrate her ability to make independent choices and continued to increase her time spent playing appropriately at classroom centers. After the study ended, Holly was placed in a general education classroom with a tutor to help her. Anecdotal evidence from her new teacher was collected. According to Holly's general education teacher, Holly immediately chose 2 girls in the class as friends. While not initiating speech with them, she engaged in appropriate interaction and play. Holly played with her new friends on the playground and in classroom centers. Aaron continued to work in the ESE classroom and participated in the classroom learning centers along side his peers in the class.

Inter-observer agreement

Inter-observer agreement was 100% for both students on the scale for choice making and 97% for the duration of appropriate play.

Discussion

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Table 1

Mean and standard deviation of duration of play for each child by phase.

	Holly		Aaron	
A	1.00	0.00	1.00	0.00
B	2.67	0.58	4.00	1.73
C	8.00	1.00	8.14	2.31
A	21.63	3.34	6.80	1.79

Figure Captions

Figure 1. Levels of assistance needed for Holly to make a choice of center.

Figure 2. Minutes spent in appropriate play in a center for Holly.

Figure 3. Levels of assistance needed for Aaron to make a choice of center.

Figure 4. Minutes spent in appropriate play in a center for Aaron.

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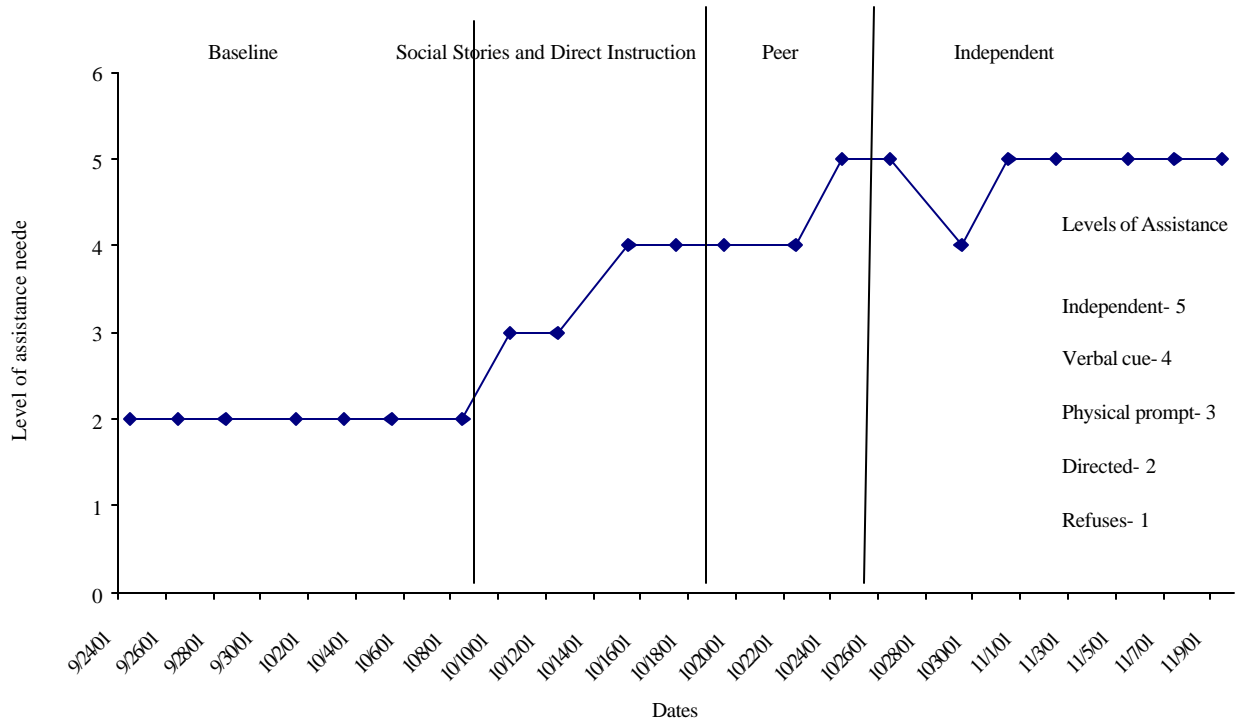


Figure 2.

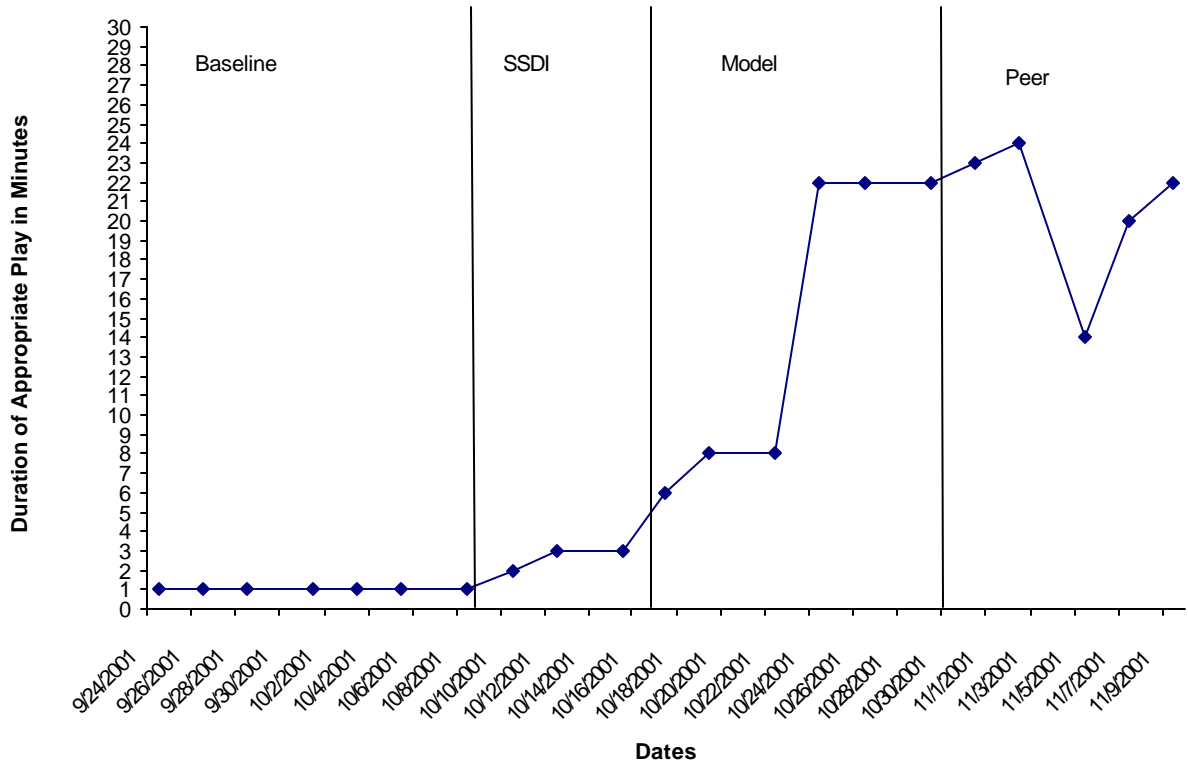


Figure 3.

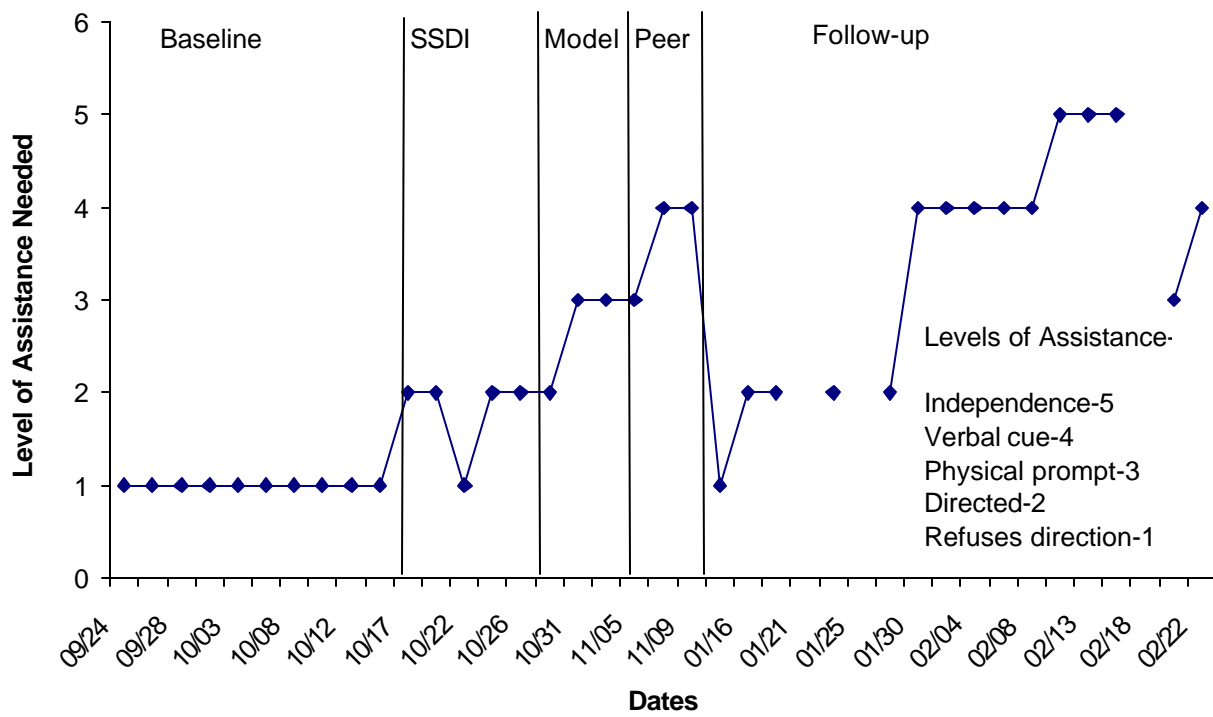


Figure 4

