Social Skills Instruction for Urban Learners with Emotional and Behavioral Disorders: A Culturally Responsive and Computer-Based Intervention

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ABSTRACT: This study examined the effects of culturally relevant/responsive, computer-based social skills instruction on the social skill acquisition and generalization of 6 urban African American sixth graders with emotional and behavioral disorders (EBD). A multiple-probe across participants design was used to evaluate the effects of the social skills intervention on following adult directions. Results revealed increases in students following adult directions in the treatment phases; however, generalization results were modest for four students. These results support the use of a social skill package consisting of computer-based instruction and culturally responsive materials for urban adolescents with EBD. The specific components of this intervention are discussed along with implications for future research and study limitations.

■ Culturally diverse urban learners, in particular African American students, arguably have the poorest school outcomes of any student group (Howard & Flennaugh, 2011; Schott Foundation for Public Education, 2015). For example, African American males from urban environments have the lowest levels of academic achievement and the highest rates of discipline referrals (Rocque, 2010; Skiba et al., 2011). These disparities are more pronounced for urban learners with disabilities, especially those with emotional and behavioral disorders (EBD; Ford & Moore, 2013; Kauffman & Landrum, 2012; Vincent, Swain-Bradway, Tobin, & May, 2011). Moreover, the overrepresentation of minority youth, especially African American students, in special education programs is a persistent concern (Serpell, Hayling, Stevenson, & Kern, 2009). The percentage of students with EBD who are African American (26%) is nearly twice their representation in the overall school population (14.8%), is greater than any other ethnic group, and is heavily weighted toward males (Cartledge, Gardner, & Ford, 2009). Compared to their nonminority peers, these students are placed in more restrictive settings, receive fewer services, are administered more exclusionary punishments, and encounter more disciplinary actions for subjective reasons (Bradshaw, Mitchell, O'Brennan, & Leaf, 2010; Porter, 2012). These reactive measures exacerbate problem behaviors and fail to teach socially appropriate replacement behaviors. Thus, the need for effective interventions to enhance the school and post-school outcomes of urban African American students with EBD is acute (Vincent, Tobin, Hawken, & Frank, 2012).

Social Skill Instruction

Gresham, Van, and Cook (2006) asserted that social skills are a set of competencies that "(1) facilitate initiating and maintaining positive social relationships, (2) contribute to peer acceptance and friendship development, (3) result in satisfactory school adjustment, and (4) allow students to cope with and adapt to the demands of the school environment" (p. 364). Many authorities have advocated social skill instruction (e.g., Albrecht, Mathur, Jones, & Alazemi, 2015; Ledford & Wolery, 2013; Walker, Ramsey, & Gresham, 2004) as an effective means for improving social skills. For example, the Individuals with Disabilities Education Act (IDEA, 2004) advises that schools implement school-wide positive behavior supports (SWPBS; Sugai & Horner, 2009), which includes social skills instruction to mitigate behavior problems and excessive disciplinary actions. There is some modest but encouraging empirical evidence that social skills training can effectively modulate problem behaviors for culturally diverse students such as African American youth living in urban environments and for youth with EBD (Bardon, Dona, & Symons, 2008; Daunic et al., 2013; Robinson-Ervin, Cartledge, & Keyes, 2011).

Social skill instruction is typically based on a social modeling paradigm where the desired behavior is demonstrated and students are provided multiple opportunities to practice the behavior and receive specific, immediate feedback and reinforcement for their performance (e.g., Cartledge et al., 2009; Marquez et al., 2014). The social modeling paradigm employed in this study is based on social cognitive theory as espoused by Bandura (1977), which emphasizes the importance of observational learning in facilitating the acquisition of novel behaviors. Observations can help to refine underdeveloped or unused behaviors that are already in the learner's repertoire.

Culturally Relevant/Responsive Instruction

Traditional social skills instruction methods tend to exclude the cultural heritage and experiences of culturally diverse students (Sugai, O'Keeffe, & Fallon, 2012). Therefore, the positive returns of social skills instruction for culturally diverse students may be more pronounced if interventions are culturally tailored for specific groups, especially those least likely to thrive within the current system (e.g., African American urban youth with EBD; Brown, 2003; Cartledge & Kourea, 2008; Harris-Murri, King, & Rostenburg, 2006). Culturally relevant (Ladson-Billings, 1995) or culturally responsive (Gay, 2002) instruction involves proactively teaching students through their own cultural heritage and experiences, thus reducing barriers to learning (we are aware of the distinctions between these terms but because of the overlapping applications in this study, will use CR for the remainder of the paper). Culturally relevant/responsive teachers are student centered; are focused on respecting and learning about the cultural background of their students; and integrate components of the student's culture and experiences to meet the student's social, emotional, and academic needs (Ford & Kea, 2009).

The theoretical basis for CR teaching (e.g., Ladson-Billings, 1995; Gay, 2002) is Critical Race Theory, which is essentially realizing the influence of race, culture, and ethnicity on the ways educators teach and how children learn. Within this framework, some of the key themes for CR teaching pertain to overall achievement, cultural consciousness and competence, and caring environments. Within CR pedagogy, educators teach what is meaningful to the learner, which, in turn, increases pupil engagement and thus achievement (Brown-Jeffy & Cooper, 2011; Ladson-Billings, 1995). Gay (2002) elaborated that educators should use the cultural knowledge, prior experiences, and performance styles of diverse students to make learning more appropriate and effective for them. Therefore, CR instruction teaches to and through the strengths of culturally diverse students. Using the child's culture as a vehicle for learning can also be a means for increasing cultural consciousness and competence. Young people can learn how the newly acquired literacy and social skills can bring about desired change in their communities (Sturkey & Hale, 2015) and schools.

In this study, we integrated components of social skills instruction with the principles of CR instruction to create a model for CR social skills instruction: (a) teaching skills most important to the target population, (b) using CR materials to provide a rationale for teaching social skills and to teach those skills, (c) including culturally specific competent peer models, (d) incorporating the students' personal experiences

into the instruction, and (e) applying the skill within culturally specific parameters such as staging (where possible) environments consistent with the learner's background (Robinson-Ervin et al., 2011). Although there have been few studies investigating the effectiveness of CR social skills instruction, research is beginning to indicate that this is a promising intervention. For example, Lo, Mustian, Brophy, and White (2011) analyzed how CR social skills instruction improved knowledge and demonstration of aggression-resolution skills for seven African American elementary students at risk for EBD. Lo and colleagues targeted critical social skills for African American students, while tailoring the instruction to reflect the participants' cultural experiences and challenges. Results demonstrated that students improved their social skills knowledge and decreased inappropriate behaviors in the classroom.

Computer Technology

Technology is another mode of instruction that can be incorporated effectively into social skills training (Cumming, 2010) because of the familiarity students have with technology (Prensky, 2001), the engaging nature of technology (Gresham, 2004), its ability to increase student performance in academic areas (Boon, Fore, Blankenship, & Chalk, 2007; Journell, 2009), and the overall positive perceptions that students have about technology integration in the classroom (Juvonen, 2007). Empirical support for the benefits of technology and social skills instruction is found in studies with students with and at risk for EBD, attention deficit hyperactivity disorders, and autism spectrum disorder (Cumming et al., 2008; Fenstermacher, Olympia, & Sheridan, 2006; Hopkins et al., 2011; Plavnick, Sam, Hume, & Odom, 2013; Rozalski & Moore, 2004). Integrating technology (e.g., visual media, literature) with CR social skill instruction is a promising intervention approach. Lo, Correa, and Anderson (2015), for example, examined the effects of CR social skill instruction involving computer-assisted lessons with embedded peer-mediated videos on the social interactions of eight elementary-aged male participants of Mexican heritage with non-Latino peers during recess. Study findings revealed positive effects on verbal interactions for Latino males with non-Latino peers.

Purpose

Although the published research literature regarding social skills instruction with culturally diverse urban students with and at risk for EBD is promising, it is also extremely limited (Serpell et al., 2009). Students with deficits in social skills, such as following adult directions, frequently engage in disruptive behaviors and have difficulty establishing peer and adult relationships, thus putting them at risk for school failure (Albrecht et al., 2015). Therefore, the purpose of this study was to investigate the effects of CR social skills instruction delivered via computer software on following adult directions for 6 urban sixth-grade African American students with EBD.

Method

Participants

Intervention Participants

The participants in this study included 6 sixth-grade students identified with EBD who attended a middle school in an urban Midwestern area (see *Table 1* for participant information). Six participants were selected for this intervention according to the following criteria: (a) enrolled in the sixth grade, (b) scored below the 50th percentile on social skills measured on the Social Skills Improvement Scale–Teacher (SSIS-T; Gresham & Elliott, 2008), (c) assigned to the only classroom in the school for students with EBD, and (d) parental permission. All 6 sixth graders were nominated by the classroom teacher to be eligible participants in the study. Additionally, the researcher conducted informal observations prior to baseline to verify students' social skills deficit. All 6 sixth-grade students in the classroom were eligible and selected to participate in the study.

General Education Peers

Six sixth-grade students from the general education classroom also participated in the study. These students worked with the participants during practice group sessions; however, they did not receive computer-based intervention training. We used the following criteria to identify peer participants: (a) enrolled in the sixth grade, (b) parental permission forms were returned, and (c) nominated by all four sixth-grade teachers as not having discipline

TABLE 1
Participant and Peer Characteristics, Scores on Screening, and Descriptive Measures

	Participants						Peers					
	Desiree	**Donte**	**Johnny**	**Bobby**	**Keith**	**Kathy**	**Rochelle**	**Nicole**	**Amy**	**Jasmine**	**Tamiea**	**Camron**
Age	13	12	12	12	12	12	12	12	12	12	12	12
Gender	Female	Male	Male	Male	Male	Female	Female	Female	Female	Female	Female	Male
Ethnicity	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA
SES	FRL	FRL	FRL	FRL	FRL	FRL	FRL	FRL	FRL	FRL	FRL	FRL
Disability	EBD	EBD	EBD	EBD	OHI	EBD/ID	None	None	None	None	None	None
WJ-III[a]												
LW ID	7.1	3.1	4.8	9.1	4.4	1.9	6.7	3.4	3.1	5.9	2.3	5.9
PC	5.1	3.1	4.0	4.5	2.7	1.7	3.7	4.0	2.9	6.7	2.3	4.5
WA	8.6	3.1	7.5	12.9	3.6	1.0	6.1	5.1	2.3	7.5	2.4	5.1
RF	3.1	3.1	3.8	4.4	9.2	1.7	4.5	4.2	3.7	8.4	2.5	7.1
SSIS-T[b]												
SS	34	42	37	37	4	10	73	31	12	41	11	72
PB	97	98	92	95	>99	79	<1	79	86	84	97	4
AC	42	14	40	79	51	<1	81	37	12	55	2	54

Note. SES = socioeconomic status; AA = African American; FRL = free and reduced lunch; EBD = emotional or behavioral disorder; OHI = other health impairment; ID = intellectual disability; WJ-ACH III = Woodcock Johnson Tests of Achievement, 3rd ed. (Woodcock et al., 2001); LW ID = letter–word identification; PC = passage comprehension; WA = word attack; RF = reading fluency; SSIS-T = Social Skills Improvement System, Teacher version (Gresham & Elliott, 2008); SS = social skills; PB = problem behaviors; AC = academic competence.
[a] Woodcock Johnson Test of Achievement scores listed are grade equivalent scores. [b]Social Skills Improvement System scores are listed as percentile scores.

referrals during the school year and being socially assertive with the ability to interact successfully with the intervention participants (see *Table 1* for peer information).

Setting

The study took place in an urban middle school with a total enrollment of 243 students. All students in the school qualified for free or reduced price lunch. State records indicated that it was one of the poorest performing middle schools due to its discipline referrals and achievement scores. Intervention participants received their core classes (i.e., reading, writing, math, science, and social studies) in the special classroom for students with EBD. They were included with general education peers during lunch and for two periods of unified arts (i.e., art class, computer class, physical education class, and Spanish class). The social skill computer-based intervention sessions also took place in the special education classroom, with only the sixth-grade intervention participants present. During these sessions, each participant was seated at a computer with individual headphones. Generalization data were collected in the inclusive classes, which were set up as typical classrooms. General education peer training sessions and practice group intervention sessions took place in a vacant classroom. The set-up of the classroom was similar to the other sixth-grade classes, giving participants the opportunity to practice social skills lessons in a realistic setting to facilitate generalization.

Dependent Variable

We collected direct observation data of the participants following adult directions during baseline, intervention, and generalization. Following adult directions (to the whole class, small group, or individual) was defined as the participant attending to the teacher's directions during teacher instruction, following the direction within 5 s, and remaining on-task following the direction (e.g., taking notes, staying in seat, answering questions, completing assignments). Not following directions was defined as not physically complying with the direction within 5 s or not remaining on-task following a direction (e.g., out of seat, eyes not on the teacher, not attending to the lesson, talking out, talking to classmates). We used a whole interval method with 10-s time intervals for 20-min observation sessions. We used a Gymboss® Classic interval timer (Gymboss, St. Clair, MI) that automatically resets after each 10-s interval and discretely notifies observers of the next interval during observation sessions. Observers noted an "N" for intervals in which (a) a specific direction was not given and (b) the student was not in the class. The percentage of intervals for observed target behaviors was calculated using the following formula: intervals of following directions and remaining on task when direction was given ÷ total intervals in which a teacher direction was given × 100.

Generalization

Direct observations in unrelated settings were used to measure generalization during baseline and intervention. Data collection was consistent with baseline and intervention except for data collection occurring in the art classroom, gym, Spanish classroom, and computer classrooms. Generalization data were collected at least two times for each participant during baseline and at least three times for each participant during intervention.

Interobserver Agreement

A secondary observer independently collected data on following directions for 30% of the baseline, intervention, and generalization sessions. Interobserver agreement was calculated with the exact agreement method using the formula: (number of agreements) ÷ (number of agreements + number of disagreements) × 100. Interobserver agreement was 100%.

Procedural Integrity

Procedural integrity data were collected on a minimum of 30% of the sessions during training and intervention. An observer watched the training sessions and intervention practice sessions, and completed a checklist of five items to ensure that the researcher was implementing each component of the intervention completely and accurately. The researcher also collected procedural integrity data during 30% of the training and intervention sessions on the participants' correct use of the social skills program by calculating the percentage of intervention steps implemented correctly during the session. The researcher was observed implementing 100% of the steps correctly during training

and data collection sessions. Participants' correct implementation of the steps ranged from 75% to 100%, with an average of 94%.

Research Design

A multiple-probe across participants design was used in this study (Cooper, Heron, & Heward, 2007). Three participants were in the first tier, two participants were in the second tier, and one student was in the third tier. After the first tier demonstrated a stable baseline, they were trained and then entered intervention. Next, the second tier entered intervention following a stable baseline and training. Last, the participant in tier three entered intervention following baseline and delayed training.

Data Analysis

Visual Analysis

We visually analyzed data (Cooper et al., 2007) to determine if there was a functional relation between the computer-based CR social skills intervention and participants' following adult directions. Visual analysis focused on the variability of the data, the trend of the data path, and a comparison of data across conditions.

Tau-U

We also estimated effects of the intervention by calculating Tau-U, a method for measuring data non-overlap between the baseline and intervention phases of a study (Vannest, Parker, & Gonen, 2011). As Rakap (2015) explained, for multiple-baseline designs, Tau-U is calculated for each baseline–intervention contrast, and a full model effect size can be calculated by averaging all Tau-U scores. Scores of 65% or lower can be interpreted as a weak or small effect, effects between 66% and 92% as medium to high, and effects from 93% to 100% as large or strong (Rakap, 2015). Additionally, *p* levels can be generated when calculating effect sizes for Tau-U.

Pre-Intervention Measures

Social Skills Improvement System

We used the teacher form of the secondary version of the SSIS-T (Gresham & Elliott, 2008), which consists of 57 questions on a 3-point Likert-type scale. The SSIS-T examines the teacher's perceived frequency and importance of behaviors influencing students' social competencies and adaptive functioning at school. It has adequate internal consistency for the Social Skills ($\alpha = 0.97$), Problem Behaviors ($\alpha = 0.96$), and Academic Competence ($\alpha = 0.96$) scales (Gresham & Elliott, 2008). The test–retest reliability coefficients for the same scales were $\alpha = 0.81$, $\alpha = 0.81$, and $\alpha = 0.93$, respectively, with a median stability coefficient of 0.84 (Gresham & Elliott, 2008). The validity of the scale is supported by a moderate to strong negative correlation between the Social Skills and Problem Behaviors scales (Gresham & Elliott, 2008).

Woodcock Johnson Tests of Achievement

The letter-word identification (LWID), word attack (WA), passage comprehension (PC), and reading fluency (ORF) subtests of the Woodcock-Johnson Test of Achievement–Third Edition (WJ-III ACH; Woodcock, McGrew, & Mather, 2001) were administered to all participants and peers to determine their reading levels. The median test–retest reliability for the LWID, WA, PC, and ORF subtests is 0.94, 0.87, 0.88, and 0.90, respectively (Woodcock et al., 2001). The participant scores on these subtests were used to ensure that reading materials and comprehension questions were at the appropriate grade level for study participants. Individual pretesting on the WJ-III took place approximately one week prior to the implementation of baseline.

Baseline

Baseline observation data were collected 3–4 days a week over a 3-week period. The observations took place in 20-min sessions when participants were receiving academic instruction in the special education classroom. During baseline, classroom activities mainly consisted of the students completing worksheets. If students misbehaved, they were removed from the classroom, sent to the office, and their parent was contacted.

Participant Training

The researcher trained participants to use the computer-based social skills program in three separate groups based on their intervention tier using a PowerPoint® (Microsoft, Redmond, WA) presentation. During the first day of training, the participants were provided

TABLE 2
Following Adult Directions Social Skill Unit with Culturally Responsive Components

Culturally Responsive Components (Robinson-Ervin et al., 2011)	Application of Components
1. Teach skills most important to the target population.	1. Targeted following adult directions to address the social skill needs of sixth-grade African American learners with EBD.
2. Use culturally relevant materials to provide a rationale for teaching the skill.	2. Included a hybrid computer-based program that included culturally responsive stories, scenarios, and questions based on the participants' experiences. Included culturally responsive videos, music, Black Card, and Mini-Mart.
3. Include culturally specific competent peer models.	3. Included sixth-grade general education peer models in practice role play sessions and embedded role play video clips.
4. Incorporate the students' personal experiences into the instruction.	4. Incorporated practice role play scenarios that reflected the participants' experiences related to the social skills unit. Scenarios were based on participant information provided in the computer program short-answer responses.
5. Apply the skill within culturally specific parameters such as staging environments consistent with the learner's background.	5. Provided opportunities for participants to practice the information learned from the computer lessons during role play practice sessions in authentic settings around the school.

Note. Table adapted from Lo et al. (2015).

with a description of the social skills instruction and a rationale for why it is important, as well as an explanation of each program component. During the second day of training, participants engaged actively in the program by completing a short sequence of the prerecorded lessons. This sequence required participants to answer questions, login with their password, and submit their virtual assignments. The participants were allowed to ask questions at any time, and were considered trained if they could complete an entire lesson sequence without prompting from the researcher during the third day of training.

Peer Training

General education peers were trained in a vacant classroom during three training sessions of 50 min each. In the first training session, peers were provided with a description and purpose of the practice skills sessions, as well as a rationale of their role during the practice sessions. The second day of training consisted of peers discussing the importance of the social skill of following adult directions. Through group discussion, peers were required to explain why following adult directions is important and the consequences of not following adult directions. Next, they were introduced to the steps of the social skill of following adult directions through a PowerPoint presentation. Peers were required to state verbally the prescribed steps of following adult directions and to discuss the importance of each of the steps. During the third day of training, peers acted out the researcher-created social skill vignettes pertaining to following adult directions. During this training session, two to three peers rotated through different roles in the social skills vignettes. After each vignette was acted out, the peers in the audience critiqued how well the social skill was presented by determining if the peers used all of the steps in the social skills sequence. Following peer feedback, the researcher provided feedback regarding the social skills steps.

Culturally Responsive Computer-Based Social Skills Instruction

The intervention consisted of a hybrid, packaged program that included explicit social skills instruction delivered through computer-based lessons and face-to-face group practice sessions. The intervention also included video modeling lessons and a token economy system to teach and reinforce following adult directions. The computer-based component of the social skills program consisted of prerecorded social skills lessons adapted from a formal social skills curriculum (Cartledge & Kleefeld, 2010). The computer-based lessons were created through Adobe Captivate eLearning software (Adobe Systems Incorporated, San Diego, CA) and contained CR examples from literature, media, music, and recorded practice group role-plays (see *Table 2* for the CR components included in the intervention).

The training and full lesson sequence took participants 20 days to complete. Each lesson took participants 30–40 min to complete. During the computer-based lessons participants were required to complete a lesson that included presentation slides and researcher-developed questions in a combined multiple choice, true/false, and short answer format. The first six lessons were computer based.

Computer-Based Lessons

During the first lesson of the unit (Day 1), participants were given a rationale for the importance of following directions. Participants were presented with slides that provided four reasons why following adult directions are important: Following directions can (a) keep you safe, (b) keep you from getting into trouble, (c) help you to be a better student, and (d) keep you from making mistakes. Participants then answered a series of questions about the importance of following adult directions.

During the second lesson (Day 2), participants read a series of stories pertaining to following adult directions. The characters and events in the stories reflected the culture and experiences of the participants. The stories provided examples of consequences of not exhibiting the social skill and further emphasized the rationale for the importance of the skill. During the third lesson (Day 3), participants answered a series of comprehension questions about the events and moral of the stories introduced in the previous lesson. The comprehension questions assessed the participants' understanding of the story content and increased active student responding during this computer lesson. During the fourth lesson (Day 4), participants analyzed the stories presented in the lesson introduction. This required participants to answer a series of questions on the computer to critically analyze how the events in the story related to following adult directions.

The fifth lesson (Day 5) involved breaking the target skill into small and measurable steps. Participants learned the skill steps and analyzed how the characters in the stories demonstrated or could have implemented the social skills steps during certain events in the stories. This component gave participants the opportunity to focus on each individual component for exhibiting the target social skill, which would later be practiced in the practice group sessions. During the sixth lesson (Day 6), participants watched embedded videos and answered questions about how the video clip pertained to the social skill of following adult directions. Students analyzed the importance of following adult directions in relation to the events in the video and the consequences of not exhibiting the social skill.

During each computer-based lesson, participants were required to answer at least 90% of the comprehension/skill questions correctly. If participants did not achieve the criterion, they reviewed the lesson and re-answered the comprehension/skill questions until a 90% mastery level was achieved. To facilitate maintenance, each computer-based session contained review material and questions from the previous lessons. At the end of each computer-based lesson, participants were provided with a 30-s music clip of a rap song for successfully completing each lesson. All songs were positive and included uplifting lyrics that participants could recite to keep them motivated and to promote positive behavior.

Social Skills Practice Groups

Following the computer-based lessons, participants performed the practice component of the unit in a group with three general education peers (Days 8–17). Participants practiced the social skill in face-to-face researcher-led sessions. During the practice sessions, participants had opportunities to practice and demonstrate competence in the social skill topic by developing and practicing role-plays based on their personal experiences, especially problem situations occurring in school. Students were encouraged to develop their own scripts and use their own words/language (only positive, socially appropriate words allowed) during sessions. The researcher helped participants to take ownership for the skill by permitting them to co-teach, discuss, and evaluate their skill performance. The practice sessions took place in a vacant classroom and authentic settings throughout the school that reflected the contextual location of the role play topic (e.g., hallway, cafeteria).

Video Modeling Lessons

Selected practice session vignettes were recorded and embedded in the subsequent Adobe Captivate lessons as a video-modeling component of the intervention (Days 18–20). During these lessons, participants were required to watch and analyze the videos and answer

skill questions on the computer about the behaviors exhibited in the video. Furthermore, participants were required to critically analyze and discuss in writing how the number of social skill steps differed for peers who were compliant and insubordinate in the videos. Participants also were required to discriminate the differences in consequences between the two types of student behavior and discuss how these consequences could possibly affect themselves and others.

Reinforcement

The Black Card is an elite American Express® credit card given to highly affluent persons. The Black Card is highly coveted by hip-hop artists and their fans. Each participant was given a "Black Card" during intervention, on which teachers rated student behavior for following directions during each period during each school day. Participants also earned points on their Black Card for completing the computer-based sessions with 90% accuracy. At the end of each week, participants redeemed the points earned on their Black Card for prizes at the "Mini-Mart," which was located in the EBD classroom. To make the market culturally responsive to the participants, the students gathered the materials, created, and named the market to reflect their experiences of going to the local corner stores in their neighborhood. The prizes were taken from the items listed by participants on a reinforcer preference form (e.g., art supplies, healthy snacks, posters). Each week participants were given the choice to redeem prizes or "bank" all or a portion of their points to redeem a larger prize.

Social Validity

At the conclusion of the study, participants completed a social validity questionnaire. Participants were asked about the degree to which they perceived the social skills program to have a positive effect on their ability to follow adult directions, their perception of the social skills program, and if they would continue working with the program in the future. At the conclusion of the study, the classroom teacher and instructional assistant completed a questionnaire consisting of six questions that assessed whether they perceived that the social skills program was beneficial to the study participants and whether the program was feasible in an authentic learning environment. Questions consisted of multiple choice items and open-ended questions.

Results

All students showed an increase in following adult directions during the intervention condition compared to baseline data (see *Figure 1*). Additionally, we calculated large effect sizes for both intervention and generalization data (see *Table 3*).

Desiree followed adult directions for an average of 23% of the observed intervals in baseline (range = 0%–65%) compared to an average of 78% during intervention (range = 52%–98%). During baseline, the percentage of following adult directions was fairly stable with the exception of one outlying session. Once the intervention strategies were implemented an immediate increase in level was noted. Throughout the social skills intervention, there was a slight increasing trend with a little variability.

Donte followed adult directions for an average of 17% of the observed intervals in baseline (range = 0%–48%) compared to an average of 86% during intervention (range = 50%–100%). Visual analysis of baseline data revealed low levels of responding with a decreasing trend throughout the phase. After the implementation of the intervention, an immediate increase in level was demonstrated. Donte's rate of following directions improved throughout the intervention phase and ended at or near 100% without much variability.

Johnny followed adult directions for an average of 14% of the observed intervals in baseline (range = 0%–30%) compared to an average of 94% during intervention (range = 75%–100%). For Johnny, data were somewhat variable during baseline, but did not exceed 30%. After the intervention we observed a substantial increase to over 90% of direction following. These results remained relatively consistent throughout the intervention.

Bobby followed adult directions for an average of 8% of the observed intervals in baseline (range = 0%–25%), contrasted with an average of 87% during intervention (range = 67%–100%). During baseline sessions, we initially observed a slight increasing trend, but these data stabilized prior to implementation of the intervention. Once the social skills instruction started, Bobby's direction following immediately increased and remained at a high level.

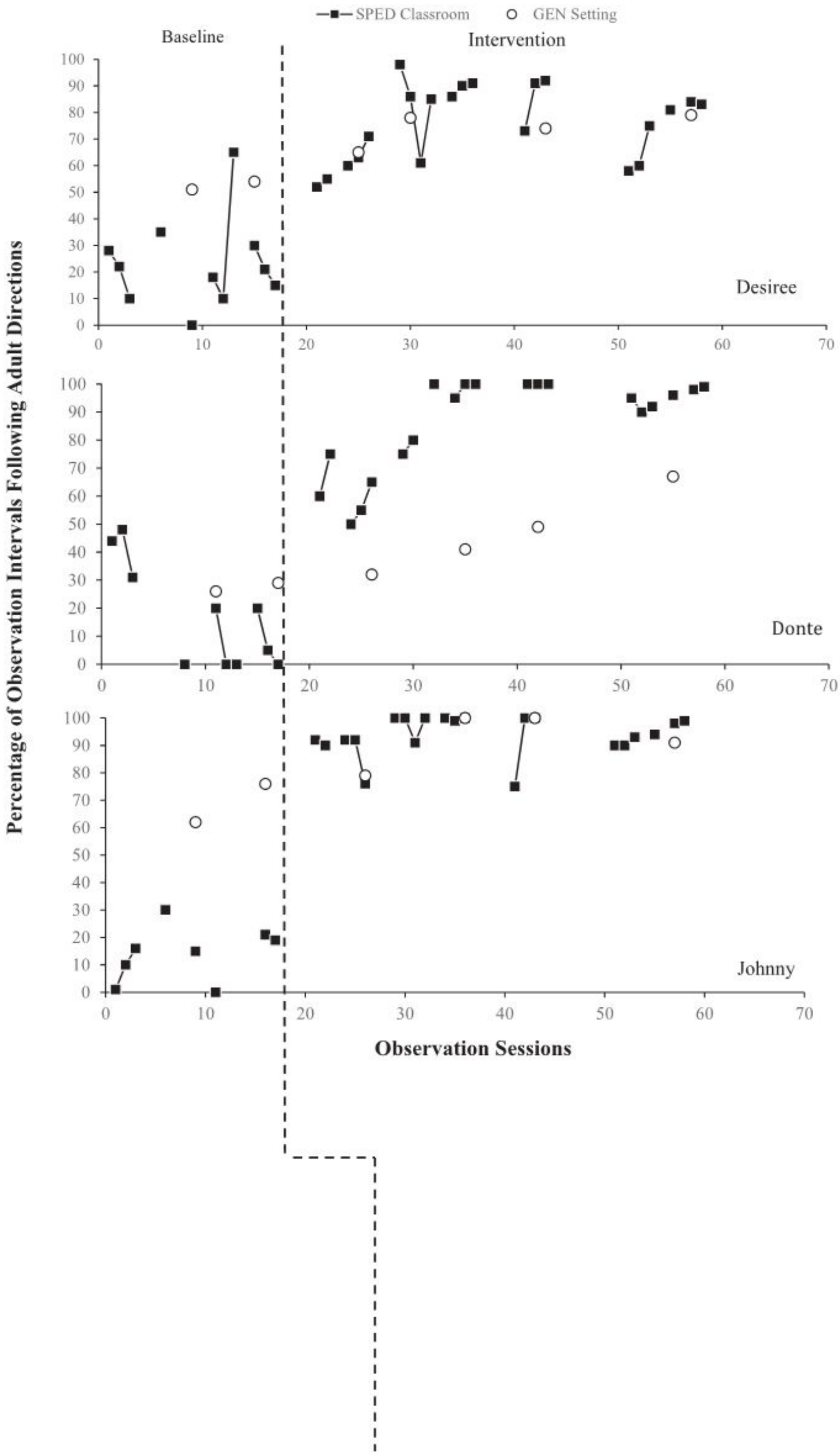

Figure 1. Percentage of intervals of participants following adult directions during observation sessions before and after social skills instruction.

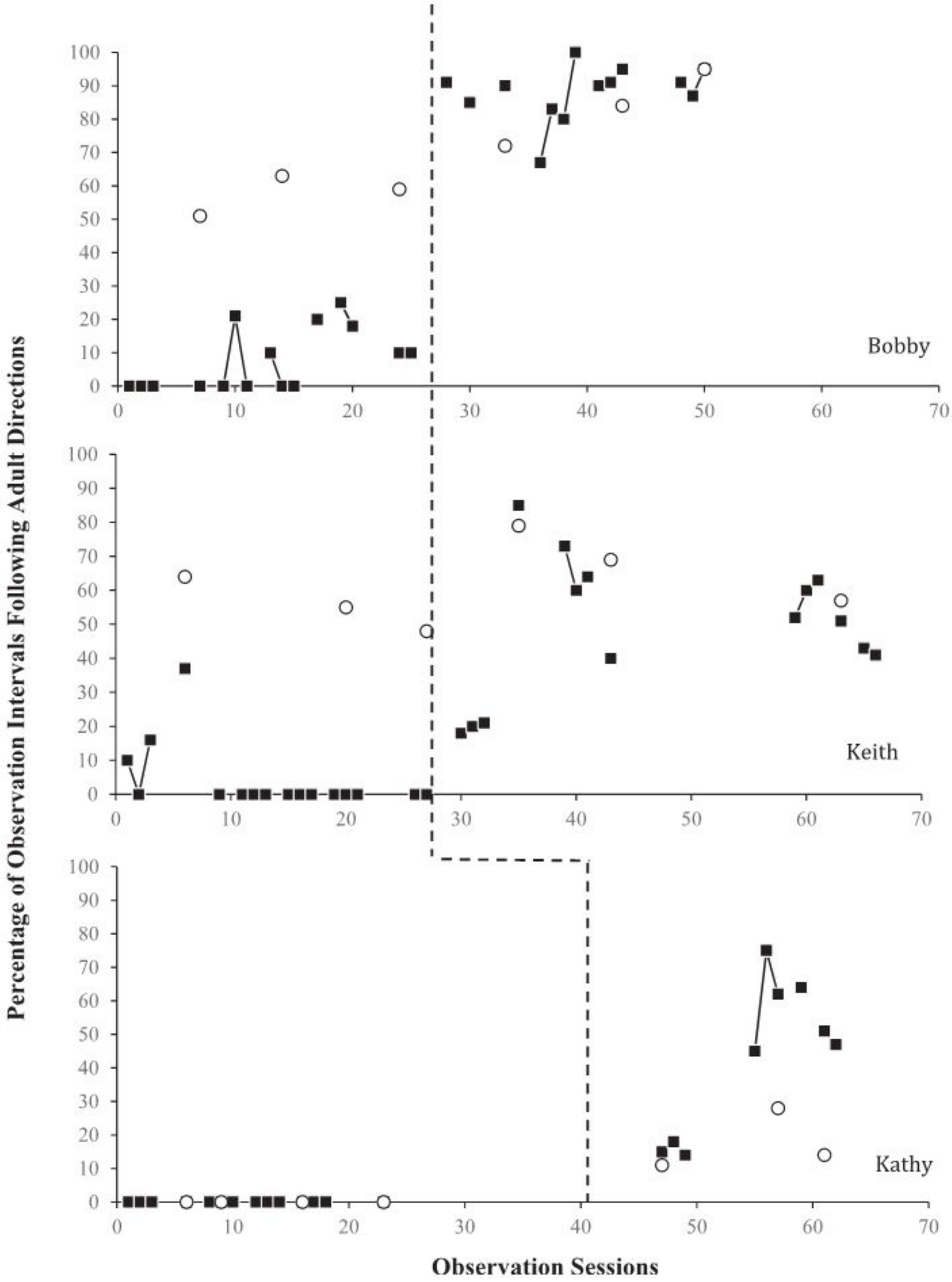

Figure 1. Continued.

Keith followed adult directions for an average of 4% of the observed intervals in baseline (range = 0%–37%) compared to an average of 49% during observed intervention intervals (range = 18%–85%). During baseline, Keith had very low levels of direction following with some variability and a decline to zero for the rest of baseline. Once the intervention was implemented, a small initial increase was noted, followed by further increases with some variability.

Kathy did not follow adult directions at all (0%) during baseline compared to an average of 43% during observed intervention intervals (range = 14%–75%). Kathy moved from zero levels of baseline responding to moderate and variable responding during intervention.

Overall, Desiree, Donte, Johnny, and Bobby demonstrated an increasing trend in following directions during the intervention phase as compared to the baseline phase. Keith and Kathy demonstrated a modest increase during

TABLE 3
Tau-U Effect Size Calculations for Intervention and Generalization

	Tau-U	Var-Tau	*Z*	*p*-Value	CI 95%
Intervention	0.994	0.14	7.78	<.001	0.72–1.26
Generalization	0.896	0.28	3.17	.003	0.33–1.45

the intervention phase when compared to baseline; however, these two did not have a consistent ascending trend during the intervention phase. Even with the somewhat less robust results for Keith and Kathy, the overall results indicate that there was a functional relation established between the social skills intervention and adult direction following in the special education classroom. These results are further supported by the calculation of effect sizes. The results of the Tau-U analysis indicate that the overall effect size for all intervention data was 0.994 ($p < .001$), which is considered a very large effect (*Table 3*).

Generalization Probes

Bobby, Johnny, Desiree, Donte, Keith, and Kathy demonstrated an increasing trend in following directions in general education classrooms during the intervention phase as compared to the baseline phase with mean increases of 30%, 24%, 21%, 19%, 18%, and 12%, respectively. It should be noted that, with the exception of Kathy, all of the participants exhibited a higher percentage of direction following in the generalization settings during baseline. These elevated levels of direction following in baseline resulted in less robust treatment effects during the intervention phase of most of the participants. Even with these results, the Tau-U analysis indicated a large effect of 0.896 ($p = .003$) for the intervention generalization probes (*Table 3*).

Social Validity Outcomes

Both the classroom teacher and the instructional assistant indicated that all of the participants improved in following adult directions over the course of the intervention. Also, both adults responded that the participants became much better at following adult directions, remaining on-task after a direction was given, and thinking before acting as a result of the social skills intervention. They also indicated that they would allow the participants to participate in a similar program in the future, the participants enjoyed the social skills intervention, and social skill intervention programs are very important for students who struggle with social skills.

Each of the study participants reported that the program was effective in improving their behavior related to following adult directions. For example, participants stated that they improved their social skills and interactions with others because "It made me think what would happen if I follow these instructions" (Johnny), "I started being good and improved my skills" (Bobby), and Desiree and Donte stated they were learning while participating in the program. Also, participants stated they liked participating in the study because they thought that learning about social skills on the computer was fun and they enjoyed the video clips. Participants also stated that they would like to continue with the intervention because the computer lessons and social skills practice groups were fun. Furthermore, all students said that they liked working for prizes with the Black Card at the Mini-Mart. The participants stated that the Black Card and the prizes at the Mini-Mart made them try hard at exhibiting the correct social skills. Somewhat surprisingly, each student also stated that they would participate in the program even if they had not received any prizes.

Discussion

The positive findings of this study are consistent with other research on social skill training using a behavioral cognitive model of instruction, observations, practice, and reinforcement in general, and specifically with minority youth (Huey & Polo, 2008; Lo et al., 2011; 2015). As might be expected, some participants (i.e., Desiree, Donte, Johnny, and Bobby) responded to the social skill intervention more positively than others. These participants displayed greater interest in the study and expressed on the social validity questionnaire that they enjoyed the CR social skill instruction along with the reinforcement component.

Keith responded more modestly to the intervention. Initially Keith showed little interest in the intervention. For example, during the first computer-based lesson, he responded to the questions by writing inappropriate words instead of indicating the appropriate responses. Despite Keith's initial resistance, with each lesson he became more comfortable with the program and with earning points on the Black Card. However, during the middle of intervention, Keith experienced a sudden loss of a close family member and was absent for a week from school. Upon his return he was distant and disengaged in school activities, including the intervention. In subsequent weeks he gradually became more responsive but continued to struggle for the rest of the year. Keith's mother removed him from school almost three weeks before the end of school and he was not able to complete the social validity questionnaire.

Similar to Keith, Kathy's data also demonstrated modest improvements. Kathy's baseline data were consistently zero. This is because Kathy was either asleep, as a result of her sleep disorder, or she was blatantly insubordinate by putting her head down during classroom work time, cursing the teacher and her classmates, or walking out of the classroom without permission. Moreover, Kathy's intervention was delayed because Kathy was out of school for health problems for nearly three weeks. During intervention, we had to tailor the program to meet Kathy's educational needs due to her low cognitive and academic skills. During intervention, Kathy received one-on-one instruction in which the researcher read each question aloud, explained components of the question that Kathy did not understand, and typed in Kathy's dictated responses. Kathy did not return to school the last two weeks of the school year and was not able to complete the study or social validity questionnaire.

It is noteworthy that this study included components often cited in the research literature as important for programming generalization for students with EBD (Maag 2006; McIntosh & Mackay, 2008; Stokes & Baer, 1977). For example, we focused on a socially valid behavior (following adult directions), taught participants replacement behaviors, included a general education peer group to enhance the skills learned through social skill instruction, and incorporated reinforcement and self-management strategies into the social skill instruction. It is perhaps not surprising, then, that we observed large effects in the generalization settings.

Culturally Responsive Instruction

The positive results of this study are also consistent with the outcomes of previous research using a CR paradigm to teach social skills to culturally diverse students at risk for EBD (Lo et al., 2011; 2015). Similar to the studies conducted by Lo and colleagues, the intervention included CR components of: (a) computer-based lessons that infused CR materials and media; (b) participants incorporating personal experiences during instruction and practice sessions; (c) practicing the social skill across authentic environments in the school setting; (d) participants using their own words/language (i.e., only positive, socially appropriate words allowed) during sessions; and (e) role-play practice sessions that included peers of same race, gender, socioeconomic status, age/grade, and community (Robinson-Ervin et al., 2011). The inclusion of general education peers may have been particularly important because the peers tended to model appropriate behaviors during the practice exercises. As noted by Bandura (1976), the characteristics of the model are key to whether behaviors will be imitated. There were other benefits to peer involvement, such as participants being invited to eat lunch with their general education peers instead of eating at the table reserved for students in the special education classes.

Milner (2010) asserted that student empowerment is one outcome of CR instruction, allowing students an integral role in creating, constructing, and contributing to their learning. The CR features of the social skill intervention mirrored this process. Participants were provided multiple opportunities to contribute information about their personal experiences and to create and construct role-play topics and sessions based on their culture and daily experiences. Additionally, as Milner suggested, materials, media, and peers reflecting the cultural heritage and experiences of the participants allowed "students to see their culture in the curriculum and instruction, and students are encouraged to maintain it" (p. 69). The use of the Black Card, for example, appeared to be particularly important for the participants because it gave them an opportunity to be rewarded and acknowledged for appropriate behavior, which was a shift from the typical

constant focus on inappropriate behavior and punishment. Excitement was evident in participants like Johnny who carried the card in his wallet and was adamant about his teacher awarding him points at the end of each period. Johnny had some of the highest percentages of appropriate behavior during intervention.

Computer-Based Social Skill Instruction

As noted in the professional literature, technology-based interventions have been shown to motivate adolescent students, provide immediate gratification, and help students replace negative behaviors with more socially appropriate conduct (Gresham, 2004). Participants were already computer literate and easily learned how to use the instructional program, which may have contributed to them enjoying using the computer during the intervention. Also, the computer permitted the participants to record their honest responses privately without encountering the judgment of the researcher or the other participants. The recorded responses provided a permanent product that could be used later during practice sessions with more responsive and authentic exercises.

The technology also provided a format for using CR visual media, literature, and music in social skills training. The integration of these components made the intervention highly responsive and engaging to the participants. In particular, the participants appeared to relate to the characters during the video clips and they enjoyed listening to the rap music at the end of each lesson. They found the music familiar but positive and would often recite lyrics to the songs to keep them motivated. Third, the computer was used to teach explicitly the importance, steps, and consequences of following adult directions. The computer enabled participants to complete lessons at their own pace, provided immediate error correction, and facilitated individualized learning to mastery.

Limitations

A number of limitations to the study warrant attention. First, a functional behavioral assessment was not conducted prior to the study. A functional behavioral assessment would have provided important information about the function of the participants' behavior, which could have been used to tailor the social skills instruction and possibly yield better results for the two students who responded modestly to the intervention. Second, frequent absences may have mitigated the effect of the intervention and resulted in no social validity being collected from two participants, Kathy and Keith. Third, it should be noted the intervention was modified for Kathy by providing one-on-one instruction during intervention where each question was read aloud, components of the question that Kathy did not understand were explained, and Kathy's dictated responses were typed in the computer program. Fourth, the study only measured the effects of this intervention on following adult directions. It is unknown whether and how this instruction impacts other skills. Fifth, despite the researchers' repeated attempts to obtain parental permission earlier, all permission slips were not returned until the middle of the school year. This delay led to time constraints, which disallowed collection of maintenance data. Last, although the package of intervention components (e.g., explicit social skills instruction, CR instruction, computer-based instruction, video modeling, a token economy) was effective in increasing the positive behaviors of the participants, this research did not address which aspects of the multicomponent intervention caused improved outcomes. Therefore, it is unknown which intervention components are critical elements in teaching social skills to African American urban learners with EBD.

Implications and Future Research

Results from this study provide more support for the effectiveness of social skill instruction for adolescents with EBD in general and for CR computer-based social skill instruction in particular (Cumming et al., 2008; Fenstermacher et al., 2006; Rozalski & Moore, 2004). This current investigation extends the literature and supports previous research with African American and urban learners with EBD (Lo et al., 2011). In addition to more investigations of the effectiveness of CR computer-based social skill instruction (Fenstermacher et al., 2006), there is a particular need for studies (a) on adolescents (Cumming et al., 2008; Rozalski & Moore, 2004), (b) that analyze the effects of instructional components (Maag, 2006), and (c) that determine other outcomes that might be positively impacted by this method of instruction.

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