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Project to Improve Greeting Skills of an Adult with Disabilities Using Social Stories

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Abstract

Mike is a 22 year-old adult with CHARGE Syndrome and autism spectrum conditions. Mike often struggles to greet and interact appropriately when people come to visit him and his family at his house. The purpose of this project was to help Mike improve his greeting and overall social skills. One event that seems to provoke problem behavior in people with autism is sudden unannounced schedule changes. Advanced warning of schedule changes have been used to prepare people with disabilities similar to Mike’s to teach social and behavioral skills. Social stories have also been used as an intervention to give individuals with disabilities scripted information that they can follow in social situations. This study used an advanced warning strategy during intervention 1. This strategy did not prove to be successful. Therefore we implemented a second strategy consisting of an advanced warning as well as a social story intervention. Social stories were created involving Mike and each of his seven nieces and nephews. Baseline data was collected before the interventions were implemented on whether Mike greeted his nieces and nephews in a friendly manner, on Mike’s attitude, outbursts, and on whether he engaged each child in an activity during the visit. This same data was collected during each phase of the study. Intervention one, advanced warning phase proved to be unsuccessful. The second, social story intervention, including an advanced warning plus social story, required Mike to read the social story aloud to an adult before the visiting children arrived. This intervention resulted in an increase in friendly greetings, positive attitude, and involvement in activities with the visiting children. Engaged in activities with the nieces and nephews, and outbursts showed little change. Mikes overall attitude during the visits made some improvement.
**Introduction**

The C.H.A.R.G.E. in CHARGE syndrome, also known as CHARGE association syndrome, is an acronym used to describe anomalies present in a child at birth. This is a lesser-known chromosomal disorder that is very rare. It is estimated to effect 1 in 15-20,000 babies born in the U.S. (Smith, Smith & Blake, 2010).

The acronym represents the following most common features of CHARGE (Smith et al, 2010).

- Coloboma of the eye is a cleft or failure of closure during development of the eyeball. It can affect the lens, choroids, optic disc, retina and/or iris, and may cause blindness, restricted vision, acuity, and many other related problems of a child’s visual field.
- Heart defects are common and vary in type and severity. Treatment includes surgery and ongoing medical management.
- Choanal atresia is a blockage or narrowing of the nasal passages by bone or cartilage. A complete blockage of both passages is a neonatal emergency requiring urgent surgery and periodic follow-up. This problem may result in difficulty with breathing and eating.
- Retarded growth and development occurs in most children, although the extent of either type of delay varies.
- Genital hypoplasia is typically observed in males (e.g., small penis, undescended testes). It is common for both males and females to receive hormone therapy to help them achieve puberty.
- Ear anomalies/deafness are frequent in CHARGE syndrome. Children often have both unusually shaped external ears and some degree of hearing loss (due to abnormalities of internal structures).

Children may exhibit various combinations of the features listed above. The features can also vary in degree of severity with each child. These difficulties can lead to further complications across various developmental domains, including motor development, language and communication, and cognition or learning (Smith et al, 2010). As a part of a multidisciplinary survey of three behavioral phenotype conditions, CHARGE syndrome being one, autism spectrum conditions were diagnosed in 68% of those diagnosed with CHARGE syndrome (Johansson, Gilberg, Rastam, 2010).
People with CHARGE syndrome and autism spectrum conditions may also struggle socially. Due to lack of communication skills as well as possible cognitive disabilities, these individuals often lack the skills necessary to interact appropriately with peers.

A review article by Smith et al (2010) of the following studies revealed common behaviors in this population as well as possible intervention strategies. Denner (2005) found patterns of maladaptive behaviors in regard to routines and routine changes. Denner (2005) also found that people with CHARGE syndrome may exhibit behaviors similar to those in people with autism spectrum disorder. Hartshorne, Nicholas, Grialou, & Russ (2007) identified difficulty transitioning and using flexible problem solving skills. Regarding teaching appropriate social skills to this population, one article by Lewis and Lowther (2001) suggested group social activities aimed at gaining a better understanding of self and peers. Lewis and Lowther (2001) also suggested teaching appropriate social initiations. Smith et al (2010) suggest increasing predictability in routine at an individual level.

One intervention that has been used to teach appropriate social skills and transitions behaviors to people with developmental disabilities and especially those with autism spectrum disorder, is social stories.

Carol Gray, the developer of social stories, describes them as individualized short stories that may increase appropriate social interactions of children with Autism Spectrum Disorder by teaching them relevant components of a given social situation (Scattone, Tingstrom, Wileczynski, 2006). Social stories help describe cues in social situations and offer suggestions on appropriate responses. The goal of a social story is to
share accurate social information in a patient, reassuring manner that is easily understood by its audience (Gray, 1991). In an article by Scattone et al, (2006) which referenced Gray (1991), social stories were used to decrease fear, aggression, obsession, introduce a change in routine, teach academic skills, and teach appropriate social behavior (Scattone et al, 2006). Gray (1991) suggests that most social stories adhere to a specific format and guideline (Scattone et al, 2006), (see appendix A). A majority of studies have researched the use of social stories with students with ASD. Some, however, have measured the effectiveness of social stories with people with developmental disorders.

One study, titled “Developing Social Skills in Children Who Have Disabilities Through the Use of Social Stories and Visual Supports,” conducted with pre-school students, used social stories to increase sharing, initiating interactions, as well as other socially appropriate behaviors (Fisher & Haufe, 2009). The researchers state that the students in their classroom are most inhibited by lack of social skills. These students have a range of disabilities including learning disabilities and autism. Most are at a typically developing academic level but their lack of social skills keeps them in a self-contained classroom. After implementing the use of social stories, Fisher and Haufe (2009) found that most students made gains in sharing and overall social skills while using the social stories. Fisher and Haufe (2009) noted that they continued the use of social stories after the study had ended because they found them to be a valuable tool.

Another study, entitled “Addressing Physical Inactivity among Developmentally Disabled Students through Visual Schedules and Social Stories,” also used social stories as an educational tool (Zibelman, Paschal, Hawley, Molgaard, & St. Romain, 2007). This study researched the use of social stories to increase physical activity of students
with developmental disabilities. The study involved 17 physical education teachers who were asked to fill out surveys before and after a seven-month study period. During that study period, the teachers implemented the use of social stories. Of the teachers who reported using social stories, 100% reported them as being “very effective” (Zibelman et al 2007).

Social stories have proven effective when used with adults with disabilities as well. One study measured the effects of literacy-based behavioral interventions and social stories when used in a work setting with adults with developmental disabilities to improve work behavior. This experiment used a multiple baseline design across time periods with an imbedded ABAB design to assess whether the intervention would increase independence and on-time return to work behavior. Results showed that the employees made substantial improvement in their work behavior as a result of the intervention (Bucholz, Brady, Duffy, Scott, Kontosh, 2008).

Social stories have proven to be effective in decreasing negative behaviors and in skill acquisition. In one example cited in an article by Scattone and colleagues in 2006, Barry and Burlew used social stories to teach play skills and choice to students with severe autism. Improvements occurred and the students learned to play more appropriately with peers and materials (Scattone et al., 2006).

Social stories have also proven effective in teaching appropriate greeting skills to individuals with autism spectrum disorder. Scattone et al (2006) cited research by Swaggart and colleagues in their 2006 article. Swaggart and colleagues successfully taught a girl with autism and two boys, one with pervasive developmental disorder, and the other with autism, how to share and greet peers. The researchers recorded an increase
in greetings and sharing by the participants. They also found that social stories helped decrease the number of participant tantrums (Scattone et al., 2006).

The literature discussed above suggests that social stories and advanced scheduling can be an effective social intervention for people who manifest similar behaviors to those with CHARGE syndrome. It is however clear that additional information is needed on strategies for teaching social skills to adults with CHARGE syndrome. Many articles described above suggested the effectiveness of social stories as an appropriate intervention for children with developmental disabilities and autism spectrum disorder. People with these disabilities may share many of the same characteristics as those with CHARGE syndrome. Thus, the literature suggests that social stories may be used effectively with adults with CHARGE syndrome.

The purpose of this project was to design, conduct, and evaluate an advance warning and social story intervention to teach an adult diagnosed with CHARGE syndrome and autism spectrum conditions to greet visiting nieces and nephews in a friendly manner.

Methods

Participant

Mike is 23 years old. He was diagnosed with C.H.A.R.G.E syndrome at birth. Mike has significant hearing loss in one ear and wears hearing aids. He has learned to read lips and has functional hearing. Mike was classified as having developmental disabilities and was in self-contained special education classes from kindergarten through graduation from the Steps program at age 22. Mike reads and writes on about a 3rd grade level. He is currently receiving services through the state to receive weekly social visits
with a young lady close to his same age. These social visits involve activities such as making cookies, going shopping, going to the movies, etc. He is involved in a religious organization that conducts weekly activities outside of Sunday worship. He works one day a week at Petco stocking shelves. Other than those activities mentioned, Mikes main social interactions are with his immediate and extended family.

The main focus of the project was to help Mike initiate and respond to greetings from family members, mainly his nieces and nephews, and then engage in positive interaction or play with them. Mike has had challenges saying “hi” to people when they visit his home; has also struggled to interact appropriately with them. This has been especially difficult when they arrive unannounced. Many of the visitors to his home include family members and children. His relationships with those around him are often injured when he gives dirty looks to those who say “hi” to him or when he ignores them completely. This is hard for the visiting children to understand. As they have accrued these negative experiences, it has been increasingly difficult for them to build relationships with Mike. Mike loves and wants to have strong loving relationships with his nieces and nephews but he lacks some of the social skills to accomplish this. (His lack of social skills has been apparent to those around him when he fails to greet loved ones, when he acts out aggressively during misunderstandings, and when he stares at people not knowing what to do or say.) In contrast when Mike greets his nieces and nephews appropriately, they are eager to spend time with him. When he greets them inappropriately, they become scared and uncomfortable and avoid him.

**Setting**

The intervention took place in Mike’s home where he lives with his mom and
dad. Mike’s mom works full-time outside of the home. Mikes dad works two days a week outside of the home. Mike spends most of his time with his dad at home. The general gathering area for visitors is the family room downstairs. In this room, the T.V. is usually on. The room extends into an area with a pool table. By the pool table is a playhouse built into the wall where the children spend much of their time with each other and often with Mike. In the playhouse are a play kitchen and table as well as many toys.

**Pre-Baseline phase**

Before the study began, I conducted a training meeting with Mike’s family including his parent’s, sisters, and brothers-in-law (see appendix A). Mike was not involved in the meeting as it could have affected his behavior and therefore altered results. We discussed their responsibilities including; taking data on greetings, outbursts, attitude and activities. The data sheets were introduced and explained. We defined friendly vs. unfriendly greetings, outbursts, and the different types of attitudes. I had each of them practice filling out data sheets including the narration portions, followed by my suggestions once they were done. We then practiced taking data while role-playing. I collected data during each role-play and family member’s data was compared to mine to test for accuracy and understanding.

I scheduled visits with family members during each week of the study once the study began. This ensured that we accomplished the minimum number of three visits per week during each phase of the study. It also ensured that the visits were scheduled during times when Mike was with an adult so he could read the social stories aloud in advance during the advanced warning plus social story phase of the study.
Baseline Phase

The study began with a two-week baseline phase. The baseline phase required a minimum of 3 visits from family members per week. During this time, Mike did not know of family member visits in advance. They showed up (spontaneously from Mike’s perspective) and collected data on greetings, outbursts, attitude, and activities (see section on data collection). The visits were, however, scheduled in advance with me so I could call and remind relatives of data collection responsibilities and answer any questions. I was also at Mike’s house during the first week of visits to ensure consistent data collection by the family. Once they were consistently recording data correctly, I reduced my monitoring visits to every other family visit, finally to every third family visit, which continued for the duration of the study.

Intervention 1: Advanced Warning Phase

During the first intervention phase of the study, family members were asked to call Mike 20 minutes in advance and notify him of their visit. This phase continued for two weeks with three visits (scheduled in advance with me) per week. The adult family member then collected data on the visit following the same routine as in the baseline phase, which included gathering data on greetings, outbursts, attitude, and activities. Visitors were asked not to prompt Mike in any way but to act as they would during any regular visit.

This intervention was discontinued after one week as it proved to be unsuccessful. We then went on to the next intervention phase, adding the social story component.

Intervention 2: Advanced Warning Plus Social Story Intervention Phase

Specific social stories were written regarding each of the grandchildren in Mike’s
family (see appendix B). These stories were written with Mike in a progressive manner (to avoid overwhelming him), beginning by writing social stories with Mike for the children who would be visiting the following day. We continued in this manner until stories had been written for each of Mike’s nieces and nephews. Listed in the social stories were all aspects of an appropriate greeting; eye contact, smile, and greeting. I explained to Mike that the stories were to help him learn how to greet his nieces and nephews in a friendly manner and also to give him ideas on activities he could involve them in once they arrived. I then answered any questions Mike had. I explained Mike’s responsibilities to read the social stories aloud to his mom or dad each time someone called to announce a visit and that he could use the stories as a tool to help him know what to do when visitors arrived as well as during the visit. The social stories also included an escape mechanism that Mike could use if he wanted to leave at any time. This escape mechanism included Mike thanking the children for playing, explaining that he needed to leave, and politely saying goodbye. We discussed this as well and practiced it.

The format and guidelines explained below were followed while developing the social stories. I attempted to include each of the sentence types listed when creating the social stories. The story included not only greeting instructions but also three possible activities that Mike could initiate with the child. Mike kept a binder with all of his social stories stored in his bedroom.

We created the social stories according to the following guidelines given by the developer Carol Grey. The social story involves a combination of seven sentence types (described above): descriptive, perspective, cooperative, directive, affirmative, control,
and partial (see Table 1). The descriptive sentence describes the social situation objectively. What another individual (other that the individual for whom the story was developed) may think or feel is described in the perspective sentence. Cooperative sentences remind the adult how he or she can help the child learn a new skill. The response the individual is expected to provide is explained in the directive sentence, while the affirmative sentence emphasizes the directive. Control sentences are written by the individual to help him or her remember the directive. Partial sentences are fill-in-the-blank, requiring the individual to provide the correct response (Gray, 2004).

We also wrote the social stories according to the following instructions given by Carol Grey. The social story should share information in a reassuring manner. It must have an introduction, body, and conclusion. It answers the where, when, why, and what questions of a given social situation. The story should be written from the individual’s perspective for whom it was created. It must state behaviors positively and should describe actions and events rather than directing them. Visual supports and illustrations may be used in the story (Gray, 2004).

Table 1—Seven sentence types that a social story should involve

<table>
<thead>
<tr>
<th>Sentence Type</th>
<th>Sentence Purpose</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive</td>
<td>Describes the social situation objectively.</td>
<td>My nephew Tyler often comes to visit me at my house.</td>
</tr>
<tr>
<td>Perspective</td>
<td>What another child may think or feel.</td>
<td>It’s important that I say hi to Tyler because it makes him feel happy and it makes me feel happy too.</td>
</tr>
<tr>
<td>Cooperative</td>
<td>Reminds the adult how they can help the child learn the skill.</td>
<td>If I am ever tired or need a break it is okay to walk away.</td>
</tr>
<tr>
<td>Directive</td>
<td>The response the individual is expected to provide.</td>
<td>When I see him for the first time or hear him say hi to me, I will try to say hi.</td>
</tr>
<tr>
<td>Affirmative</td>
<td>Emphasizes the directive.</td>
<td>We have fun together when we both feel happy.</td>
</tr>
</tbody>
</table>
During this intervention phase, family members continued to give Mike a 20-minute warning before each visit. Again, all visits were scheduled with me in advance so I could call the family members to remind them to call Mike. I also continued to monitor data collection as previously mentioned. During the 20-minute period after the warning call, Mike was asked to read the social stories aloud to his mom or dad, involving all the children who would be visiting.

Visitors followed the same routine for data collection on the greetings, outbursts, attitude, and activities. They were asked not to prompt Mike in any way but to act like they would on any regular visit.

**Maintenance Phase**

The maintenance phase of the study lasted one week. During this phase family members were asked to follow the same routine as in the last intervention phases of calling 20 minutes in advance to announce the visit and collecting data on greeting, outbursts, attitude and activities after the visit.

After Mike received the warning call, he was asked to verbally review the social story skills with his mom or dad. The two questions that his parents asked were; what are the three things we do when we see someone for the first time? The expected response was, smile, make eye contact and say hi. Mike was able to answer this question correctly each time he was asked. The second question his parents asked was; what kind of an

<table>
<thead>
<tr>
<th>Control</th>
<th>Written by the individual to help him or her remember the directive.</th>
<th>I will try to say hi to others.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial</td>
<td>Require the individual to provide a correct response.</td>
<td>Sometimes my nieces and nephews visit my house, when I see them I should…(say hi in a friendly way)</td>
</tr>
</tbody>
</table>
attitude should we have during the visit? Mike generally stated a positive or a happy attitude.

Data Collection

Greetings

I asked siblings to visit at least once per week. I called at the beginning of each week and asked when the sibling was planning on visiting with their children. The family was responsible for collecting data (I monitored as previously mentioned). Upon seeing Mike’s greeting toward the children, the adult in the family immediately marked the data sheet that was stored by the front door at Mike’s house (remaining data was taken at the end of the visit). The data sheet was simple check mark system (see C appendices). The question they answered regarding greeting was, did Mike greet the children in a friendly manner, yes or no, day, date, and name of those who visited. Each parent in the family was trained on the data collection method and on the definitions for an appropriate greeting.

An appropriate greeting was defined as; a response to a greeting initiated by the children or a greeting initiated by Mike, example; hi, hey, hello, etc. The greeting included eye contact with the person being greeted and a smile (edges of mouth pointing up).

An unfriendly greeting was defined as; no response and no eye contact by Mike when he saw the children or when they initiated a greeting with him, or eye contact but no smile or response. A negative response could have also included a grimace and/or harsh words.

The same data collection system was used during all phases of the study. Data
was analyzed at the end of each phase to see if Mike was able more often to greet nieces and nephews in a friendly manner when the intervention was being implemented.

**Activities**

Each social story included a list of three activities that the visiting children enjoy that Mike could involve them in during the visit. An example of this was; Tyler loves hide and seek, playing puppies, and doing puzzles. On the data collection sheet (see appendix C-1), under Tyler, his parents marked yes if Mike engaged Tyler in any positive activity at any time during the visit. The activities listed in the social story were just suggestions, parents were asked to mark yes even if Mike engaged the child in something other than those activities listed in the social story. If Mike never engaged Tyler in a positive activity during the visit Tyler’s parents marked no.

**Outbursts**

Data was also collected during each phase on Mike’s outbursts. The visiting parent recorded this data. An outburst was defined as anything that Mike did that led to children crying or complaining to parents or grandparents about Mike’s behavior. Outbursts also included Mike yelling, throwing items, or showing any signs of aggression. Anything parents or grandparents observed Mike doing that they deemed unfriendly or inappropriate beyond dirty looks or ignoring the children could also be considered an outburst. Data on outbursts was taken in narration. If an outburst occurred, the parent of the child(ren) involved supplied a narrative description of what he/she saw, heard, felt etc. The narration explained what Mike did, which child was affected, and how the child and/or Mike responded etc. (See appendix C-2).
Attitude

The next section of data collection was on Mike’s overall attitude. The data sheet was a check mark form (see appendix C-3) recorded by the visiting parent. Listed on the sheet were the following options for attitude; positive/friendly the whole visit, positive/friendly & negative/unfriendly some of the visit, negative/unfriendly the whole visit, absent after initial greeting. The visiting parent was asked to circle the description that best defined Mike’s attitude during the visit.

This was only a measurement of how Mike treated the children, not the adults. For example, if he displayed “annoying” behaviors toward the adults such as staring or asking the same questions over and over, that did not affect his “attitude” score. The initial greeting was not considered when choosing attitude description. For example, if Mike greeted visitors negatively but left and came back happy and positive and stayed that way during the whole visit, positive/friendly the whole visit was selected. Positive/friendly the whole visit was selected if Mike was friendly to all children the whole visit, didn’t give any children dirty looks, and didn’t have any outbursts. Negative/unfriendly the whole visit was selected if Mike was unfriendly with the children during most or all of the visit. This could include a grimace, dirty looks, and unfriendly expressions. Positive/friendly & negative/unfriendly some of the visit would be selected if Mike was positive and friendly to the children during some of the visit as well as negative and unfriendly to the children during some of the visit. This would also be selected if Mike was positive the majority of the visit but had an outburst. Absent after initial greeting was selected if he left after the initial greeting and was not seen by the children during the rest of the visit.
Results

Greetings Results

During baseline, which lasted two weeks with three visits per week, Mike greeted visitors appropriately 26% of opportunities. Appropriate greetings consisted of Mike making eye contact with the visitor, smiling, and saying hi or some form of a greeting. Intervention 1, advanced warning phase was implemented after the baseline period. During this phase visitors called to announce their visit to Mike 20 minutes in advance. Data was collected and, after one week of the advanced warning phase, Mike was only greeting visitors appropriately 10% of opportunities, this was lower than baseline. Due to the poor results, we ended the advanced warning phase after one week and began the second intervention of the study. The second intervention, advanced warning plus social stories, proved to be a successful intervention for Mike. During this phase, visitors continued to announce their visit 20 minutes in advance and, during the time before the visit, Mike read the social stories for children who were to visit aloud to his parents. During this two-week phase, Mike greeted visitors appropriately on 94% of opportunities. This was an 84% increase from the advanced warning phase. Once the two-week advanced warning phase plus social stories phase was over, we began the maintenance phase. During this phase Mike continued to receive warning calls before visits and, upon receiving a call, his parents would ask him a series of questions about greeting and attitude during visits. During this one-week maintenance phase, Mike greeted visitors appropriately 100% of the time. See Figure 1 for a graph of the greeting results.
The secondary greeting data showed little variance of appropriate greeting between nieces and nephews. It was also difficult to compare because some grandchildren visited far more often than others. Overall, Mike greeted all the nieces and nephews in the same manner during each intervention phase. See appendix D-2 for secondary data results for each niece and nephew.

Activities Results

Mike engaged the children well during each phase of the intervention including baseline. His lowest percentage in activity engagement occurred during the second intervention phase, advanced warning plus social stories. However, the percentage of engaged visits was still reasonably high during this phase at 86%. Overall Mike doesn’t appear to have trouble engaging and interacting with his nieces and nephews when they visit. See figure 2 for a graph of the results for engaged visits.
For secondary results on individual nieces and nephews see appendix D-3.

**Outburst Results**

Mike had a low number of outbursts overall. The highest number of outbursts occurred during the second intervention, advanced warning plus social stories. It is difficult to compare outbursts to interventions as there were differing numbers of visits per phase and the number of outbursts was so low. See figure 3 for a graph of outbursts during each phase of the study. After that, a description of each of Mike’s outbursts is provided.
Narrative description of all outbursts during baseline phase:

3-12-11: Mike shut the door in his nephew Grey’s face and Grey began crying. Mike’s dad sent Mike to his room. When Mike came out Mike’s dad explained that he had to be nice to Grey the whole time or he would not be able to stay with the family. At that point Mike began being nice to Grey.

Narrative description of all outbursts during advanced warning plus social stories phase:

3-29-11: Mike pulled his nephew Tyler’s hair during the visit.

3-30-11: Mike said to Kelli, Grey’s mom, that if they didn’t go home he was going to do something bad to Grey. After they left, Mike sent mean texts to Kelli about Grey. He also called Kelli’s phone and made threats against Grey. His consequence was time-out.

4-2-11: Mike began throwing objects and was becoming too rough with all of the kids (all nieces and nephews were present during the visit). He was sent to time-out until he
calmed down.

**Narrative description of all outbursts during maintenance phase:**

4-9-11: Throughout the visit Mike gave mean dirty looks to Tyler and Caleb.

*Attitude Results*

Attitude results were similar to the greeting results. Mike had the lowest percentage, 20% of friendly for the whole visit during the first intervention, advanced warning. His attitude improved over 20% during the second intervention, advanced warning plus social stories reaching over 40%. During the maintenance phase he had the highest percentage of friendly for the whole visit. This was a similar pattern to the greeting results. See figure 5 for a graph of attitude results.

*Figure 5*
**Mike’s Social Validity Results**

During the study Mike stated that he enjoyed the social stories and wanted his family to continue reading them with him after the study ended. He was always smiling and attentive when his mom or dad was reading the stories with him. Mike’s social validity results are as follows:

**Mike’s Social Validity Survey Results**

1-Did you enjoy your overall experience using social stories? Why or why not?

Yes, so I learn to be nice to my nieces and nephews.

2-Do you feel that the social stories helped you greet your nieces and nephews more appropriately?

Yes, so I won’t be in time out.

3-Did you feel that certain social stories were more effective than others? If so, which ones were more effective?

I like them same.

4-Will you continue to use your social stories now that the study is over?

Yes, so I won’t be mean so I can be good uncle and so I can be good brother-in-law.

**Family’s Social Validity Results**

The social validity survey result showed 100% in the affirmative to each question answered by the family. Each family member noticed a positive difference in Mike’s behavior during the study. They all felt that he greeted his nieces and nephews more appropriately after reading the social stories. Each member also agreed that social stories are an effective tool in teaching Mike skill acquisition.
Individual Responses to social validity survey

1-Did you notice an improvement in Mike’s overall behavior during the study?

Mom- Yes, Michael seemed to enjoy everyone when he was given the chance to practice his interactions beforehand.

Dad- Yes, I noticed he says hi, looks people in the eyes and smiles and seems happy to do it. I really never would have thought.

Sister 1- Yes, he works hard to say hello and look in your eyes.

Sister 2-Yes, he always kindly greeted Grey after the social stories. He said, hi Grey and smiled.

2-Did Mike seem to greet the nieces and nephews more appropriately during the study? 
How so?

Mom- Yes, he approached the children with a smile and a hello much more than before.

Dad- Yes, he used to greet with scowls now he says hi and smiles.

Sister 1- Yes, he didn’t give dirty looks when we arrived. He greeted the kids.

Sister 2- Yes, he made eye contact, smiled and made Grey feel more comfortable.

3-Do you feel social stories are an effective way to teach Mike skill acquisition? Why or why not?

Mom- Definitely this is a tool we plan to utilize in other areas with Michael.

Dad- I wish I would have been told about them much earlier, it works better than anything else we’ve tried.

Sister 1- Yes, he seemed excited to use what he learned about each grand child. He also wanted to make sure the grandkids used appropriate greeting as well but he stayed positive even when they didn’t react the way he wanted. That is such a difference from before.

Sister 2- Yes, Mike needs to remember what he likes about his nieces and nephews and why. It helps him think positively.

Discussion

The purpose of this study was to investigate the effectiveness of the use of
advanced warning and social stories in increasing positive greeting behaviors of an adult, Mike, with C.H.A.R.G.E syndrome and autism spectrum conditions. Initially, only an advanced warning was used to notify Mike when visitors would arrive. During this advanced warning phase, Mike gave fewer appropriate greetings per opportunity than during the baseline phase. I believe the advanced warning alone did not work because, although he was aware of visitors before they came, he lacked the skills to appropriately greet them once they arrived. The social stories gave him scripted information on how to greet visitors as well as how to interact with them during the visit.

In the second intervention phase, an advanced warning of visits was continued and a social story intervention was added. Mike showed significant improvements during this phase of the study. His appropriate greeting performance went from 10% in the advanced warning phase to 94% in the advanced warning plus social stories phase. He improved further to 100% during the maintenance phase, which included an advanced warning and a verbal review of the social story of those who would be visiting. These results support previous studies that have shown social stories to be an effective tool to teach greeting and other skills to students with autism spectrum disorder (e.g. Scattone et al., 2006). The study cited by Scattone and colleagues (2006) found social stories to be effective in teaching greeting and sharing skills to preschoolers with autism spectrum disorder. This study also adds to the limited research regarding the use of social stories with adults with disabilities similar to that of Bucholz and colleagues (2008).

According to the data, Mike interacted more appropriately overall with his nieces. There were more outbursts involving nephews and slightly less interaction with the nephews during visits. Nephews visited Mike’s home more often than nieces during the
study. This could have affected the results. Mike has admitted that he is afraid of children and that he is more afraid of boys than girls. This fear may also have affected results.

At the end of the study, Mike was greeting appropriately 100% of opportunities. He seemed very comfortable with his ability to greet visitors. He even requested an overview of the social stories of parents once he was notified of coming visitors. Since the study, Mike has had incidents of inappropriate greetings. Once parents notice an inappropriate greeting, they immediately review the social story with Mike and, upon his second opportunity, he is generally able to greet appropriately. This leads me to believe that Mike will continue to require an overview of the social story to maintain this skill. This may or may not generalize into greeting people other than family as Mike will not always have the opportunity to overview his social story before each possible interaction.

Mike’s family reported favorable opinions of the social story intervention, stating that it was one of the most successful interventions that they have used with him and that they would continue to use it in the future.

This study has inherent limitations including the participation of only one individual. This limits generalization of the findings about the effectiveness of social stories to other individuals. Mike’s diagnosis of C.H.A.R.G.E. syndrome also limits the generalization of findings to other individuals without this diagnosis. Mike has functional communication and reading skills. Therefore, it is unclear if social stories would be effective for people with lower verbal and/or reading skills.

Additional research is needed regarding the use of social stories in teaching skill acquisition to adults with developmental disabilities. Research is limited using social
stories with adults in general. This study added to this area of research.
References


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Appendix A

Data-Collection Training Format

1. Expectations of participants
   a. Take data on greeting(s), (data collection notebook by the door)
      i. Mike is expected to greet each niece or nephew individually, even if they arrive at the same time.
   b. Record in data collection book immediately after greeting

2. Explain data sheet use, record remainder data at end of visit
   a. Definition of friendly vs. unfriendly greetings
      i. Friendly - eye contact, smile (lips turned upward), some form of greeting, ex. hi, hello etc.
      ii. Unfriendly - no eye contact, no greeting, or eye contact but no greeting, and/or grimace, and/or unfriendly words
   iii. Definition of outbursts
   iv. Definition of attitude options
   v. Definition of engaging in a positive activity

3. Data congruence testing with each participant to check for accuracy in data collection
Appendix B: Social Story Averi

Averi likes to see her uncle Mike

Averi is my niece. Averi often comes to my house to visit and to sleepover. Averi is very sweet and loves her grandma. I like it when she visits. When she comes to my house to visit it makes her feel welcome when I say hi to her. When I see her for the first time I will try to say hi. I will also try to look at her in the eyes and smile when I say hi to her. When I say hi I am being a good host and that makes me feel happier. It makes Averi feel happy too. When Averi comes to my house I can also play with her. Some of the things that Averi likes to do when she visits are play pet shops, play on the computer. If I am ever tired or I need a break it is okay to walk away. Before I walk away I will try to tell Averi that I need a break and tell her thanks for playing with me. When Averi comes to visit I will try to say hello and I will try to be nice.

Appendix B-1: Social Story Caleb

Ca Ca likes to play with Ty Ty and Mike

Caleb is my youngest nephew. He comes to my house to visit with his family. He is a happy boy. When I see him for the first time I will try to say hi to him. It makes Caleb feel happier when I say hi to him. He also likes to play with me when he comes. Some of the things Caleb likes with me are play with my dog buddy, play in the playhouse, and look at my fish. If I am ever tired or I need a break it is okay to walk away. Before I walk away I will try to tell Caleb that I need a break and to tell him thanks for playing with me. When Caleb comes to visit I will try to say hi and be positive.

Appendix B-2: Social Story Grey

Grey Boy and Mike

Grey is my three year old nephew. He likes to come to my house to visit. Grey has a silly personality. When he says hi to me or when I see him for the first time I will try to say hi to him. Grey feels more comfortable when I say hi to him. Grey also likes to play with me. Some of the things he likes to do when he comes over are he likes to play bad guys, play in the playhouse, and watch movies. If I am ever tired or I need a break it is okay to walk away. Before I walk away I will try to tell Grey that I need a break and to tell him thanks for playing with me. When Grey comes to visit I will try to say hi and I will try to be nice.
Appendix B-3: Social Story Jayden

Jayden’s the Bomb!

Jayden is my niece, she is six years old. Jayden loves coming to my house to visit and sometimes to sleep over. Jayden always has fun ideas for activities at my house. When I see her for the first time I will try to say hi. I will also try to look at her in the eyes and smile when I say hi to her. Jayden will be more interested in playing with me if I say hi to her. Some of the things Jayden likes to do when she comes to my house are play with Tinkerbell, watch sponge bob, and play tag. If I am ever tired or I need a break it is okay to walk away. Before I walk away I will try to tell Jayden that I need and break and tell her thanks for playing with me. When Jayden comes to visit I will try to say hi loudly so she can hear me and I will be try to be nice.

Appendix B-4: Social Story Macy

Macey’s a cute little girl

Macey is my niece, she is three years old. Macey loves to visit my house and asks to come over often. Macey is very happy and loves her uncle Mike. When I see her for the first time I will try to say hi. I will also try to look at her in the eyes and smile when I say hi to her. Macey will feel happier at my house if I say hi and I will feel happier too. It is also fun to play with Macey when she comes to visit. Some of the things she likes to do are play in the playhouse, play chef, and watching Dora. If I am ever tired or I need a break it is okay to walk away. Before I walk away I will try to tell Macey that I need and break and tell her thanks for playing with me. When Macey comes to visit I will try to say hello sweetie, and I will try to be positive.

Appendix B-5: Social Story Tyler

Tyler is a Super Kitty!

Tyler is my nephew. He often comes to visit me at my house. Tyler loves me and I love him and we enjoy spending time together. When he comes to my house to visit he usually says hi to me. When I see him for the first time or hear him say hi to me I will try to say hi. I will also try to look at him in the eyes and smile while I say hi. It’s important that I say hi to Tyler because it makes him feel happy and it makes me feel happy too. When Tyler comes over I can also play and have fun with him. Some of the things Tyler likes to do when he visits are play hide-and-seek, play super kitty, and watch me play Ice Age. If I am ever tired or I need a break it is okay to walk away. Before I walk away I will try to tell Tyler that I need a break and to tell him thanks for playing with me. When Tyler comes to visit I will try to say hi and smile.
Appendix C: Data Collection Sheet

Data Collection Sheet

Please fill out the date and names of nieces or nephews visiting and mark yes or no whether Mike greeting children in a friendly manner and yes or no whether he engaged them in a positive activity during the visit.

Appendix C-1: Greeting/Activity data sheet

Date (Day): __________________________

<table>
<thead>
<tr>
<th>Name</th>
<th>Greeted Positively</th>
<th>Engaged in Activity</th>
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<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>Yes</td>
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</table>

Appendix C-2: Outburst data sheet

Outbursts?  Yes  No
If yes, please explain below.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Appendix C-3: Attitude data sheet

Mike’s attitude was:

Positive/friendly the whole visit

Positive/friendly & Negative/unfriendly some of the visit

Negative/unfriendly the whole visit

Absent after initial greeting
Appendix D: Overall Greeting Results

![Overall Greeting Data Diagram]

Appendix D-1: Secondary Greeting Results

![Secondary Greeting Data - Averi Diagram]
Proposal Project to Improve Greeting Skills of an Adult with Disabilities Using Social Stories

Secondary Greeting Data - Jayden

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Secondary Greeting Data - Macey

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<th>Advanced Warning</th>
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Appendix D-2: Overall Activity Results
Appendix D-3: Secondary Activity Results

### Percentage of Engaged Visits - Averi

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<tr>
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### Percentage of Engaged Visits - Caleb

<table>
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<td>A.W. + Social Story</td>
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<tr>
<td>Maintenance</td>
<td></td>
<td></td>
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</table>
Proposal Project to Improve Greeting Skills of an Adult with Disabilities Using Social Stories

**Secondary Greeting Data - Grey**

- **Baseline**: 33%
- **Advanced Warning**: 100%
- **A.W. + Social Story**: 66%
- **Maintenance**: 100%

**Percentage of Engaged Visits - Jayden**

- **Baseline**: 100%
- **Advanced Warning**: 100%
- **A.W. + Social Story**: 100%
- **Maintenance**: 100%
Appendix D-4: Outburst Results

![Outburst Data Graph]

Appendix D-5: Attitude Results

![Attitude Data Graph]
Appendix E

Mike’s Social Validity Survey

1-Did you enjoy your overall experience using social stories? Why or why not?

2-Do you feel that the social stories helped you greet your nieces and nephews more appropriately?

3-Did you feel that certain social stories were more effective than others? If so, which ones were more effective? How were they more effective?

4-Will you continue to use your social stories now that the study is over?
Appendix E-1

Family Social Validity Survey

1-Did you notice an improvement in Mike’s overall behavior during the study? If so, what did you notice?

2-Did Mike seem to greet the nieces and nephews more appropriately during the study? How So?

3-Do you feel social stories are an effective way to teach Mike skill acquisition? Why or why not?
Appendix F-1

Mike’s Social Validity Survey Results

1- Did you enjoy your overall experience using social stories? Why or why not?
   Yes, so I learn to be nice to my nieces and nephews.

2- Do you feel that the social stories helped you greet your nieces and nephews more appropriately?
   Yes, so I won’t be in time out.

3- Did you feel that certain social stories were more effective than others? If so, which ones were more effective?
   I like them same.
Appendix F-2

Family Social Validity Survey Results

**Family Social Validity Survey - Question #1**  Did you notice an improvement in Mike's overall behavior during the study?

- **No**
  - 0%

- **Yes**
  - 100%

**Family Social Validity Survey - Question #2** Did Mike seem to greet the nieces and nephews more appropriately during the study?

- **No**
  - 0%

- **Yes**
  - 100%
Family Social Validity Survey - Question #3 Do you feel social stories are an effective way to teach Mike skill acquisition?

<table>
<thead>
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<th>Yes</th>
<th>100%</th>
</tr>
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<tbody>
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<td>0%</td>
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</table>
Appendix G

Client/Parent Consent form

**Introduction/purpose:** Professor Charles Salzberg and master’s student Jamie Palmer-Ormsby in the Department of Special Education at Utah State University are conducting a research study to find out more about the use of social stories to improve greeting skills of an adult with developmental disabilities. You have been asked to take part because you are an adult with a developmental disability. You will be the only participant in the study.

**Procedures** If you agree to be in this research study, the following will happen to you.

1. You will be expected to read social stories created for you which involve each of your nieces and nephews. You will be expected to read the social story involving your visitor prior to his or her visit. You will be expected to do this before each visit over the period of 4 weeks.
2. You will be expected to fill out a survey assessing your opinion of the usefulness of social stories in acquiring a new skill.

**Risks** There are no known risks at this time.

**Benefits** There may or may not be any direct benefit to you from these procedures. The investigator, however, may learn more about the use of social stories in assisting people with disabilities in acquiring a new skill. Your greeting skills may improve during the course of the study.

**Voluntary nature of participation and right to withdraw without consequence** Participation in this research is entirely voluntary. You may refuse to participate or withdraw at any time without consequence.

**Confidentiality** Research records will be kept confidential, consistent with federal and state regulations. Only Jamie Palmer-Ormsby and her research committee will have access to the data which will be kept in a locked file cabinet in a locked room. Personal, identifiable information will be kept confidential.

**IRB Approval Statement** The Institutional Review Board for the protection of human participants at USU has approved this research study. If you have any pertinent questions or concerns about your rights, you may contact the IRB Administrator at (435) 797-0567 or email irb@usu.edu. If you have a concern or complaint about the research and you would like to contact someone other than the research team, you may contact the IRB Administrator to obtain information or to offer input.

**Copy of consent** You have been given two copies of this Informed Consent. Please sign both copies and retain one copy for your files.
**Investigator Statement** "I certify that the research study has been explained to the individual, by me and that the individual understands the nature and purpose. Participants may contact me directly with any questions prior to the onset of the study."

<table>
<thead>
<tr>
<th>Name of PI</th>
<th>Name of student or Co-PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Investigator</td>
<td>Student Researcher (or Co-PI)</td>
</tr>
<tr>
<td>Charles Salzberg</td>
<td>Jamie Palmer-Ormsby</td>
</tr>
<tr>
<td>(435) 797-3234</td>
<td>(801) 915-0278</td>
</tr>
<tr>
<td><a href="mailto:c.salzberg@usu.edu">c.salzberg@usu.edu</a></td>
<td><a href="mailto:jamie.ormsby@gmail.com">jamie.ormsby@gmail.com</a></td>
</tr>
</tbody>
</table>

I truly appreciate your participation in this project. If you have questions or would like more information, please feel free to contact me personally at jamie.ormsby@gmail.com

Client Name (please print)

| _____________________________ | _____________________________ |
| Client signature             | Date                         |

**Signature of Participant:** By signing below, I agree to participate.

| _____________________________ | _____________________________ |
| Parent signature             | Date                         |