Parent Perspectives on Home-Based Intervention for Young Children with Developmental Disabilities: The Parent-Implemented Communication Strategies (PiCS) Project in Illinois, USA

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Abstract

Parents' perspectives on a home-based, parent-implemented social-pragmatic communication intervention for young children aged 37 to 60 months with limited expressive language are presented in this report. The researchers analyzed the perspectives of seven parent participants in the Institute of Education Sciences-funded Parent-Implemented Communication Strategies (PiCS) project and their family members. Data included individual interviews with the parent interventionists, their spouses, and siblings of the target children, external evaluator findings, and survey responses. The research team employed qualitative research methodology to examine family perspectives on the PiCS project. Three major findings emerged concerning the PiCS intervention: (a) the intervention resulted in changes in the interaction between the parent interventionists and the target children, (b) the changed interaction had a positive effect on the children's social-pragmatic communication skills, and (c) the intervention resulted in positive changes in entire families' interactions with the target children.

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Teaching communication skills to children in their natural environments and involving parents in their children's interventions are important components of current early intervention approaches (Bruder, 2010; Kaiser & Hancock, 2003). Since young children with disabilities typically spend many of their waking hours at home with their parents it is important to partner with parents and provide them with strategies they can use to enhance their children's communication skills. Teaching parents to use instructional strategies that support their children's language development is an important component of an effective and enduring early communication intervention (Roberts & Kaiser, 2011). In addition, some researchers have found that parents can learn new strategies readily and implement them with fidelity (Dunlap, Ester, Langhans, & Fox, 2006; Kashinath, Woods, & Goldstein, 2006; Romski et al., 2010).

Although researchers (e.g., Dunlap et al., 2006; Kaiser & Hancock, 2003; Kaiser, Hancock, & Nietfeld, 2000; Kaiser & Roberts, 2013) have demonstrated that parents are able to learn new

strategies and implement them accurately with their children, it is important to understand parents' perspectives on intervention goals, procedures, and outcomes. If parents do not have positive perspectives on the intervention, the chances they will maintain the use of the newly learned strategies beyond the period of the intervention are low (Reimers, Wacker, Derby, & Cooper, 1995; Turan, Ostrosky, Halle, & DeStefano, 2004). Wolf (1978) referred to the validation of practices as "judgments of social validity" (p. 207). He suggested three levels of *social validity*, namely: (a) the social significance and importance of the goals, (b) the acceptability of the intervention, and (c) satisfaction with the results of the intervention. Historically, intervention programs have been evaluated primarily in terms of outcomes; in other words, did the intervention result in desired changes in behavior? However, this preoccupation with outcomes, which are undeniably important, is limiting. Interventionists also need to gain family perspectives about interventions, which include the social validity of the goals of the intervention and the acceptability of the procedures used as well as the outcomes of the intervention (Gresham & Lopez, 1996; Turan & Meadan, 2011).

Empirical Context for the Current Social Validity Study

The Parent-Implemented Communication Strategies (PiCS) project was a 3-year data-based project funded by the Institute of Education Sciences and focused on the development of family-specific, parent-implemented naturalistic and visual strategies designed to improve the social-pragmatic communication skills of young children with developmental disabilities (DD; see Meadan, Angell, Stoner, & Daczewitz, 2014 for a report of empirical results). By emphasizing family-specific interventions that caregivers can implement in their home environments, the PiCS project aimed to not only teach parents naturalistic and visual teaching strategies but also enhance parents' maintenance of teaching skills and the sustainability of the interventions.

During the first 2 years of the PiCS project seven families with young children (aged 37 to 60 months) with disabilities and very limited expressive language (no more than 10 functional words or manual signs as indicated by the Communication Development Inventory (CDI; Fenson et al., 2007) participated in the project. Parents were trained and coached, in their homes, on the use of four naturalistic teaching strategies (environmental arrangement, modeling, mand-model, and time delay) and three visual teaching strategies (visual schedules, visual rule reminders, and visual task analysis).

Prior to coaching, parents developed social-pragmatic communication objectives appropriate for their children's home routines (e.g., meal time and free play) in collaboration with the PiCS coaches. Two or three coaching sessions on each strategy were conducted each week. Data were collected on both parent and child behavior during naturally occurring parent-child interactions. In addition, parents were asked to self-evaluate their use of the naturalistic and visual teaching strategies.

The primary empirical study employed a single-case multiple baseline research design across strategies within each family to evaluate the effects of the PiCS intervention. The outcomes of the PiCS project were found to be positive (Stoner, Meadan, Angell, & Daczewitz, 2012); parents learned and successfully implemented naturalistic and visual teaching strategies in their homes with their children with DD. The secondary data collected through both formal and informal assessments of the children's language indicated growth in social-pragmatic

communication skills. The outcomes of the PiCS project are reported in another paper (Meadan et al., 2014). One of the goals of the PiCS project was to assess the feasibility and acceptability of the intervention developed within the project. The current report focuses on the social validity of the PiCS intervention.

Purpose of the Study

The purpose of the current qualitative study was to explore the perspectives of family members regarding the PiCS intervention and answer the following research question: What are the perspectives of family members regarding the PiCS Project, a home-based intervention program designed to train and coach parents to implement naturalistic and visual teaching strategies in the natural environment? In other words, do family members perceive the PiCS intervention as socially valid?

Method

Qualitative Research Design

We employed qualitative research methodology to examine family perspectives on the PiCS project obtained through in-depth interviews; specifically, we used a grounded theory approach in which researchers identify categories and concepts that emerge from the data and link those concepts into theories (Strauss & Corbin, 1998). Several qualitative researchers (e.g., Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005) have contended that studying multiple cases can lead to better comprehension and better theorizing, and gives the assurance that events in one case are not "wholly idiosyncratic" (Miles & Huberman, 1994, p. 172). In the current study we used both social comparison and subjective evaluation methods (Kazdin, 1977) to triangulate and validate the findings. Table 1 includes information about the purposes and types of assessments we conducted.

Participants

The participants in the PiCS project during the first 2 years were members of seven families and all participated in this social validity study. The seven parent interventionists (those who implemented the intervention) included six mothers and one father between the ages of 32 and 55. The seven noninterventionist parents were six fathers and one mother between the ages of 30 and 54. All families earned income placing them in a middle socio-economic status. The target children included three girls and four boys, between the ages of 37 and 60 months with very limited expressive language (fewer than 10 functional words). Five of the children had been diagnosed with Down Syndrome, one with developmental delays, and one with autism spectrum disorder (ASD).

Table 1
Methods Used to Evaluate Family Members' Perspectives on the PiCS Project

	Perspective on the Goals	Perspective on the Procedures	Perspective on the Outcomes
Social Comparison: Purpose	Identify behaviors of target children that distinguish them from	Identify interventions or procedures used with young children with disabilities	Evaluate the outcomes of the intervention by comparing the behaviors

	peers who are similar demographically	targeting the same or similar behaviors	of the target children to those of peers
Social Comparison: Assessment	Formal assessments, preintervention	Literature Review	Formal assessments, postintervention
Subjective Evaluation: Purpose	Survey the opinions of family members regarding socially important skills/deficits of the target children	Assess the social acceptability of the procedures by family members	Survey the opinions of family members regarding the outcomes of the intervention
Subjective Evaluation: Assessment	In-depth interviews with family members	In-depth interviews with family members	In-depth interviews with family members
	Parent survey	Parent survey	Parent survey
	Interviews by external evaluator	Interviews by external evaluator	Interviews by external evaluator

Three of the children were adopted. Five siblings of the target children also participated in the interviews. A few siblings did not participate in the interviews due to their young ages or their limited verbal communication. Specific demographic information for all participants is presented in Tables 2 and 3.

Table 2
Target Children's Demographic Information

Child*	Age at beginning of study	Gender	Ethnicity	Disability
Kim	37 months	Female	Black	Down Syndrome
Aaron	24 months	Male	Asian	Developmental Disability
Janice	48 months	Female	White	Down Syndrome
Anita	48 months	Female	White	Down Syndrome
George	38 months	Male	White	Down Syndrome
Harold	60 months	Male	White	Down Syndrome
Mike	42 months	Male	White	Autism Spectrum Disorder

Note. *All names are pseudonym names.

Table 3
Family Members' Demographic Information

Parent / (Child)	Relationship	Age	Highest Education	Family Income ($K)
MK* (Kim)	Mother	45	Master's Degree	65-85
DK (Kim)	Father	50	Master's Degree	
KK (Kim)	Sister	14		
GK (Kim)	Brother	11		
CK** (Kim)	Brother	7		
NB* (Aaron)	Mother	55	Master's Degree	65-85
CB (Aaron)	Father	45	Doctorate Degree	
RM (Janice)	Mother	32	Bachelor's Degree	65-85
WM* (Janice)	Father	32	Associate Degree	
JM (Janice)	Brother	3		
AH* (Anita)	Mother	37	Master's Degree	86-100
TH (Anita)	Father	36	Bachelor's Degree	
NH (Anita)	Brother	7		
CH (Anita)	Brother	5		
MH** (Anita)	Sister	3		
KC* (George)	Mother	38	Bachelor's Degree	65-85
JC (George)	Father	38	Bachelor's Degree	
JC (George)	Brother	5		
LM* (Harold)	Mother	48	High School	26-45
DM (Harold)	Father	54	High School	
JN* (Mike)	Mother	32	Bachelor's Degree	>100
DN (Mike)	Father	30	Doctorate Degree	

Note. *Parent interventionist. **A sibling with a Down Syndrome

Qualitative Data Collection

To assess the family members' perspectives, an external evaluator who was not directly involved in the PiCS project conducted individual in-depth interviews with both parents and siblings. The interviewer was an evaluation expert with a doctoral degree who was employed at a university not affiliated with the researchers' university and was a paid consultant on the PiCS project. He was hired to conduct evaluations that served both formative and summative purposes. He interviewed each parent interventionist twice, once after the parent completed coaching on the naturalistic teaching strategies and once after the parent completed coaching on the visual teaching strategies. These interviews were conducted by phone and lasted approximately 30 min. The external evaluator took field notes during the interviews. Appendix A includes the questions he asked each interviewee.

In addition to the interviews, parent interventionists completed research team-developed surveys at three points during the project: (a) before the intervention began, (b) after completion of the first phase of the intervention which included coaching the parents on naturalistic teaching strategies, and (c) after completion of the second phase of the intervention which included coaching the parents on visual teaching strategies. The preintervention survey included questions related to parent perceptions of social-pragmatic communication skills and strategies they were using with their children. The postintervention surveys (following the first and the

second coaching phases) included questions related to parent perceptions of the goals, procedures, and outcomes of the PiCS project. Survey questions are presented in Appendix A.

At the conclusion of the intervention we individually interviewed seven parent interventionists, seven noninterventionist parents (the spouses of the parent interventionists), and five siblings who were able to share their thoughts with us. During the face-to-face semi-structured interviews, the primary data source for this study, we purposefully asked broad, open-ended questions to allow our participants to voice their perspectives. We also asked follow-up questions to clarify, broaden, or expand responses. All interviews were video recorded either in the parents' homes or in their workplaces and transcribed to ensure accurate analysis of the participants' responses. We were careful to interview each family member separately so that responses from one family member did not influence responses from another family member. The interviews with the adults lasted approximately 45 min and the interviews with the siblings of the target children lasted approximately 15 min. To ensure objectivity, each interview was conducted by a member of the research team who had not been directly involved with the family during the coaching phases of the study.

Data Analysis

PiCS research team members who participated in the data analysis process consisted of three faculty members at a Midwestern USA university, the PiCS project coordinator, a speech-language pathologist who worked for the project, and three graduate assistants.

To analyze the data from the in-depth interviews the team conducted a cross-case analysis (Miles & Huberman, 1994) to study each family member as a whole entity and we coded each family member's responses line-by-line and then compared responses across all family members. As we examined the individual family members' responses we used a constant comparative method (Charmaz, 2000; Glaser & Strauss, 1967) to identify emerging themes. This allowed us to compare cases and to refine, expand, or delete themes as needed. We continually studied the interview data (Charmaz, 2000) during the coding process, discussed disagreements about emergent categories, and returned to the interview data continually until the team reached concordance on all themes. This process of cross checking the coding of the major themes provided "thoroughness for interrogating the data" (Barbour, 2001, p. 1116).

Because there was a large amount of data to analyze, we assigned sets of interviews to members of the research team to ensure thorough, consistent, and accurate analysis. We initially formed four research teams. One team, consisting of a faculty member and one graduate assistant, analyzed the seven parent interventionist interviews and five sibling interviews. A second team, consisting of another faculty member and graduate assistant, analyzed the seven noninterventionist parent interviews and the parent interventionist interviews conducted by the external evaluator. A third team, consisting of a faculty member, the project coordinator, and the speech-language pathologist for the grant project, read all the interviews to ensure credibility through peer debriefing (Brantlinger et al., 2005). The final team member, a graduate assistant, analyzed results from the parent interventionist surveys that were completed at three points during the project.

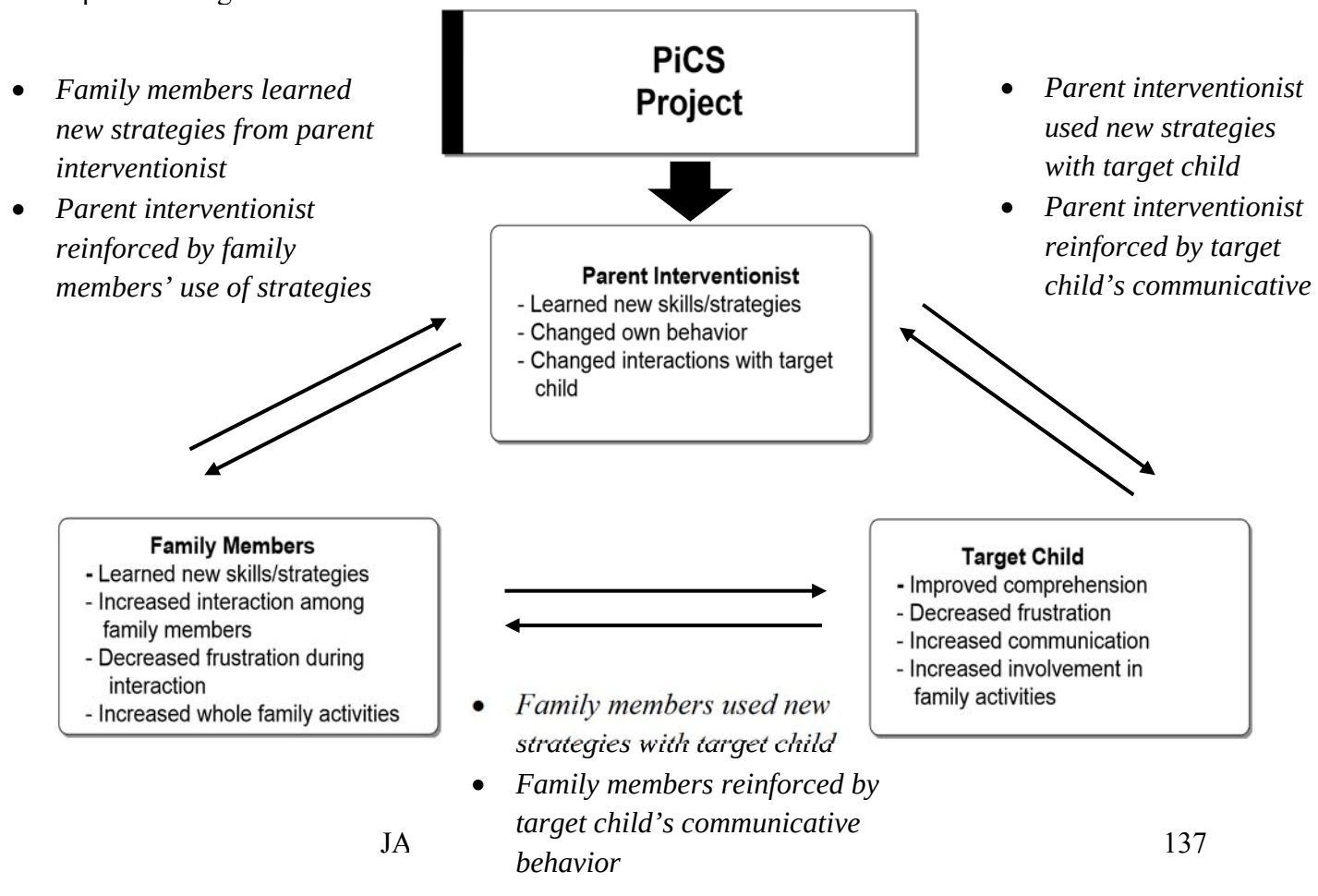
The members of the first two teams separately analyzed their assigned interviews using line-by-line coding and then the two members of each team met to establish major themes from the line-by-line coding. The third team, consisting of the peer debriefers, was responsible for reading all interviews and identifying broad themes; they did not line-by-line code the interviews. The full research team then met as a group to discuss and reach concordance on the major themes the first two teams had identified. We triangulated and confirmed our findings using researcher-developed surveys, the external evaluator's field notes, and the peer debriefers' input. The data from the parent postintervention surveys were analyzed by calculating the averages across all parents for each question. Since the preintervention and postintervention surveys were different we were not able to compare the results of the two surveys.

Findings

The findings were complex and multi-faceted and as we delved into the data, returning to them to constantly verify the findings, three common themes emerged across all data sources, concerning the PiCS intervention. Family members reported that: (a) the intervention resulted in changes in the interaction between the parent interventionists and the target children, (b) the changed interaction had a positive effect on the children's social-pragmatic communication skills, and (c) the intervention resulted in positive changes in entire families' interactions with the target children.

Findings from Interviews with Family Members

We want to emphasize that this study's findings are circuitous rather than linear. A graphic representation of the findings from the in-depth interviews, the primary source of data, is depicted in Figure 1.



Effects of the PiCS project on parent interventionists. Three primary themes emerged about the effects of the PiCS project on the parent interventionists: (a) parent interventionists learned new teaching strategies that they perceived as effective for enhancing their children's communication, (b) parent interventionists changed their own behavior as a result of learning the new teaching strategies, and (c) the use of the new strategies caused changes in the interaction between the parent interventionists and the target children. Since the intervention focused on teaching and coaching the parent interventionists to use research-based naturalistic and visual teaching strategies, it was not surprising that all participants spoke about learning new teaching strategies. Yet, the PiCS participants also shared their perspectives on changes in their behavior that were outside the realm of the intervention.

The parent interventionists talked about the new strategies they learned. George's mother explained, "I feel like I have learned so much and there's so much that I've been able to help George with that I think just would have never even come to me or I never would have even known to do these things." Parents also described their "favorite" teaching strategy; however, there was no one teaching strategy that was preferred across parents. For example, Kim's mother stated that she liked the naturalistic teaching strategies since they were "so easy to incorporate into our lives." Aaron's mother explained that she rarely used the visual teaching strategies since "by the time we got the visuals, it just wasn't necessary." Conversely, Anita's mother spoke of using the visual teaching strategies with all of her four children: "and the visual strategies of hand washing and brushing teeth have been really effective for all the kids." Anita's father, a noninterventionist parent, described the positive aspect of using and understanding multiple teaching strategies: "The PiCS project gave a variety of ways [teaching strategies]; it wasn't always the same…so you had this repertoire of things you can try and kind of go through."

In addition, the participants either self-reported or were described by the noninterventionist parents as experiencing marked changes in their interactions with their children. Anita's mother stated that she "went into this [the PiCS project] thinking it was going to be about Anita, but really it was about me and how I communicate with all the kids." George's mother described how she now gives her child opportunities to communicate and make choices on his own.

> *One of the things they showed me [during coaching with video feedback] was the wait time [giving her child time to respond]. Because in the beginning I was talk, talk, talk, talk. And it was good to see that, okay, if I wait a little bit he will respond.*

Similarly, Mike's father, a noninterventionist parent, described changes he noticed in his wife's interaction with their son: "I see her just kind of reaffirming what he is asking for or 'do you want this one or do you want this?' and then making sure she is getting a response out of him." Kim's older brother described changes in his mother's interaction with Kim: "Sometimes she [Mom] like repeats stuff, instead of just giving her [Kim] what she wants. She'll like repeat it - like - 'What do you want, Kim?' and she'll make Kim say, --like-- use a sentence." Anita's 7-year-old brother also noticed changes in his mom: "My mom talks a little different so Anita can understand her."

In addition, the parent interventionists themselves frequently described changes in their interactions with their children that were outside the realm of implementing the strategies. For example, Anita's mother stated,

> *It [PiCS project] has helped our relationship because she doesn't get as frustrated with not being able to express herself and I am not so quick to do it for her, which I think has helped her to be a little more independent and a little more confident in what she is trying to accomplish.*

Specifically, based on family members' interview data, the parent interventionists perceived themselves as more aware of their children's communication attempts, more deliberate in their interactions with their children, more confident in using the strategies, and less frustrated when communicating with their children.

Effects of the PiCS project on the target children. Participants reported several effects of the PiCS project on the target children. These children were between the ages of 37 and 60 months and had very limited expressive language and no more than 10 functional words or signs based on parents' reports and formal baseline assessments. All family members spoke unequivocally about the positive changes they observed in the target children. Family members identified (a) increased comprehension, (b) decreased frustration and a corresponding decrease in challenging behavior (for example, hair pulling while playing with others), (c) more attempts to communicate (i.e., initiate and respond) and interact with others, and (d) increased involvement in family activities.

Janice's father summarized his daughter's progress: "The joy that I get to see Janice being so happy because she can talk is immeasurable, really." Mike's father, a noninterventionist parent, spoke of the positive changes he noticed in his son's receptive language. Mike, who is on the autism spectrum, was nonspeaking at the beginning of the PiCS project and essentially remained nonspeaking, but his father noted definite changes in his comprehension: "I think we are able to communicate with him so much better; he can't tell us back that he understands, you know, he's showing us that he understands what we're telling him." Janice's mother, a noninterventionist parent, identified the decrease in her daughter's frustration as her social-pragmatic communication skills increased:

> *She has more patience with it [communication] because she would get upset if you couldn't understand ...but she tries to say words now and they are so much more understandable, not just to us but to other people. And so when other people are understanding her she doesn't have that frustration.*

The target children's improvement in communication skills was noticed not only by family members. Janice's mother, a noninterventionist parent, described comments she received at a monthly meeting of parents in the local Down Syndrome support group:

> *You know, even the parents that we go and do breakfast with every month have remarked about how much she has improved in the past few months, and how much clearer her words are and how many more words she is saying.*

These examples illustrate what is likely a circuitous reinforcing process of facilitating children's social-pragmatic communication skills. As the parent interventionists implemented the naturalistic and visual teaching strategies in a structured manner, giving their children time to respond and reinforcing those responses, the children began communicating more; this reinforced the parents' use of the teaching strategies which continued to facilitate the children's communication. As communication increased, the children's frustration decreased along with challenging behaviors. In addition, as the children were encouraged to communicate, their communication was recognized, and the children began communicating more with others within and outside their families.

In addition to enhanced communication skills, family members explained that due to the increase in the social-pragmatic communication skills the target children could be more involved in family activities. Kim's brother explained:

> *It's a little more fun because instead of Kim just saying random words- random, they're not even words, random stuff - then she can actually get involved in the conversation and we can understand what she's trying to say and what she's trying to tell us and she says – like -- some funny stuff so then it makes us laugh and stuff.*

Kim's older sister talked about this increased involvement, too:

> *She does a lot more with us kids and just plays with us a lot more. It's not just her and her toys, but, you know, we go places. Me and her walk to the park because if she wants to do something we can. She can ask now.*

Effects of the PiCS project on entire families. Even though the parent interventionists were the ones receiving the intervention, the effects extended to the entire participant families, and several participants also spoke of the positive effect on extended family members, such as grandparents, aunts, and uncles. Effects on the family were identified as (a) use of the strategies by family members, (b) increased communication between family members and the target children, (c) less frustration from family members when interacting with the target children, and (d) increased whole-family activities and an overall happier family life. Kim's mother described how everyone in her family used the strategies with Kim:

> *I never really sat down and taught it to anyone else in the family or said, 'This is what you should do,' but just from watching my interaction with Kim I see all the time the rest of the kids or my husband saying, 'Oh, Kim, say this,' or not giving her something until she verbalizes. So they all picked up on it and I think that's because it is so natural. And it's worked out great because she knows that everybody expects it of her now and that she's not going to be able to just get her way without talking.*

Some of the parent interventionists deliberately taught their spouses the teaching strategies. For example, Janice's mother stated that her husband "would bring back what he learned to the rest of us and so we would all try. So we would be working with Janice and it was a family effort."

George's father described how his wife, the parent interventionist, encouraged him to use the visual schedule with their son in the morning:

> *I used to never come down [the father gets the children their breakfast in the morning] with the little cards [visual schedule] and, you know, she's – like – 'Take these down, take these down, because when he's done doing something, you need to show him because he needs to know what's going on.' So I take them down.*

Use of the teaching strategies, both naturalistic and visual, extended to the siblings. Kim's 14-year-old sister described her use of the strategies: "I've actually done the modeling. And if she can't say something, you know, trying to say it to her and then having her say it back."

Noninterventionist parents and siblings also reported more interaction with the target children. Kim's 11-year-old brother reported:

> *I think I'm her favorite. Like – sometimes she'll come up and knock on my door and she's just learning how to open it. So she'll knock on my door and I'll go – like –, 'Who is it?' and then she'll be – like – 'Kim.'*

Harold's father, a noninterventionist parent, described his child's increase in persisting to communicate his wants and needs: "When he wants something, he stays on it." Kim's father talked of his daughter's increase in communicating when she wants to go with him: "I'll take my son with me because he likes going along because we usually stop and get a donut. So Kim will start putting her coat on and now she'll actually say, 'Me, too.'"

Kim's mother talked about the changes in the family: "It's just a lot happier lifestyle that she has so many words and can be a part of all of the communication that goes on because we are a talking family." Several of our participants reported that extended family members were more relaxed with their children. George's father, a noninterventionist parent, reported that the grandparents aren't "afraid to take him overnight and are much more relaxed around him." He attributes this change in behavior to the fact that they are "finally asking him [George] things and not us."

Identified Advantages and Challenges of the PiCS Project

Participant perspectives on the PiCS project were overwhelmingly positive. Parents spoke of the benefits of having (a) the opportunity to set goals for each session with their coaches, (b) access to permanent materials to remind them of the naturalistic strategies and assistance with creating visual strategies, (c) immediate feedback on strategy use from their coaches, and (d) coaches coming to their homes and using the home environment to teach the strategies. As one parent stated:

> *The thing I liked best, I guess, about the program is, it was so natural. It was – it wasn't hard to put it into my life or to have people come in to film or anything because it was just playing and eating and everything was natural. So to me that was a great benefit that it wasn't work to do it. It does fit into your life and I could see it fitting in with anybody's life because it can conform to any lifestyle at all.*

Mike's mother spoke of the benefit of coaching and immediate feedback:

> *The feedback that we got was really good and it was nice to be able to see on video from previous sessions and when, you know, when you're kind of in the moment. And I liked the videos because I saw, 'Wow, he really did that' since when you are in the moment sometimes you don't really pick up on things and so that was really neat.*

However, when asked about challenges of being involved in the PiCS project the participants identified two primary concerns: (a) frustration with "not knowing" what was coming next and (b) the time required for the family to participate. Since the PiCS project was a research project that involved a single-subject multiple baseline design, the research team could not tell the parent interventionists about the teaching strategies before it was time to begin training for each strategy. This created frustration for some as exemplified by Anita's mother, who stated,

> *I would have liked, like, a syllabus. I like a syllabus, you know when every date and every project and everything is laid out. That is comforting to me because I know exactly what I am getting and so my need for the details caused me frustration.*

Other participants spoke of the time commitment required for visits from the research team 2 nights a week. Janice's father stated,

> *I think it is a catch 22, I gotta get home and you know you're running between school and so the time constraint was kind of hectic but the two nights a week was really quality time with her, too.*

George's mother also identified the amount of time required: "It is a lot of time commitment, which is fine, and they [PiCS team] were more than accommodating to make our schedule work but it was a lot of time." While the time was significant, overall the parents felt it was worth the time and effort they put into working with their children.

Confirmability

Survey results. On the pre-intervention survey all parent interventionists indicated that the social communication skills of their children were "extremely" or "very" important. Kim's mother stated, "I find it very important because social communication/skills are lifelong needs." Aaron's mother said, "It helps young children learn and gives them access to the world. It is the foundation of other important skills and is a developmental need." When asked about strategies they were using prior to intervention, parents reported using primarily sign language and verbal communication, but that these strategies were "somewhat effective (for example, "we have our good days and our bad days") or not effective in improving communication ("nothing has helped").

The parent interventionists ranked, on average, their knowledge of social communication teaching strategies before the intervention, as 2.4 (range: 1-3) on a scale of 1-5 with 5 as the highest level of perceived knowledge. The parents ranked, on average, their competence in

implementing social communication teaching strategies as 2.5 (range: 1-4) on a scale of 1-5 with 5 as the highest perceived competence.

Average ratings of the parents' responses to the statements in the post-intervention surveys (that is, post-naturalistic teaching strategies coaching and post-visual teaching strategies coaching) are presented in Table 4. Parents rated all statements with an average of 4 or higher on a 5-point Likert scale and indicated strong levels of satisfaction with the project's goals, procedures, and outcomes, thus confirming the findings from the face-to-face interviews

Table 4
Average Ratings in the Parent Questionnaires Across all Parent Interventionists

Phase / Questionnaire Statement	Post-Naturalistic Strategies Coaching	Post-Visual Strategies Coaching
The information provided to you during training	4.5	4.5
The guidance provided to you during coaching	5.0	4.9
How satisfied you are with the overall project procedures	4.8	4.5
How easy it was to incorporate the naturalistic/visual strategies into your daily home routine	4.7	4.0
How useful the strategies were in meeting your child's goals	4.4	4.3
How satisfied you are with the overall project outcomes for your child	4.7	4.4
How satisfied you are with the overall project outcomes for you	4.7	4.7
Your knowledge of the naturalistic/visual teaching strategies	4.4	4.5
Your competence in implementing the naturalistic/visual teaching strategies	4.3	4.3
Your enjoyment in using the naturalistic/visual teaching strategies with your child	4.3	4.1

Note. 1=low/not useful/poor; 5=high/very useful/excellent.

Analysis of external evaluator field notes. The external evaluator asked parent interventionists about their perceptions of (a) the goals of the PiCS project, (b) the procedures used in the project (e.g., training, coaching, and video feedback), and (c) the outcomes of the project for themselves and their children (see Appendix A for interview questions).

Parent interventionists reported that they understood that improving their children's communication was the goal of the intervention and that it was very important and one of their primary goals. A few of the parent interventionists reported that although the goal was to help their children communicate they realized that the focus was on changing their own behavior, as one of the mothers explained, "I did not realize it was me they were making better."

Parent interventionists reported that they were very satisfied with the intervention procedures. They appreciated the materials they received during training and the guidance provided to them during coaching. In addition, they felt the naturalistic teaching strategies were easy to implement

and the visual teaching strategies were concrete. The strategies, along with the coaching support, appear to have helped the parents be intentional when supporting their children's communication development. Parents felt that one of the biggest advantages of the target teaching strategies was that they were easy to incorporate into their daily home routine. One of the mothers stated, "It is natural and easy to do. You don't have to have certain expertise. When I think about my day, I am amazed at how much I use it. I think back and realize I used it there and there and there and didn't even plan to do it."

The external evaluator also asked parents about components of the intervention that were not effective. Although they stated that they were very happy with the intervention, parents did mention a few components they felt were not as effective as others. A few parents talked about the intensity of the intervention (for example, three home visits per week) and their low comfort levels about being filmed in their own homes.

Parent interviews by the external evaluator confirmed that the parent interventionists believed that the intervention/strategies supported them and led to improvements in their children's communication skills. In addition to increased communication skills, parents felt that the intervention led to improved child behavior (that is, decrease in challenging behavior), increased social interaction with peers, and that it impacted the entire family (for example, all family members used the strategies resulting in increased communication among family members).

Discussion

This study focused on social validity specifically the methods we used to establish social validity and the corresponding results. Our discussion is organized into three areas, (a) social validity, (b) limitations, and (c) recommendations. The PiCS project results (Meadan et al., 2014) and a report on the evaluation of the PiCS project (Stoner et al., 2012) have previously been published.

Social Validity

Since analysis of social validity is one of the "top priorities" of research (Hurley, Wehby, & Feurer, 2010), the primary goal of this study was to examine the perspectives of family members related to the social validity of the PiCS project. We strongly value family input and wanted to systematically evaluate our project goals and procedures, in addition to the outcomes, to comprehensively obtain family members' perspectives and assess the social validity of the PiCS project. Wolf (1978) referred to the validation of practices as "judgments of social validity" (p. 207). He suggested three levels of *social validity*: (a) the social significance and importance of the goals, (b) the acceptability of the intervention, and (c) the satisfaction with the results of the intervention. In addition, we wanted to be responsive to our participants' needs, which have been identified as important to program sustainability (Carnine, 1997; Schwartz, 1991). The results of this study of family members' perspectives on the goals, procedures, and outcomes of the PiCS program indicate that the PiCS intervention is socially valid.

Social validity of the goals. The PiCS project was based on conceptual frameworks that have been identified as best practices in the literature: increasing social-pragmatic communication skills through naturalistic and visual teaching strategies, incorporating a family-centered orientation, and teaching in natural (e.g., home) environments.

Parent interventionists believed that social communication behavior was very important and formal assessment (CDI, Fenson et al., 2007) revealed that the target children were significantly delayed in their social-pragmatic communication skills. Therefore, the goal of enhancing the target children's social-pragmatic communication skills was a socially important one.

Social validity of the procedures. Parents reported overall satisfaction with the procedures used in the PiCS project. In addition, review of the literature related to communication teaching strategies for young children with disabilities indicated that naturalistic teaching strategies (e.g., Hart, 1985; Hart & Risley, 1975; Kaiser et al., 2000) and visual teaching strategies (e.g., Dettmer, Simpson, Myles, & Ganz, 2000; Ganz & Flores, 2008) are accepted and effective intervention strategies. Researchers have indicated that parents can be trained and coached on implementing new teaching strategies, and can use them effectively with their children (Dunlap et al., 2006; Meadan, Ostrosky, Zaghlawan, & Yu, 2009). Researchers also have emphasized the importance of involving family members in interventions for young children with disabilities (e.g., Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2011).

Teaching in the natural environment and using a collaborative team process, combined with a family-centered orientation are also considered best practices in early childhood intervention (Bruder, 2010). Consequently, the framework on which we based and developed the PiCS project is conceptually sound and the procedures we used, based on effective research practices, are socially valid.

Social validity of the outcomes. We feel it is important that, although the results of the formal assessments did not show increases in all aspects of the communication skills for all children, family members noticed communication changes in the target children that the formal assessments did not identify. This suggests that formal measures might not be the sole measure of outcomes of an intervention. For example, Mike's family spoke of their son's increased ability to follow directions and interact with family members, yet he showed no growth on the formal language assessment. Parents are with their children daily and their reports of their children's increased communication skills must be considered. This exemplifies Fox et al.'s (1997) emphasis on the importance of valuing family expertise.

Limitations

There are a few limitations to this study. The strategies we used in this project to assess family members' perspectives can provide guidelines for assessing social validity in other research studies, especially using multiple data sources and triangulating the data to confirm the results. However, results in this report are specific only to the PiCS project and cannot be generalized to other parent-implemented interventions. Due to the limited generalizability of this qualitative study, replication of this study with an expanded sample or larger sample size is recommended.

Another limitation of this study is that only parent interventionists and family members participated in the assessments. Schwartz and Baer (1991) suggested that various people should be included in the assessment of social validity including (a) direct consumers (e.g., parent interventionists and children), (b) indirect consumers (e.g., family members), (c) members of the

immediate community (e.g., family friends and neighbors), and (d) members of the extended community (e.g., people in the community who do not interact with the participants). In future research we hope to explore the perceptions of members of family participants' immediate communities and extended communities related to the social validity of the PiCS project. Furthermore, there is a need to use additional means of assessing parents' perspectives on interventions. One possible method is to show video clips of the parents' and children's behavior during different phases of the intervention, in random order, and ask members of the immediate and extended communities to rate the parent interventionists' use of the teaching strategies and the children's communication skills.

Recommendations

We strongly recommend involving family members not only in the development and implementation of early childhood interventions, but also in the evaluation of the social validity of those interventions. Seeking feedback from family members on goals, procedures, and outcomes of an intervention could lead to improvement of an intervention program and increase the probability that the intervention will have long-lasting effects. During our interviews with the parent interventionists they described challenges related to the PiCS procedures and potential changes to the program that could benefit future family participants. Consequently, for subsequent implementation of the intervention we made several changes in the delivery format including using technology (e.g., Skype) to minimize our appearance in the homes and thus minimize disruption to the family routine.

In summary, the PiCS project was socially valid and we can report with confidence that the social validity was based on a thorough examination of the PiCS project's goals, procedures, and outcomes. By gathering data from several sources (i.e., parent and child participants, noninterventionist parents, and siblings of the target children) and triangulating the data we can assuredly attest to the social validity of the PiCS project. Researchers should not shy away from the task of collecting social validity data because if the data were not positive, changes could be made to render the goals, procedures, and outcomes of interventions more acceptable. Positive social validity data affirm that an intervention has benefited all who were affected by it.

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Appendix A

External Evaluator Interview Questions

1. Tell me about your experience so far with the PiCS project.
2. Describe your overall perspective on the goals for PiCS project.
3. Please describe what was effective about the intervention (i.e., training and coaching).
4. Please describe what was ineffective about the intervention (i.e., training and coaching).
5. Describe your overall perspective on the outcomes of the intervention, for both you and your child.
6. Is there anything you would change about the PiCS project?