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EFFECTS OF POWER CARDS ON CONVERSATIONAL SKILLS FOR HIGH SCHOOLERS WITH AUTISM SPECTRUM DISORDER

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EFFECTS OF POWER CARDS ON CONVERSATIONAL SKILLS FOR HIGH
SCHOOLERS WITH AUTISM SPECTRUM DISORDER

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THESIS

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A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Education
at the University of Kentucky

By

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ABSTRACT OF THESIS

EFFECTS OF POWER CARDS ON CONVERSATIONAL SKILLS FOR HIGH
SCHOOLERS WITH AUTISM SPECTRUM DISORDER

This study employed a multiple probe across settings design to evaluate the
effectiveness of Power Cards, as they were originally designed by Gagnon (2001), on the
conversational behaviors for two high school students diagnosed with autism spectrum
disorder. Data were collected on the percentage of conversational behaviors engaged in
per session, as well as the number of times the participants accessed their Power Card
during conversations, and the frequency of additional questions or comments made by the
participants. Results of this study indicated that Power Cards improved conversational
behaviors for both participants in their first setting. While covariation occurred across
untrained settings for both participants, therefore weakening the experimental control of
this study, promising results were produced for Sunday practitioners and teachers.

KEYWORDS: autism, ASD, Power Card, communication and social skills, adolescents

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December 7, 2017

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Section 1: Introduction

The American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5) outlined the characteristics for the diagnosis of autism spectrum disorder (ASD). Autism Spectrum Disorder is characterized by "persistent deficits in social communication and social interaction across multiple contexts," and "restricted, repetitive patterns of behavior, interests, or activities…" (American Psychiatric Association, para. 4). More specifically, individuals diagnosed with ASD struggle with initiating conversations, maintaining typical turn-taking conversations, engaging in appropriate nonverbal behaviors, and developing and maintaining relationships (American Psychiatric Association, 2013).

Communication deficits experienced by individuals with ASD impact their lives in a number of ways. Duffy and Healy (2010) summarized the importance of communication by explaining that communication allows individuals to express their needs and wants and to interact with individuals within their community. Without the ability to communicate socially, individuals miss out on opportunities to interact appropriately with their peers, do not request needs and wants, and struggle to build and maintain relationships. Weiss and Harris (2001) said, "peer reciprocity is central to the development of social relationships and serves a variety of social functions" (p. 787). Reciprocity can be thought of as the back and forth contributions in a conversation and it is one of the many social communication deficits experienced by individuals with ASD. This deficit leads to difficulty in forming and maintaining social relationships. Additionally, a study conducted by Bellini (2004) indicated that social skill deficits can be linked to social anxiety. The study found that a larger deficit in social initiation skills

led to a higher instance of self-reported social anxiety. Bellini noted that social anxiety for individuals with ASD may also be due to a history of negative social interactions with peers Anxiety is not the only potential outcome of social communication deficits. A study evaluating the relationship between communication skills and challenging behaviors by Sigafoos (2000) reported that larger communication deficits were linked with higher instances of challenging behaviors. In their study, teachers rated the communication ability and severity of behaviors for each participant six times across three years. The original Abberant Behavior Checklist (ABC) and the Community version of the ABC were used to assess the severity of the behaviors. The Receptive-Expressive Emergent Language Scale (REEL-2) was used to assess communication ability. Results of this study indicated that challenging behaviors were less apparent when the degree of communication deficit was less severe (Sigafoos).

In addition to impacting peer relationships and other areas of one's social functioning, social communication is a factor within the school setting. A study by Church, Alisanski, and Amanullah (2000) captured the experiences of 40 individuals with Asperger syndrome ages 3 to 15 years old. When describing the experiences of middle school aged students, Church et al. said about 33 percent of children were submissive during instructional time and would not seek help or clarification when they did not understand. This is a clear example of how the deficits in social communication for individuals with ASD can adversely effect their day-to-day lives. The description provided by Church et al. differed from the focus of the previous examples in that it did not mention peer interaction, but it still emphasized how social communication was multi-faceted and could impact many areas of life. By reviewing this literature, the

importance of social communication to every day functioning became very apparent. It is necessary that interventions be put in place to enhance conversational skills for individuals with ASD, and therefore improve their quality of life.

Researchers have used several intervention programs to increase social communication behaviors for individuals with ASD, including social stories and video models (Sansosti & Powell-Smith, 2008), script-fading (Wichnick, Vener, Keating, & Poulson, 2010), comic strip conversations (Glaeser, Pierson, & Fritschmann, 2003), and Power Cards (Davis, Boon, Cihak, & Fore III, 2010). Elisa Gagnon developed The Power Card Strategy in 2001 as a visual strategy to help individuals with ASD. Gagnon explained that Power Cards could be used to "assist students with Asperger Syndrome and autism in making sense of social situations, routines, the meaning of language, and the hidden curriculum" (2001, p.1). Power Cards use individual's special interest areas (SIA) to increase their motivation to engage in a certain task or activity. There are two components included in the Power Card Strategy: (1) a brief scenario and (2) the Power Card. Gagnon explained that the scenario is written at the intended individual's reading level and it presents a situation that the individual's SIA attempts to solve. The scenario encourages the student to solve the same problem by identifying 3-5 steps to follow. The Power Card is small in size (i.e., the size of a baseball or business card), and it contains a picture of the individual's SIA and the steps identified in the scenario. Gagnon explained that the size of the Power Card was intended to increase its generalization. Gagnon said "it can be carried in a purse, wallet, or pocket, or it can be Velcroed in a book, notebook, or locker…" (2001, p. 21). In addition to the guidelines for creating Power Cards,

Gagnon listed steps that should be followed when using the Power Card. Table 1 lists the steps outlined by Gagnon.

Table 1: Gagnon's Steps for Implementing Power Cards

1. Identify the problem behavior or situation.

2. Identify the child's special interest.

3. Conduct a functional assessment.

4. Determine whether the Power Card Strategy is an appropriate intervention.

5. Collect baseline data.

6. Write the scenario and design the POWER CARD.

7. Introduce the POWER CARD to the child.

8. Collect intervention data to determine effectiveness.

9. Evaluate the intervention and make modifications, if needed.

10. Empower the student to determine how long to keep using the Power Card Strategy.

11. Based on student input and performance, fade reading of the scenario while still keeping the POWER CARD.

12. Based on student input and performance, fade the use of the POWER CARD

Taken from Gagnon, 2001, pp. 23-26

Since its inception, few rigorous studies have been conducted proving the validity of Power Cards, as they were designed by Gagnon (2001), as an appropriate intervention for individuals with ASD. The first study was conducted by Keeling, Myles, Gagnon, and Simpson (2003) where they used a Power Card to increase sportsmanship skills of a 10-

year-old girl with ASD, Nancy. While Keeling et al. followed Gagnon's criteria in creating the Power Card for Nancy, they also implemented a score card which allowed Nancy to monitor whose turn it was in each game and who won each game. Keeling et al. used a multiple baseline across conditions design to evaluate the effectiveness of the Power Card and score card for decreasing Nancy's whining and screaming behaviors during games. The results in the first tier showed that Nancy's whining and screaming behaviors fell below baseline levels after the implementation of the Power Card. However, in the final two tiers, Nancy's whining and screaming behavior decreased to zero-levels while still in baseline and immediately prior to the implementation of the Power Card. Given that there was only one demonstration of effect, it is not convincing that the Power Card caused the change in behavior for Nancy.

The next study was conducted by Spencer, Simpson, Day, and Buster (2008) where they used Power Cards to teach social skills to a child with ASD. Their participant was a 5-year-old boy diagnosed with ASD who attended a public elementary school and spent his day in a self-contained classroom who struggled with social interactions on the playground. The authors implemented the guidelines outlined by Gagnon (2001), and created a Power Card script using Lightening McQueen, a character of interest for their participant. The Power Card script described a problem similar to the participant's, and it also provided a three-step solution to the problem. Spencer et al. used an AB design with maintenance and the results of the study indicated that the use of the Power Card increased the participant's time spent on the playground with typical peers. With an AB design, there is only one possible demonstration of effect. While there was one demonstration of effect after the implementation of the Power Card, there was not enough

data to support a functional relation between the implementation of the Power Card and increase in time spent on the playground. Similar to Keeling et al. (2003), this study was not rigorous enough to prove that Power Cards are an effective intervention.

In 2010, Davis et al. used Power Cards to improve conversational skills in adolescents with Asperger's syndrome. Three high school students diagnosed with Asperger's syndrome who spent the majority of their school day in the general education setting participated in this study. The study was conducted in a special education resource classroom and a conference room. Davis et al. implemented a pre-conversational training phase, where students were required to fill out a worksheet that corresponded to the conversation skill they were learning. It was unclear whether the pre-conversational training occurred during or prior to baseline sessions. Following baseline and the pre-conversational training, intervention began using the script and the Power Card, which were linked to each student's SIA. For the purposes of their study, the target behavior was "speaking about or allowing the conversational partners to speak about their interests" (Davis et al., p. 15). The results of the study indicated that the use of the pre-conversational training and Power Card strategy increased all three participants' conversation skills during intervention. By comparing baseline and intervention conditions for all participants, the immediacy of effect was consistent across all tiers and there was no overlap in the data between conditions. Davis et al. were the first researchers to show three demonstrations of effect at three points in time, which proves there was a functional relation between the introduction of the Power Cards and the increase in conversational skills for all participants. While these results were promising, Davis et al. did not follow all the steps outlined by Gagnon for using Power Cards and

with the implementation of the pre-conversation training, the results of the study cannot solely be credited to the use of Power Cards.

In 2011, Campbell and Tincani used Power Cards to increase direction following of children with ASD. The study was conducted with three first-grade students who received their education in partially self-contained classrooms. The study followed Gagnon's (2001) guidelines for implementing the Power Cards while making use of each participant's SIA. Based on each participant's functional behavioral assessment, the instructor defined the target behavior as direction following, (i.e., the participants not engaging in task refusal or engaging in verbal protests). Campbell and Tincani used a multiple probe across participants design and the intervention and maintenance data for this intervention showed that after the implementation of Power Cards, direction following increased for two participants. The first participant in their study engaged in higher levels of direction following after the implementation of the Power Card, however her data were extremely variable across all conditions. While this study adhered to all of Gagnon's criteria for creating and implementing the Power Card, there were only two demonstrations of effect, therefore the results were still not strong enough to demonstrate a functional relation between the implementation of the Power Card and the change in target behavior.

Another study that sought to evaluate the effectiveness of Power Cards was conducted by Angell, Nicholson, Watts, and Blum (2011). Instead of following Gagnon's (2001) exact procedures for creating and implementing Power Cards, Angell et al. created modified Power Cards to reduce the transition latency for three 10 and 11-year-old students with developmental disabilities. Their modified Power Card combined "symbol-

based visual prompts, a brief narrative that included behavioral expectations, and a pictorial representation of the students' heroes or special interests" (Angell et al., p. 214). They used an A-B-A-B-A-B withdrawal design replicated across students. Their results showed the implementation of the modified Power Cards reduced the transition latency for all participants, and that the latency increased across all participants when the modified Power Cards were removed. These results are promising, yet Angell et al. did not follow Gagnon's guidelines so there is still not sufficient data supporting the effectiveness of Power Cards as they were originally designed.

The most recent study using Power Cards was conducted by Daubert, Hornstein, and Tincani in 2015. Their study included two elementary school aged boys diagnosed with ASD. It took place in the participants' third and fifth grade self-contained classrooms and was intended to increase turn-taking while playing board games. Three target behaviors were used for this study: "appropriately initiating a turn, appropriately relinquishing a turn, and appropriate commenting" (Daubert et al., p. 96). Given that three behaviors were being evaluated, Daubert et al. used modified Power Cards in their study, eliminating the use of scenarios as described by Gagnon (2001). Three novel board games were used, and both participants had a Power Card associated with each board game, all containing a SIA. Results of the study indicated that the use of the modified Power Cards increased participants' percentage of appropriate initiations and relinquished turns. However, the Power Card did not have an effect on either participant's appropriate commenting across all games. Similar to the results of Angell et al. (2011), Daubert et al. produced promising results, but credit cannot be given to the implementation of the original Power Card guidelines created by Gagnon and the

increase in target behaviors.

It is well known that social communication is a common struggle amongst individuals with ASD. Additionally, the DSM-5 defines a key characteristic of ASD as "restricted, repetitive patterns of behavior, interests, or activities…" (American Psychiatric Association, 2013). As described in the studies that implemented Power Cards to increase social skills for individuals with ASD, "special interests" of each participant were paired with the Power Cards. These special interests align with the "restricted, repetitive interests" of individuals with ASD and that is a key factor in the potential effectiveness of Power Cards. A study conducted by Koegel, Kim, Koegel, and Schwartzman in 2013 with seven high school students diagnosed with ASD used their "preferred interests" to improve socialization. The study took place at different high schools in the lunch room, general education classroom, school lawn, or basketball court. Before intervention, the researchers interviewed each participant to get an understanding of their special interests. Clubs were then formed and advertised based on each of the participants' special interests. The results of the study showed an increase in socialization for all participants. Additionally, "the results of the study suggest(ed) that high school students with ASD can appropriately socialize with typical peers if activities (were) created around their preferred interests" (Koegel et al., p. 2132). To tie this back to the effectiveness of Power Cards with individuals with ASD, their effectiveness relies on employing the SIA for each participant. Power Cards are a very promising intervention to increase a variety of social and communication skills with individuals with ASD, but more research is necessary in order to broaden the findings of their effectiveness and increase generality and external validity.

The purpose of this current study was to evaluate the effectiveness of Power Cards, as they were designed per Gagnon's (2001) guidelines, to improve conversational skills for high school students with ASD. To date, there is not a single study that has shown increased conversational skills for individuals with social skills deficits using Power Cards that were created and implemented based only on Gagnon's guidelines. There is a gap in the literature proving the effectiveness, generality, and external validity of Power Cards. If the current study demonstrates the effectiveness of Power Cards as they were intended to be designed and implemented, the study can give researchers and teachers more information about who can benefit from the use of Power Cards. High schoolers with ASD will benefit from this study, because as individuals mature, the ability to hold a conversation becomes much more important. Improving an individual's conversational skills will engage them more with their peers and will positively impact their presence within society.

Section 2: Research Question

This study answered the following research question: Is there a functional relation between the use of Power Cards and the increase of conversational skills for high schoolers with ASD?

Section 3: Methods

Participants

Two students with a primary special education eligibility of ASD were selected

from an urban public school in the southeastern United States. To participate in this

study, participants met the following inclusion criteria: (a) diagnosis of ASD or some

other disability that is paired with communication delays, social skills deficits, and

restricted interests often associated with ASD; (b) enrollment in a minimum of one

general education class and one resource special education class; and (c) basic

communication skills, including the ability to be engaged in a verbal conversation (i.e.,

able to verbally/vocally respond to questions or comments and to attend to a conversation

partner). Participants were identified by talking to teachers in order to select students with

social/communication delays who could benefit from a social/communication

intervention or who potentially indicated motivation to improve social interactions with

peers (i.e., teacher observed the student with communication delays frequently

approaching his or her peers or the teacher observed the student with communication

delays attempting to have conversations with peers). After students were nominated,

consent and assent forms were sent home to be signed by the students' parent/guardian

and by the student.

Rose. At the start of the study, Rose was 14-years-old, but she turned 15 during

the course of the study. Rose was a Caucasian female in the ninth grade and had an

educational eligibility of ASD. At the age of 8, she met criteria for an ASD and global

developmental delay diagnosis, based on the Autism Diagnostic Observation Schedule

(ADOS). Rose was a verbal communicator, and had weaknesses in expressive, receptive,

and pragmatic language. She had a core language score of 59 on the Clinical Evaluation of Language (CELF-5) and she received a 65 on the Test of Pragmatic Language (TOPL). During the study, Rose was receiving services for pragmatic language. Rose participated in the general education setting for most of the day, and was also enrolled in the peer tutoring program at her high school, where she spent one hour each day in the Moderate and Severe Disabilities (MSD) classroom serving as a peer assistant and working with students with MSD. Rose was identified by her teacher based on her current IEP goals related to communication, which included initiating and maintaining conversations. According to her Functional Behavior Assessment (FBA) and teacher reports, Rose would typically only engage in conversations that were initiated by adults or peers, and would usually respond with "wh" questions or by talking about her own interests. Rose's identified SIA was Justin Bieber.

Jack. Jack was a 17-year-old Caucasian male in the 11th grade at the same high school as Rose. Although no ASD rating scale scores were available for Jack, he was also receiving services under an ASD eligibility during the course of the study. He had a one-on-one para-educator to assist him throughout all of his classes. Similar to Rose, he too participated in the general education setting for the majority of the day, was a verbal communicator, and had deficits in expressive, receptive, and pragmatic language. Jack had a core language score of 50 on the CELF-4. Jack was identified by his teacher because of recent observations where Jack initiated socialization with his peers but was unable to maintain these interactions. Jack's FBA indicated that he typically engaged in conversations that were initiated by adults, or that he would make comments to peers

about his favorite videos games during class. His identified SIA was Tim and Moby from BrainPOP.

Conversation partners. Conversation partners were also identified to participate in the study. Conversation partners were either nominated by a teacher to participate or volunteered themselves after hearing a brief overview of the purpose of the study from the researcher. The teachers in each setting nominated conversation partners who were considered to be well-liked by their classmates or who sat in close proximity to the participant during class. If no conversation partners were nominated, the researcher stood in front of the class on a day that the participant was absent and explained the purpose of the study and the expectations of the conversation partners. Individuals who raised their hand to volunteer were selected to participate in the conversation partner training (see Conversation Partner Training section below). Conversation partners were included if they had no diagnosed disability characterized by social/communication delays and contingent on mastering the conversation partner training.

A minimum of one conversation partner was included per setting, and all conversation partners were in the same grade as each participant. Rose's conversation partner in her non-structured setting was a male student nominated by the teacher. Four individuals volunteered and were included as conversation partners in Rose's semi-structured setting, three females and one male. Two individuals were nominated in her highly-structured setting, but one conversation partner withdrew due to personal reasons during the second week of the study. The conversation partner in Rose's highly structured setting was a female.

Similar to Rose, Jack had one conversation partner in his highly and non-structured settings at the start of the study. Due to a small class size and a lack of volunteers, Jack's conversation partner in both of these settings was the same male student. During the last week of the study, this conversation partner was absent so the teacher nominated a second conversation partner in Jack's non-structured setting, also a male. Six individuals volunteered and were included in his semi-structured setting, three males and three females. Due to absences, two of the males were not included in the study.

Setting

Three instructional settings were identified for each participant: highly structured (i.e., resource classroom), semi-structured (i.e., general education classroom), and non-structured (i.e., learning strategies/study hall). All sessions occurred in a quiet area of the classroom or at the participant's desk. The highly structured and non-structured settings for both participants included six tables (i.e., two-person desks), chairs, eight computers lined around the perimeter of the classroom, a SmartBoard, and two teacher desks. The semi-structured environments for both participants included 12 tables (i.e., two-person desks), a SmartBoard, and a teacher desk.

Materials/Equipment

Intervention materials were created per Gagnon's descriptions of Power Cards (2001). Gagnon identified two main components of the Power Card Strategy as a Power Card scenario and the Power Card. Both items corresponded to each participants' SIA, Justin Bieber and Tim and Moby. The Power Card scenario was written at each participant's level of comprehension, contained a paragraph describing the SIA engaging

in conversations with peers, a paragraph empowering the participant to follow the same steps to experience the same success as the SIA, and had one picture of the SIA. The Power Card contained one picture of the SIA and the steps that were described in the scenario (Gagnon, 2001). The scenario and the Power Card were created using Microsoft Word. The scenario was printed onto a 21 cm x 28 cm sheet of paper, and the Power Card was formatted to fit onto a 9 cm x 6 cm sheet of paper. The scenario and the Power Card were both laminated to avoid tearing or damage. Refer to Appendix A to see Rose and Jack's scenarios and Power Cards.

Data Collection

For all conditions data were collected using a conversation rating scale (see Appendix B) and reported as percentage of conversational behaviors engaged in per session. Additionally, data were collected on how frequently the participant accessed (i.e., looked at) their Power Card each session and the frequency of additional questions/comments made by the participant each session. Probe sessions were separated by at least 45 min and were collected up to two times a day per setting. Only one intervention session was conducted per day. Each session lasted until the participant stopped engaging in any of the target behaviors for 20 s. The target skills included engaging in a socially appropriate: (a) greeting, (b) conversation, (c) waits, and (d) ending. For each target skill, the conversation rating scale included specific behaviors that the participants were expected to engage in. These behaviors were also described in the Power Card scenario and Power Card.

Procedures

Conversation partner training. Prior to Probe condition, the conversation partners from each participants' three settings partook in a brief training (i.e., 15-30 min) where they learned about the key characteristics of ASD and had the opportunity to role play with the researcher and receive feedback. Based on however many individuals were nominated or volunteered to be a conversation partner (CP), the trainings ranged from one individual to a group of six. The researcher started the training by giving a handout to each CP and read it aloud (refer to Appendix C). The researcher focused on all three sections of the handout (i.e., characteristics of ASD, purpose of study, CP's job), and allowed time for questions from the CPs. Following any questions, the researcher then gave each CP the opportunity to read through the conversation rating scale and described how it was created. Next, the researcher modeled the correct CP behaviors, and had either another trained data collector or one of the CPs role play conversation as if they were the participant. Again, a discussion followed and the researcher allowed time for questions from the CPs. Finally, each CP role played with the researcher and received immediate corrective feedback on their behaviors. Mastery criteria for CP training was one full role play session without any corrective feedback. Each training ended with a chance for more questions.

Conversation partners were re-trained if they provided any additional prompts following the researcher's task direction or if they did not provide the participant opportunities to ask additional questions/comments (i.e., asked the participant about his/her own interests more than once within a session). Re-training occurred prior to the next session with the CP who previously engaged in procedural errors. During the re-

training the researcher referred to the training handout, reminded the CP of his/her

responsibilities, and asked if they had any additional questions.

General procedures. Per Gagnon's recommendations, the researcher conducted a

FBA on conversational behaviors for both participants. The researcher used the current

FBA form that was used by teachers throughout the participants' school district. After

completing the FBA, the researcher interviewed the teachers in order to identify each

participant's SIA. For all conditions following the CP training, the percentage of

conversational behaviors engaged in per session were recorded, as well the frequency of

additional questions/comments made by the participant. For each session, the participant

and CP were sitting or standing within 1 m of each other. Participants were given a verbal

prompt to talk about their partner's interests. CPs were instructed to have an interest area

in mind before the sessions began and were always allowed to ask questions before

sessions began. The researcher sat or stood within 1 m of the conversation and ended the

session if the participants stopped engaging in any of the behaviors listed on the

conversation rating scale for 20 s.

Probe condition. General procedures were used to implement probe sessions.

Initially, all settings were probed in order to establish a trend (i.e., at least three data

points that are moving in a contratherapeutic trend, or zero-celerating). After the initial

probe sessions, each setting was probed every 5-7 sessions. Probe sessions were

separated by at least 45 min per setting, and no more than two sessions per setting were

conducted each day. Participants had no materials to assist during this condition.

Power Card condition. For the first session of the Power Card condition, the researcher read the scenario to the participant out loud. Following the read-aloud, the researcher and participant had a discussion and the participant had the opportunity to ask questions (Gagnon, 2001). Following the discussion, the researcher read the Power Card aloud. The researcher and the participant compared the Power Card to the Power Card scenario, and made a point of mentioning that the same skills were listed on both. Before providing the task direction, the instructor removed the scenario but placed the Power Card on the desk/table in front of the participant. During this initial read through, the researcher had the CP sit within 1 m of the researcher and participant so they could hear as well.

For the remaining sessions of the Power Card condition, the instructor would read the scenario and the Power Card to the participant without having a discussion just prior to running each session (Gagnon, 2001). Similar to the first session, the researcher removed the scenario, placed the Power Card on the desk/table in front of the participant and provided the task direction to begin each session. General procedures were used to implement intervention and collect data, but data were also collected on the number of times the Power Card was accessed by the participants each session.

Maintenance. Per Gagnon's recommendations, once the participants reached mastery in a setting, the researcher allowed the participant to self-fade their Power Card (2001). Prior to running a maintenance session, the researcher gave the participant the option of hearing the scenario and the Power Card or just the Power Card. Maintenance sessions were conducted every 5-7 sessions following mastery in each tier.

Experimental Design

This study employed a multiple probe across settings design (Gast & Ledford, 2014). The introduction of the scenario and Power Card occurred in a time-lagged fashion across three settings for both participants. The Power Card condition was introduced to the first setting once there were at least five stable probe sessions (i.e., moving contra-therapeutically or zero-celerating) in the first tier and at least three stable probe sessions for the remaining tiers. Mastery criterion was established based on observing 11 conversations of typical high school students using the same conversation rating scale used to score the participants. A "typical conversation pocket" was established by taking the mean of the top five conversation percentages and the mean of the bottom five conversation percentages. The "typical conversation pocket" was 56%-92% conversational behaviors. Mastery criterion for the target setting was three sessions within the "typical conversation pocket," with at least two consecutive mastery sessions. The Power Card condition was only introduced to subsequent tiers if all untrained tiers remained below the "typical conversation pocket" throughout the probe condition.

The multiple probe across settings design potentially allowed for intra-subject direct replication, if there were at least three demonstrations of effect on the participants' engagement in conversational behaviors after the introduction of the Power Cards across each setting. Additionally, the introduction of the Power Card in a time-lagged manner could have built experimental control. The settings that were not in the Power Card condition were probed every 5-7 sessions. If the probe data for those settings remained stable, even after the introduction of the Power Card to the first setting, experimental control would have been strengthened. This was a very practical design to implement,

given the fact that probe data did not need to be collected every day. However, this made it difficult to control for certain threats to internal validity. History and maturation effects were not caught immediately if they were occurring. However, multiple probe across settings decrease threats to testing because there are less test demands on the participants in the probe conditions (Gast & Ledford, 2014).

Inter-observer Agreement

Inter-observer agreement (IOA) was collected for at least 20% of all sessions in each condition across all settings by graduate students trained in collecting reliability data. Prior to IOA sessions, the researcher described the data sheet to the data collector(s) and verbally defined and provided examples of each of the behaviors that were included on the conversation rating scale. The data collectors had time to ask questions before starting a session. After each IOA session, the researcher and data collector compared their data and discussed disagreements. IOA on conversational behaviors was calculated using point-by-point (i.e., taking the number of agreements divided by the number of agreements plus disagreements x 100). IOA on all other behaviors (i.e., frequency of additional questions/comments and frequency of accessing the Power Card) was calculated using the gross method (Gast & Ledford, 2014). Conversational behavior IOA was calculated at 98.3% agreement. IOA for the frequency of additional questions/comments was calculated at 93.3% and IOA for the frequency of accessing the Power Card was calculated at 50%.

Procedural Fidelity

Procedural fidelity data were also collected for at least 20% of sessions in each

condition across settings. Additionally, procedural fidelity data were collected for 92.9%

of CP trainings and 33% of Power Card Session 1 sessions for each participant, where the

scenario was introduced. The trained data collectors collected procedural fidelity data on

the instructor's behaviors during all conditions. Refer to Appendix D for all procedural

fidelity data sheets. The formula for calculating procedural fidelity involved adding all

the instructor behaviors correctly engaged in, divided by the number of possible

behaviors to engage in, and multiplying by 100. Procedural fidelity was collected on the

same data sheets for participants' behaviors. Procedural fidelity was calculated at 100%

fidelity.

Section 4: Results

Rose. During probe sessions in Rose's first tier, the mean percentage of conversational behaviors that she engaged in was 6% (ranging from 0-10%). Her other tiers remained at similar levels during initial probe sessions, with the mean percentage of conversational behaviors on her second tier being 7.6% (range of 0-10%). Her last tier remained at 10% of conversational behaviors for the first three probe sessions. Rose received intervention in her non-structured setting first (i.e., learning strategies / study hall). Upon introduction of the Power Card condition, there was slight carry-over effect during the first session, with her percentage of conversational behaviors remaining at 10%. However, during the second session of intervention her percentage increased to 50%. By the third session of intervention, Rose's percentage of conversational behaviors fell within the "typical conversation pocket." Her percentage fell back to baseline levels during the fourth session of intervention, however her percentage of conversational behaviors remained in the "typical conversation pocket" for two consecutive sessions after that. For tier one, Rose's mean percentage of conversational behaviors was 41.67% and the PND between the Power Card condition and probe condition for tier one was only 33%. Not only did Rose reach mastery in the "typical conversation pocket" in tier one, but her frequency of question asking/commenting increased from 0 during baseline to 11 by the sixth session of intervention. Refer to Table 2 for the mean and range of additional questions/comments made per condition. In tier one, Rose only accessed her Power Card a total of two times, both during the same session (see Table 3).

Table 2: Mean and Range of Additional Comments/Questions Made Per Condition

	Rose			Jack	
Condition	Mean	Range	Condition	Mean	Range
Learning Strategies			Resource English 3		
Probe	0	--	Probe	0	--
Power Card	3.83	(0-11)	Power Card	2.2	(0-4)
Maintenance	22	(22)	Maintenance	--	--
Gen Ed Science			Gen Ed Biology		
Probe	1.29	(0-4)	Probe	1.29	(0-5)
Power Card	21	(7-39)	Power Card	--	--
Maintenance	--	--	Maintenance	--	--
Resource Algebra 1			Learning Strategies		
Probe	0.78	(0-4)	Probe	1.29	(0-4)
Power Card	--	--	Power Card	--	--
Maintenance	--	--	Maintenance	--	--

Table 3: Mean and Range of Accessing Power Card Per Condition

	Rose			Jack	
Condition	Mean	Range	Condition	Mean	Range
Learning Strategies			Resource English 3		
Power Card	0.33	(0-2)	Power Card	0.6	(0-3)
Maintenance	1	(1)	Maintenance	--	--
Gen Ed Science			Gen Ed Biology		
Power Card	0	(0)	Power Card	--	--
Maintenance	--	--	Maintenance	--	--
Resource Algebra 1			Learning Strategies		
Power Card	--	--	Power Card	--	--
Maintenance	--	--	Maintenance	--	--

After the implementation of the Power Card condition in tier one, there was covariation across tiers two and three. While both tiers experienced an increase in conversational behaviors, these probes remained below the "typical conversation pocket," with the covariation leveling out at 50% in tier two, and a mean of 45% in tier three. Since Rose's responding in both untrained tiers remained below the "typical conversation pocket," the Power Card was introduced to tier two (i.e., semi-structured; general education science). Immediately following the introduction of the Power Card, Rose's engagement in conversational behaviors increased to 60%, which fell within the "typical conversation pocket." All remaining sessions in the tier two Power Card condition remained at 60%, and there was 0% PND between the probe and Power Card condition.

Similar to tier one, Rose increased her frequency of additional questions/comments from a mean of 1.29 during probe (ranging 0-4) to a mean of 21 during Power Card (ranging from 7 to 39) in tier two. She did not access her Power Card during any sessions in this tier.

The Power Card condition was not introduced to Rose's third setting (i.e., highly structured; resource math). After the implementation of the Power Card in tier two, covariation increased in her third tier and she reached mastery during the probe condition in tier three. Rose's mean percentage of conversational behaviors in tier three probe sessions was 34.4% (ranging from 10-60%). Her mean frequency of additional questions/comments per session was 0.78 (range 0-4).

Currently, maintenance data have only been collected in tier one. During the maintenance session, Rose chose to only have the Power Card read to her before starting the conversation. Rose engaged in 60% of conversational behaviors during maintenance, and had 22 additional questions/comments. She accessed the Power Card one time during this session. Refer to Figure 1 for the graph of Rose's conversational behaviors.
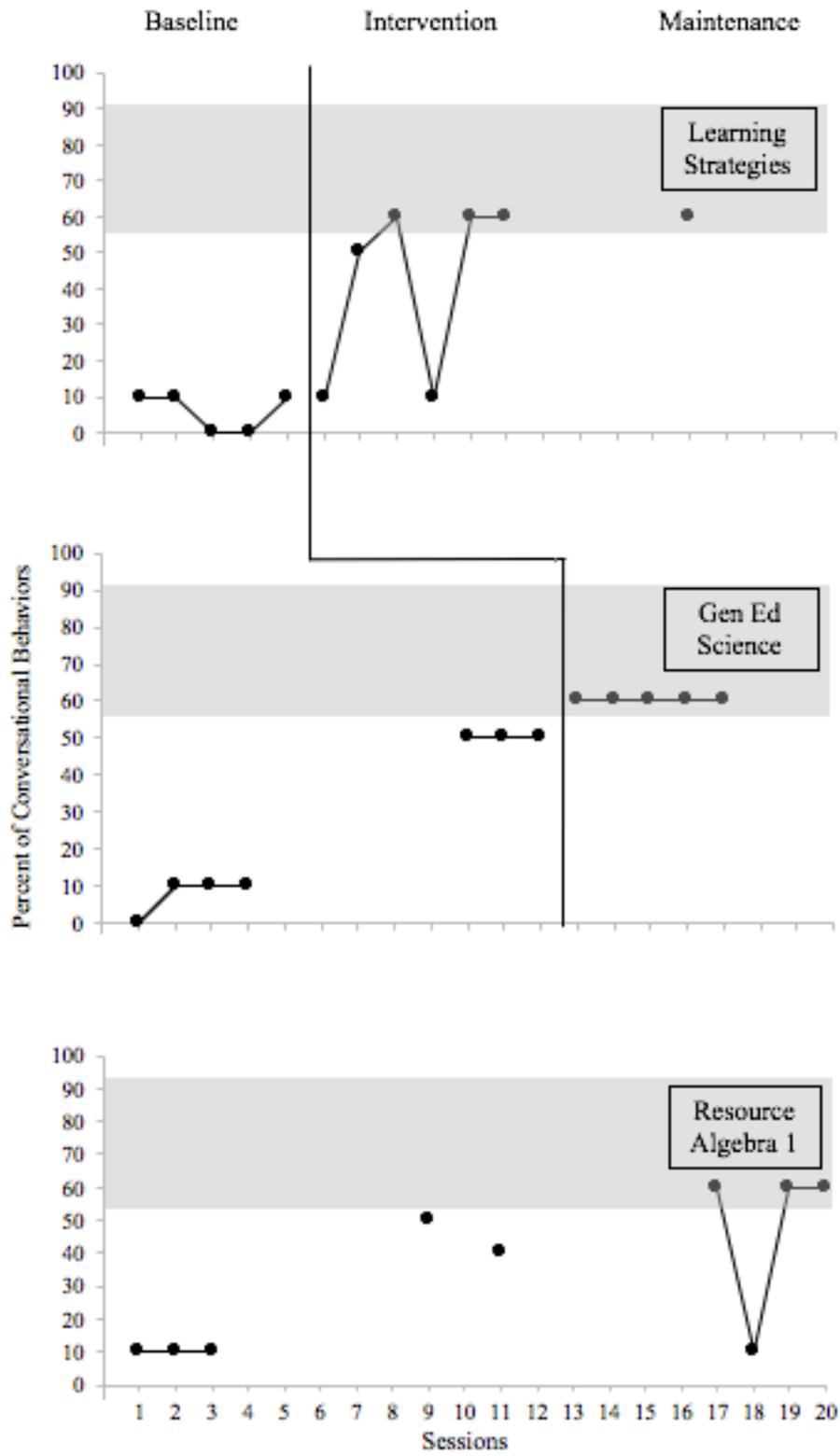
Figure 1: Rose's percentage of conversational behaviors.

Jack. Jack's mean percentage of conversational behaviors during probe sessions in the first tier was 14% (ranging from 10-30%). The mean percentage of conversational behaviors in tiers two and three was 16.7% (ranging 10 to 30%). All three tiers showed a contratherapeutic trend in the initial probe sessions, with the highest percentage of conversational behaviors occurring in the first probe session across all tiers, and then stabling out to 10% for the remaining probe sessions. Jack received intervention in his highly-structured setting first (i.e., Resource English 3). Unlike Rose, Jack's immediacy of effect from probe to intervention in tier one occurred during the first Power Card session. Jack met mastery in tier one after just 5 sessions, with a mean of 58% conversational behaviors (ranging from 40-70%). There was 100% PND between probe and Power Card in tier one, and Jack's mean frequency of additional questions/comments increased from 0 during probe to 2.2 (range of 0-4) during Power Card. Similar to Rose, Jack only accessed his Power Card for a total of three times during just one session.

The Power Card was not introduced to Jack's remaining settings due to increased covariation. In Jack's second tier (i.e., semi-structured; general education Biology), his probe data were accelerating in a therapeutic trend and he met mastery, with three sessions within the "typical conversation pocket." The overall mean for tier two's probe condition was 48.89% conversational behaviors (ranging from 10-80%). Jack's frequency of additional questions/comments had a mean of 1.29 (range 0-5).

Like tier two, covariation occurred in Jack's third setting (i.e. non-structured; learning strategies/study hall). Jack met mastery in his third tier during probe sessions. His mean percentage of conversational behaviors was 44.29% (range 10-80%). In this setting, Jack had a mean frequency of 1.29 additional questions/comments (ranging from

0 to 5).

Maintenance data have not been collected for Jack. Refer to Figure 2 for the graph of his conversational behaviors.
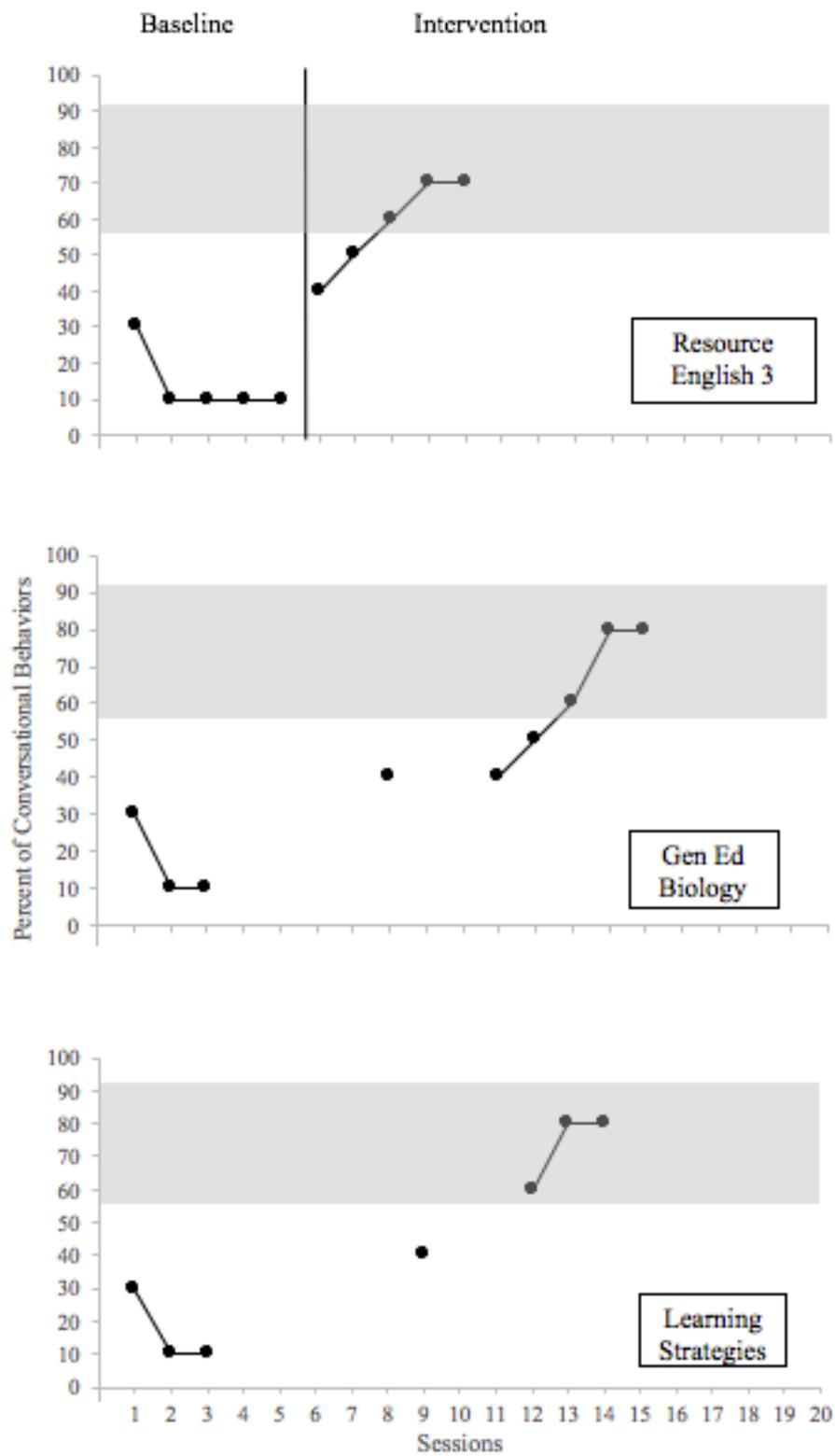
Figure 2: Jack's percentage of conversational behaviors.

Section 5: Discussion

The purpose of this study was to evaluate the effects of Power Cards on the increase in conversational skills for high schoolers with ASD. While the results indicate that there could have been an increase in conversational behaviors with Power Cards, the results need to be interpreted with caution. Both Rose and Jack met mastery in their first tier after the implementation of the Power Card. Because of the covariation that occurred for both participants, we cannot say with certainty that the Power Card is what caused the change in behaviors.

While covariation occurred and weakened the experimental control of this study, there were still notable results that occurred after the Power Card had been introduced for both participants. In tier two, Rose's percentage of conversational behaviors only improved by 10% during intervention, however, after hearing the Power Card, her responding leveled out at 60% and stayed within the "typical conversation pocket." While the graph does not show any variation in her responding during probe sessions in tier 2, Rose was not consistently engaging in the same five behaviors during these sessions. However, with the Power Card, she reliably engaged in the same six behaviors that she mastered in tier one (i.e., engaged in age appropriate joint attention or a nonverbal greeting, asked about the CP's interests, made eye contact, oriented her body towards the CP during the conversation, waited for the CP to respond, and asked another question or made an additional comment). After reviewing the typical peer conversation data that was used to establish the "typical conversation pocket," 36% of typical peers did not engage in three of the four behaviors that Rose consistently did not engage in, and 90.9% of typical peers did not engage in one behavior that Rose did not engage in. Refer

to Table 4 to compare the participant's engagement in the conversational behaviors to the typical peer engagement. Additionally, it is important to note that the frequency of Rose's additional questions/comments was higher when she was talking with female conversation partners as opposed to males, which is consistent with the typical peer conversations as well. While Rose's data did not show huge effects between probe and intervention in tier two, it is important to note that her responding was similar to typical peers when she had the Power Card.

Table 4: Mean Percentage of Engagement in Conversational Skills

	Conversational Skill	Rose	Jack	Peers
1	Engages in age appropriate joint attention or a nonverbal greeting (e.g., makes eye contact with CP, orients body towards CP, nods head at CP etc.)	86%	67%	91%
2	Says "hey, hello, hi, what's up," or addresses CP by name	0%	0%	64%
3	Waits for CP to respond before speaking again	0%	0%	64%
4	Asks or comments about CP's interests	90%	100%	91%
5	Makes eye contact with CP	90%	100%	82%
6	Orients body towards CP	76%	80%	63%
7	Waits for CP to respond before speaking again	86%	100%	91%
8	Asks another question or comments about CP's interests	76%	100%	73%
9	Appropriately ends the conversation (e.g., thanks for talking to me, I'll talk to you later, see you later, bye, etc.)	0%	40%	9%
10	Walks away or returns to previous work/activity	0%	27%	100%

Note. The above percentages represent Rose and Jack's mean percentage of engagement in each conversational skill for all sessions following the introduction of the Power Card (including untrained tiers). The peer percentages represent the mean percentage of typical peers who engaged in each of the conversational behaviors.

Like Rose, Jack experienced increases in conversational behaviors after the introduction of the Power Card in his first tier. Although Jack only received intervention in tier one, he was able to reach mastery criterion in just 5 sessions and generalize to two untrained settings with different conversation partners and without the Power Card.

Additionally, the results of this study indicate that "training loosely" can potentially lead to generalization. The procedures used in this study were not systematic, and therefore the term "training loosely" can be applied. Both Rose and Jack were able to generalize some of the conversational behaviors to untrained tiers following the implementation of the Power Card in their first tier. While more research is needed to support this claim, Stokes and Baer (1977) recommended that, "teaching is conducted with relatively little control over the stimuli presented and the correct responses allowed, so as to maximize sampling of relevant dimensions for transfer to other situations and other forms of the behavior" (p. 357). While we can not be certain, Rose and Jack's generalization may have been due to the loose training that they received from the Power Card.

Limitations and Recommendations for Future Research

After evaluating the results of this study, several limitations were determined. First, given the nature of the target behaviors and the design that was used, covariation occurred for both participants across untrained tiers. Conversational behaviors are not a reversible behavior, and therefore the experimental control of the study was weakened. There was covariation of some conversational behaviors across all untrained tiers after

intervention was introduced in tier 1. The covariation weakens the functional relation assumptions of the Power Card alone, especially because both Rose and Jack were able to meet mastery criterion in untrained tiers. If the researcher had selected another design, such as multiple probe across participants, covariation could have been controlled for and maintenance and generalization could have still been assessed across all tiers. Future studies should consider replicating the procedures used in this study, but should instead select a design that controls for covariation across untrained tiers.

Another limitation is that there were not multiple conversation partners in each of the settings. The researched intended to recruit a minimum of two conversation partners per setting, but due to limited class sizes and a lack of volunteers, both Rose and Jack had one setting with only one conversation partner. It is possible that Rose became satiated on having conversations with her single conversation partner in tier one, and that caused her percentage of conversational behaviors to fall back to baseline level during session 4 of the Power Card condition in tier one. After the researcher provided the task direction to talk to her CP about his interests during that session, Rose looked at the researcher and said "Why do I have to talk to him again? I talked to him yesterday." It is recommended that future researchers recruit multiple conversation partners for all settings and participants, to control for satiation and to program for generalization.

Another limitation is that the participants did not identify their own SIA's. During a teacher interview, the teacher indicated that Rose struggled with identifying preferences and making choices. Given the lack of reinforcement history between Rose and the researcher, the researcher thought it would be more efficient to identify Rose's SIA by asking the teacher. To keep things consistent, the researcher also had Jack's teacher

identify his SIA even though there were no reports of him having trouble identifying reinforcers. For future studies, it is recommended that the researchers ask the participants about their SIA or conduct a preference assessment before relying on a teacher or parent to identify the SIA (Piazza, Fisher, Hagopian, Bowman, & Toole, 1996). It would be more socially valid to ask the participants to identify their own SIA, and it also could make Power Card more efficient and motivating for an individual.

Similarly, limitations existed in the implementation of the Power Card. Gagnon's (2001) guidelines suggested that a "teacher who has positive rapport with the student" should be the one to read and introduce the Power Card to the students (p. 25). Because there were so many different settings and teachers that would have required training, the researcher was the one who implemented the Power Card with each participant. Future studies should train teachers to implement the Power Cards, in order to truly assess Power Cards as they were designed by Gagnon.

Another limitation is that most of Rose's Power Card sessions in tier two did not occur in the classroom. Her second setting was a general education science class, and it became very loud and hectic at times. While all probe sessions occurred in the classroom, Rose requested the the Power Card sessions occur in the hallway so she could hear the researcher when she was reading the Power Card and scenario. Experimental control for this tier was lacking because the researcher changed two variables between probe and Power Card. Additionally, since intervention sessions occurred outside of the class, Rose's percentage of conversational behaviors during the Power Card condition were not a true representation of how she would have performed in the actual general education classroom setting. Future researchers should only make one change between probe and

intervention in order to strengthen experimental control.

In tier two, Rose's frequency of conversational behaviors improved drastically from probe to intervention. While she increased her question asking, she never learned to end the conversation by saying "bye" or some variation, thus a more salient way of teaching her to end the conversation was needed (i.e., designing a Power Card for just that skill). Future studies should consider making modifications to an individual's Power Card if they are not learning a skill. This suggestion is consistent with Gagnon's guidelines (2001).

Additionally, the IOA for "accessing the Power Card" was calculated at 50%. This is likely due to the fact that the definition of "accessing" was not well defined. The researcher informed her data collectors that "accessing" meant "looking at" the Power Card. This definition did not exclude briefly glancing at the Power Card or eyes momentarily landing on the Power Card. Additionally, there were times when data collectors were positioned behind the participants and could not see their eye gaze. Future researchers should operationally define what each behavior looks like. Likewise, future researchers should train all data collectors to position themselves in a place where they can observe all behaviors displayed by the participants.

Lastly, there were several instances where the experimental control was weakened even further. During probe session 9 in tier 3 for Rose, following the task direction, Rose asked if her CP was mad at her, to which the CP said "No, I'm just waiting for you to talk to me about my interests." The CP's response served as a verbal and gestural prompt for Rose, and she began engaging in conversational behaviors. Similarly, during Rose's

probe session 19 in tier 3, following the task direction from the researcher, the classroom teacher prompted the CP to tap Rose on the shoulder to "let her know where you are." Additionally, the teacher prompted Rose by saying "Come on Rose, talk to your CP about her interests, you know what she likes." Again, this served as verbal and gestural prompt for Rose and she immediately began engaging in conversational behaviors. In the future, researchers should plan to review the CP's expectations prior to each session, and also train teachers or other adults on their expectations while sessions are being conducted. In doing so, the researchers can hopefully strengthen their experimental control and internal validity.

Implications for Practitioners

Although this study lacked experimental control, the results of the study are still powerful for practitioners and individuals with high functioning ASD. This study only lasted for 4 weeks and Power Card sessions never lasted more than 15 minutes, yet both participants were able to generalize conversational behaviors to untrained settings and to different conversation partners. For a teacher or a practitioner, Power Cards are a very promising and practical intervention. They require very minimal preparation, and when implemented as Gagnon (2001) intended, they resulted in an increase in conversational skills for two adolescents with ASD. Additionally, during the course of the study, Jack's special education teacher asked the researcher for the materials and procedures to implement Power Cards across different skills and behaviors after the study. The teacher acknowledged the success of the Power Card and wanted to continue implementing them with Jack.

The individuals with high functioning ASD experienced success using the Power Cards. It was reported by two teachers both participants began initiating conversations with their typical peers during class time and outside of sessions. Individuals with high functioning ASD were able to improve peer relations and meet new classmates during the course of this study.

Another implication to consider is that both participants accessed their Power Card during only one intervention session each, and Rose accessed it once during her maintenance session. Additionally, Rose chose to only listen to the Power Card instead of the Power Card and the scenario before her maintenance session, but still engaged in 60% of conversational behaviors. This suggests that the individuals only need to hear or read the scenario and Power Card prior to a session, and that it is able to be easily faded out after learning the skill.

Section 6: Conclusion

While it cannot be said that a functional relation was established during this study, the results are promising. When Power Cards were designed and implemented using Gagnon's (2001) guidelines, at least one demonstration of effect was established for each participant. Given the nature of this design, covariation occurred across untrained tiers, and both participants generalized the skill to mastery in untrained tiers. For practitioners, these results are promising because Power Cards are easily implemented and were able to show success for individuals with high functioning ASD. Future researchers should evaluate the effectiveness of Power Cards using a more rigorous design to establish experimental control and a potential functional relation.

Appendix A: Power Cards and Scenarios

Justin Bieber loves to talk about other people's interests!

Justin Bieber loves to talk to people about their interests. When other people are trying to talk to Justin, he enjoys when they make eye contact with him and turn their body towards him, so when it's time for him to talk to people, he makes eye contact with them and turns his body to them. Justin knows that before he can start a conversation with someone, he must get their attention by saying their name or saying something like "hey," "what's up," or "hi." Justin always waits for the other person to respond to his greeting before saying anything else. After Justin has gotten the person's attention, he loves to ask them about their interests and the things that they enjoy doing. He will ask them things like, "What do you like to do?" or "What are some of your favorite things?" Justin pays attention to what the other person is saying and he always waits for them to finish talking before asking another question or making a comment about their interests. During the whole conversation, Justin wants the other person to know he cares, so he keeps his body faced towards them, makes eye contact with them, and never interrupts while the person is talking. Whenever Justin is ready for the conversation to end, he says things like "thanks for talking to me," or "I'll talk to you later," or "bye," and then walks away or returns to the work or activity he was just doing. Justin follows these steps whenever he talks to other people about their interests because he loves to hear about their favorite things!

Justin Bieber knows that other people like to talk about their interests. He wants to help you talk to other people about their interests by following these five steps:

1. Look at the person's eyes, turn your body to them, and greet them by saying "hi" or by using their name
2. Wait for them to respond
3. Ask about their interests and wait for them to respond again
4. Make a comment or ask another question about their interest until you can't think of anything else to say
5. End the conversation by saying "bye" or "talk to you later" and return to your previous activity

Justin Bieber wants you to follow these steps to talk to other people about their interests, so you can have good conversations just like him!

Figure A.1: Rose's Power Card scenario.

1. Look at the person's eyes, turn your body to them, and greet them by saying "hi" or by using their name
2. Wait for them to respond
3. Ask about their interests and wait for them to respond again
4. Make a comment or ask another question about their interest until you can't think of anything else to say
5. End the conversation by saying "bye" or "talk to you later" and return to your previous activity

Figure A.2: Rose's POWER CARD

Tim & Moby love to talk about other people's interests!

Tim & Moby love to talk to people about their interests. When other people are trying to talk to Tim & Moby, they enjoy when the other person makes eye contact with them and turns their body towards them, so when it's time for Tim & Moby to talk to people, they make eye contact with the other person and turn their body to them. Tim & Moby know that before they can start a conversation with someone, they must get their attention by saying the other person's name or saying something like "hey," "what's up," or "hi." Tim & Moby always wait for the other person to respond to their greeting before saying anything else. After Tim & Moby have gotten the person's attention, they love to ask the other person about their interests and the things that they enjoy doing. They will ask them things like, "What do you like to do?" or "What are some of your favorite things?" Tim & Moby pay attention to what the other person is saying and they always wait for the other person to finish talking before asking another question or making a comment about that person's interests. During the whole conversation, Tim & Moby want the other person to know they care, so they keep their bodies faced towards the other person, make eye contact with them, and never interrupt while the person is talking. Whenever Tim & Moby are ready for the conversation to end, they says things like "thanks for talking to me," or "I'll talk to you later," or "bye," and then walk away or return to the work or activity they were just doing. Tim & Moby follow these steps whenever they talk to other people about their interests because they love to hear about their favorite things!

Tim & Moby know that other people like to talk about their interests. They want to help you talk to other people about their interests by following these five steps:

1. Look at the person's eyes, turn your body to them, and greet them by saying "hi" or by using their name
2. Wait for them to respond
3. Ask about their interests and wait for them to respond again
4. Make a comment or ask another question about their interest until you can't think of anything else to say
5. End the conversation by saying "bye" or "talk to you later" and return to your previous activity

Tim & Moby want you to follow these steps to talk to other people about their interests, so you can have good conversations just like them!
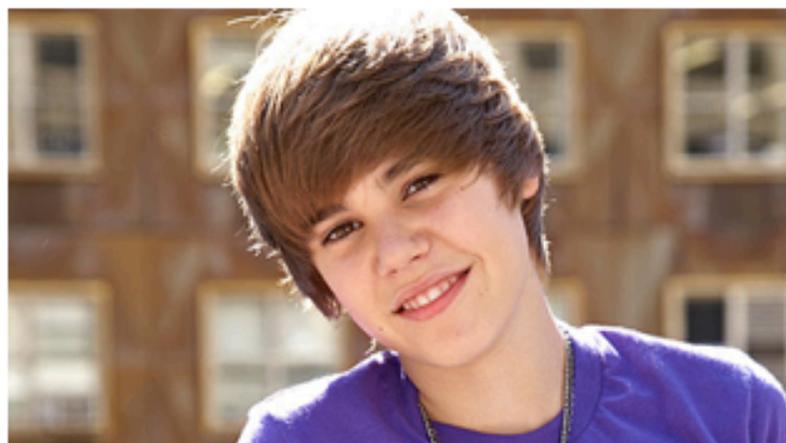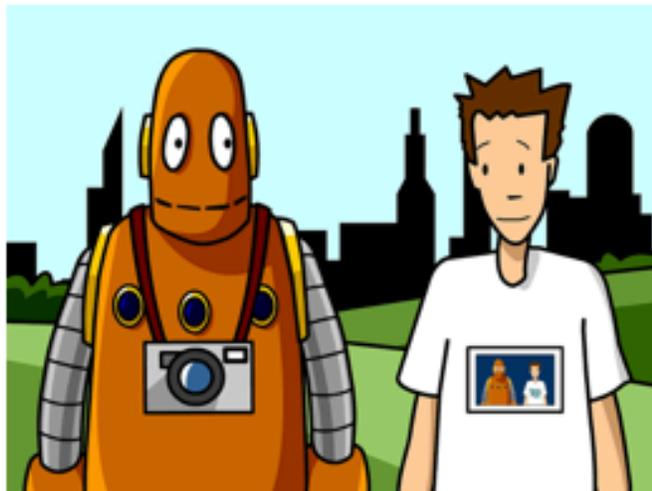

Figure A.3: Jack's Power Card scenario.

1. Look at the person's eyes, turn your body to them, and greet them by saying "hi" or by using their name
2. Wait for them to respond
3. Ask about their interests and wait for them to respond again
4. Make a comment or ask another question about their interest until you can't think of anything else to say
5. End the conversation by saying "bye" or "talk to you later" and return to your previous activity
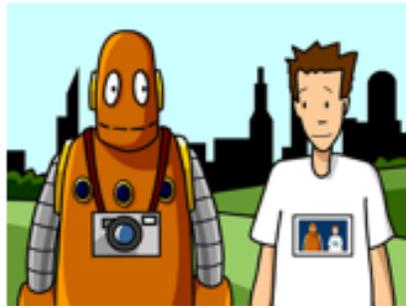
Figure A.4: Jack's POWER CARD.

Appendix B: Conversation Rating Skill

Greeting		
1) Engages in age appropriate joint attention or a nonverbal greeting (e.g., makes eye contact with CP, orients body towards CP, nods head at CP etc.)	Y	N
2) Says "hey, hello, hi, what's up," or addresses CP by name	Y	N
3) Waits for CP to respond before speaking again	Y	N
Conversation		
4) Asks or comments about CP's interests **(If "Y" answer #5-8, if "N" circle "N" for #5-8)**	Y	N
5) Makes eye contact with CP	Y	N
6) Orients body towards CP	Y	N
7) Waits for CP to respond before speaking again	Y	N
8) Asks another question or comments about CP's interests **Frequency:**	Y	N
Ending		
9) Appropriately ends the conversation (e.g., thanks for talking to me, I'll talk to you later, see you later, bye, etc.)	Y	N
10) Walks away or returns to previous work/activity	Y	N
Total %:		

Appendix C: Conversation Partner Training Handout

Characteristics of ASD

- Social and communication deficits
    - Lack of social reciprocity (i.e., the normal back-and-forth flow of social interactions)
    - Deficits in verbal and nonverbal communication used for social interaction (e.g., lack of eye contact, abnormal body language, may not understand other's use of gestures, facial expressions, etc.)
    - Failure to develop, maintain, understand relationships
- Restricted, repetitive patterns of behavior, interests, and activities
    - Stereotyped motor or verbal behaviors (e.g., repeating the same thing over and over, or making the same body movements over and over)
    - Excessive adherence to routines and ritualized patterns of behavior (e.g., may become upset when something does not go the way they had it planned in their head)
    - Restricted, fixated interests (on one or few items/things/topics, etc.)
    - Hyper-/hypo-reactivity to sensory input

Purpose of this Study

- To give these individuals a way to engage in conversations with their peers
- To strengthen relationships with peers

Your job

- Wait for the individual to initiate the conversation
- Talk about your own interests, not theirs
    - Researcher will always tell you ahead of time what their interests are
- Engage in typical conversational behaviors
    - look at them, turn your body to them, wait for them to respond before making another comment/asking a question, etc.
- Respect this individual's ways of communication
    - It may take this individual a long time to respond, do not laugh or appear impatient during this time

Appendix D: Data Sheets

Appendix D1: Conversation Partner Training: Procedural Fidelity Data Sheet

Conversation Partner Training Data Sheet

Conversation Partner (CP): _____ **Setting:** H S N **Date:** _____ **Data Collector:** _____

Time Start/End: _____ / _____ **Data Collection:** Primary / Reliability

H= highly structured
S= Semi-structured
N= not structured

Instructor Behaviors

Gives handout to CP	Y	N
Reads handout aloud, or has CP read to themselves	Y	N
Highlights/discusses the three main sections on handout	Y	N
Allows time for CP to ask questions	Y	N
Reviewed data sheet with CP and talked through the target behaviors	Y	N
Described how the target behaviors were defined	Y	N
Role play where researcher is CP	Y	N
Discuss role play session	Y	N
Role play where CP is themselves and researcher is participant	Y	N
Provides immediate specific feedback	Y	N
Continues to roleplay until CP requires no corrective feedback for one roleplay session	Y	N
Allows CP to ask more questions if needed	Y	N
Total:	/12	

Notes:

Appendix D2: Probe: IOA and Procedural Fidelity Data Sheet

Probe Data Sheet

Participant: _____ **Conversation Partner (CP):** _____ **Setting:** H S N **Date:** _____

Condition: Probe / Int. **Data Collector:** _____ **Session #:** ____

H= highly structured
S= Semi-structured
N= not structured

Data Collection: Primary / Reliability

Time Start/End: _____ / _____ **IOA:** _____ % **PF:** _____ %

For each of the following, circle "Y" if the participant engages in said behavior and circle "N" if the participant does engage in said behavior. End session after 20 s of no engagement in any of the below bx

Participant seated or standing about 1-3 ft. from CP	Y	N
Provided task direction to talk about CP's interests	Y	N
Absence of POWER CARD	Y	N
Greeting		
1) Engages in age appropriate joint attention or a nonverbal greeting (e.g., makes eye contact with CP, orients body towards CP, nods head at CP etc.)	Y	N
2) Says "hey, hello, hi, what's up," or addresses CP by name	Y	N
3) Waits for CP to respond before speaking again	Y	N
Conversation		
4) Asks or comments about CP's interests **(If "Y" answer #5-8, if "N" circle "N" for #5-8)**	Y	N
5) Makes eye contact with CP	Y	N
6) Orients body towards CP	Y	N
7) Waits for CP to respond before speaking again	Y	N
8) Asks another question or comments about CP's interests	Y	N
Frequency:		
Ending		
9) Appropriately ends the conversation (e.g., thanks for talking to me, I'll talk to you later, see you later, bye, etc.)	Y	N
10) Walks away or returns to previous work/activity	Y	N
Total %:		
Ended session after 20 s of no engagement in above bx's	Y	N

# of times participant looked at POWER CARD:

_____

Notes:

Appendix D3: Power Card Session 1: IOA and Procedural Fidelity Data Sheet

POWER CARD S1 Data Sheet

Participant: _____ **Conversation Partner (CP):** _____ **Setting:** H_S_N **Date:** _____

Condition: Probe / Int. **Data Collector:** _____ **Session #:** ____

H= highly structured
S= Semi-structured
N= not structured

Data Collection: Primary / Reliability

Time Start/End: _____/_____ **IOA:**_____% **PF:**_____%

For each of the following, circle "Y" if the participant engages in said behavior and circle "N" if the participant does engage in said behavior. End session after 20 s of no engagement in any of the below bx

Researcher reads scenario to participant	Y	N
Researcher and participant discuss the scenario; researcher answers questions if asked	Y	N
Researcher reads POWER CARD to participant	Y	N
Researcher points out similarities between scenario and POWER CARD	Y	N
Participant has access to POWER CARD during session	Y	N
Participant seated or standing about 1-3 ft. from CP	Y	N
Provided task direction to talk about CP's interests	Y	N
Greeting		
1) Engages in age appropriate joint attention or a nonverbal greeting (e.g., makes eye contact with CP, orients body towards CP, nods head at CP etc.)	Y	N
2) Says "hey, hello, hi, what's up," or addresses CP by name	Y	N
3) Waits for CP to respond before speaking again	Y	N
Conversation		
4) Asks or comments about CP's interests (If "Y" answer #5-8, if "N" circle "N" for #5-8)	Y	N
5) Makes eye contact with CP	Y	N
6) Orients body towards CP	Y	N
7) Waits for CP to respond before speaking again	Y	N
8) Asks another question or comments about CP's interests	Y	N
Frequency:		
Ending		
9) Appropriately ends the conversation (e.g., thanks for talking to me, I'll talk to you later, see you later, bye, etc.)	Y	N
10) Walks away or returns to previous work/activity	Y	N
Total %:		
Ended session after 20 s of no engagement in above bx's	Y	N
Researcher retrieved POWER CARD from participant	Y	N

# of times participant looked at POWER CARD: _____

Notes:

Appendix D4: Power Card: IOA and Procedural Fidelity Data Sheet

POWER CARD Data Sheet

Participant: _____ **Conversation Partner (CP):** _____ **Setting:** H S N **Date:** _____

Condition: Probe / Int. **Data Collector:** _____ **Session #:** ____

| H= highly structured |
| S= Semi-structured |
| N= not structured |

Data Collection: Primary / Reliability

Time Start/End: _____ / _____ **IOA:** _____ % **PF:** _____ %

For each of the following, circle "Y" if the participant engages in said behavior and circle "N" if the participant does engage in said behavior. End session after 20 s of no engagement in any of the below bx

Researcher reads scenario to participant	Y	N
Researcher reads POWER CARD to participant	Y	N
Participant has access to POWER CARD during session	Y	N
Participant seated or standing about 1-3 ft. from CP	Y	N
Provided task direction to talk about CP's interests	Y	N
Greeting		
1) Engages in age appropriate joint attention or a nonverbal greeting (e.g., makes eye contact with CP, orients body towards CP, nods head at CP etc.)	Y	N
2) Says "hey, hello, hi, what's up," or addresses CP by name	Y	N
3) Waits for CP to respond before speaking again	Y	N
Conversation		
4) Asks or comments about CP's interests **(If "Y" answer #5-8, if "N" circle "N" for #5-8)**	Y	N
5) Makes eye contact with CP	Y	N
6) Orients body towards CP	Y	N
7) Waits for CP to respond before speaking again	Y	N
8) Asks another question or comments about CP's interests	Y	N
Frequency:		
Ending		
9) Appropriately ends the conversation (e.g., thanks for talking to me, I'll talk to you later, see you later, bye, etc.)	Y	N
10) Walks away or returns to previous work/activity	Y	N
Total %:		
Ended session after 20 s of no engagement in above bx's	Y	N
Researcher retrieved POWER CARD from participant	Y	N

# of times participant looked at POWER CARD:

_____

Notes:

Appendix D5: Maintenance: IOA and Procedural Fidelity Data Sheet.

POWER CARD (criterion) Data Sheet

Participant: _____ Conversation Partner (CP): _____ Setting: H S N Date: _____

Condition: Probe / Int. Data Collector: _____ Session #: ____

Data Collection: Primary / Reliability

H= highly structured	
S= Semi-structured	
N= not structured	

Time Start/End: _____ / _____ IOA: _____% PF: _____%

For each of the following, circle "Y" if the participant engages in said behavior and circle "N" if the participant does engage in said behavior. End session after 20 s of no engagement in any of the below bx

Researcher provides option of reading scenario + POWER CARD or just POWER CARD	Y	N
	Both	PC
Researcher reads POWER CARD to participant	Y	N
Participant has access to POWER CARD during session	Y	N
Participant seated or standing about 1-3 ft. from CP	Y	N
Provided task direction to talk about CP's interests	Y	N
Greeting		
1) Engages in age appropriate joint attention or a nonverbal greeting (e.g., makes eye contact with CP, orients body towards CP, nods head at CP etc.)	Y	N
2) Says "hey, hello, hi, what's up," or addresses CP by name	Y	N
3) Waits for CP to respond before speaking again	Y	N
Conversation		
4) Asks or comments about CP's interests **(If "Y" answer #5-8, if "N" circle "N" for #5-8)**	Y	N
5) Makes eye contact with CP	Y	N
6) Orients body towards CP	Y	N
7) Waits for CP to respond before speaking again	Y	N
8) Asks another question or comments about CP's interests	Y	N
Frequency:		
Ending		
9) Appropriately ends the conversation (e.g., thanks for talking to me, I'll talk to you later, see you later, bye, etc.)	Y	N
10) Walks away or returns to previous work/activity	Y	N
	Total %:	
Ended session after 20 s of no engagement in above bx's	Y	N
Researcher retrieved POWER CARD from participant	Y	N

# of times participant looked at POWER CARD:

_____

Notes:

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