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# Modifying a behavior intervention plan according to classroom aides acceptability ratings: effects on treatment integrity and challenging behavior

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This study evaluated the effects of an acceptability questionnaire on classroom aides' treatment integrity during implementation of behavioral intervention plans, using a multiple-probe-baseline across-participants design. Four classroom aides in a special education preschool classroom rarely used procedures recommended to manage the challenging behavior of a four-year-old boy with autism spectrum disorder (ASD) during baseline. After using the questionnaire results to create a functionally equivalent behavior intervention plan that was comprised of components the aides rated as more acceptable, three of the four aides greatly improved their use of the procedures and an ancillary reduction in the child's challenging behavior was observed. Overall, results suggest that including staff acceptance measures during the intervention selection process may bolster subsequent intervention integrity.

**Keywords:** Acceptability, intervention integrity, staff training, behavior intervention plan, autism spectrum disorder

Studies estimate that approximately 95% of children with developmental disabilities engage in some form of challenging behavior and at least 50% of those engage in severe forms (Lecavalier 2006, Matson *et al.* 2008). In school settings, displays of challenging behaviors have been associated with negative impacts on children's participation in educational and social learning opportunities (Algozzine *et al.* 2010, Rispoli *et al.* 2013). For example, consequences of challenging behavior in special education are evident in children's academic underachievement and learning difficulties (Hinshaw 1992, Rispoli *et al.* 2013) and limited peer relationships (LaBelle and Charlop-Christy 2002). While untreated challenging behavior may limit access to positive learning and social contexts in the present, it may also have widespread and potentially long-term negative effects for the individual, such as generalizing to more environments, emerging across functions, or even developing into more complex forms of challenging behavior (i.e. negative behavioral cusps; Lerman *et al.* 1994, Robertson 2015).

Challenging behavior is often addressed with functional behavior assessment (FBA), function-based behavioral intervention, and support procedures (Smith *et al.* 2007, Watson *et al.* 1999, Wong *et al.* 2015). Accordingly, amendments in the Individuals with Disabilities Education Improvement Act (IDEA, 2004) require schools to provide functional behavior assessments and positive behavior intervention and supports to students with disabilities when challenging behavior impedes their learning or is a manifestation of their disability. Research has shown that the effectiveness of behavioral intervention plans (BIPs) however, can often be influenced by the integrity with which they are implemented (Cook *et al.* 2010, Fryling *et al.* 2012, Gresham 1989, St. Peter Pipkin *et al.* 2010, Wilder *et al.* 2006). That is, proper implementation of BIPs by school staff can often lead to improvement in student behavior, while lack of adherence to procedural components (i.e. poor integrity), may not result in beneficial changes in student behavior (Cook *et al.* 2010, DiGennaro *et al.* 2007, DiGennaro *et al.* 2005, Wilder *et al.* 2006). Lack of adherence to a BIP can also be a legal violation of a student's individualized education plan (IEP) if a student's chances for making 'appropriately ambitious progress' are reduced (e.g.

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Andrew F. v. 2017). Unfortunately, some research suggests that failure to consistently carry out recommended BIPs may be commonplace in school settings (Cook *et al.* 2010, Fiske 2008).

Students challenging behavior has also been associated with negative impacts on the staff who educate them, such as contributing to teachers beliefs of inadequacy and their subsequent burnout from teaching (Hastings and Bham 2003, Sutherland *et al.* 2008, Wehby *et al.* 2012). Therefore, when designing a behavioral intervention, it is important to consider that it will take place in a behavioral system (e.g. Novak and Pelaez 2004, Moore 2016). Beyond curricular expectations, the school ecology involves relationships with teachers, classroom aides, and classmates who each bring distinct personalities and behavior that contribute to a mutual influence on learning and interacting. Children's classrooms are also embedded within a larger community shaped by local culture and social expectations (Cuvo and Vallengunga 2007). Thus, behavior analysts are charged with creating contextually appropriate interventions that can dually support characteristics of staff who implement interventions, as well as address the needs of children with challenging behavior (e.g. Moes and Frea 2002).

With respect to BIP integrity, there are several potential pitfalls related to staff behavior in school settings identified in the literature (e.g. Sanetti and Kratochwill 2009). Experimental research has predominantly emphasized training and consultation methods for increasing or recovering educators implementation integrity of behavior analyst-selected interventions (e.g. Coddling *et al.* 2005, DiGennaro-Reed *et al.* 2010, Hogan *et al.* 2015, Noell *et al.* 2000, Thomas 2013). However, a growing body of literature also suggests that those who implement BIPs may have differing teaching philosophies from behavior analysts (e.g. Jennett *et al.* 2003), preferences for methods of being trained (Strohmeier *et al.* 2014), and may also have different views about the acceptability of certain BIP components (e.g. Allen and Warzak 2000, Boothe and Borrego 2004, Cowan and Sheridan, 2003, Witt *et al.* 1984). Along these lines, recent findings even suggest that educators might even have negative attitudes towards behavior analytic-based BIPs (e.g. Allen and Bowles 2014), and this may impact their adoption of the procedures. To address these concerns, Watson and Gresham (1998) posit that choosing support plan components that educators find more acceptable might lead to greater integrity by the interventionists. Taken as a whole, the relationship between educators subjective evaluations of the BIPs and subsequent integrity could be addressed in school-based consultation through a consultant-educator collaboration process.

A partnership approach to planning interventions that tailor procedures to the students individual needs as

well as to the interventionist has shown promise for increasing social validity (Brookman-Fraze 2004) and also intervention integrity. For example, collaboration-based interventions have demonstrated greater levels of treatment integrity compared to consultant-driven interventions (Kelleher *et al.* 2008). Similarly, a small emerging body of literature suggests that integrity can be improved when educators choose interventions (Andersen and Daly 2013) or use interventions they prefer (Johnson *et al.* 2013). This can be especially important in practice, because selecting acceptable intervention components could potentially occur during the creation of a BIP or at least early enough in the process to thwart against prolonged periods of poor integrity and ineffectiveness. Thus, the relationship between acceptability of BIP components and subsequent adherence warrants further exploration as an adjunct to behavioral staff training. The purpose of this study, therefore, was to assess the effects of using ratings from a staff-completed BIP acceptability questionnaire to create a new functionally equivalent BIP, on the subsequent BIP integrity of four classroom aides who worked with a four-year-old male with autism spectrum disorder (ASD) in a special education preschool setting.

## Method

### Participants

Four U.S.-born female classroom aides who worked in a public special education preschool participated. Pseudonyms are used to maintain confidentiality and anonymity. Andrea and Kate were undergraduate students studying special education at a local university, in their mid 20's and had less than two-years-experience working in the preschool. Gina was in her mid 30's and Jaelyn was in her mid 40's. Gina and Jaelyn held bachelor's degrees in general education, and each had approximately four years of special education and behavior support plan experience.

During the study, the participants were asked to carry out BIP procedures, as informed by FBA, while working with Bart, a four-year-old, U.S.-born, English speaking male diagnosed with ASD. Results of the FBA that included interview, descriptive observation, and brief functional analysis to verify observations (e.g. Northup *et al.* 1991), suggested Bart's challenging behavior was related to the interruption of preferred activities as well as the onset of academic demands, to a lesser degree. At the time of the study, Bart's challenging behavior significantly reduced his instructional time and also strained his positive relationships with staff.

Prior to this study, all participants had previous training and demonstrated correct use of the various behavioral intervention procedures included in this study, during weekly consultation visits by the first author. Initially, all participants were trained to

proficiently use a behavior-analyst recommended intervention plan. Preliminary treatment analysis verified that the participants used the plan correctly and it was effective in reducing Bart's challenging behavior to near zero. Despite their training and the preliminary effectiveness of the behavior analyst-selected intervention, all four staff members subsequently failed to consistently implement the intervention components, and this was related to a substantial relapse of Bart's challenging behavior. This prompted a consultation meeting with staff aimed at improving Bart's educational experience and minimizing his challenging behavior, as well as a review of their adherence to the BIP. During the consultation meeting, participating classroom aides reported they did not find some of the recommended components to be acceptable, and thus, chose to no longer use them even though they were initially effective. For example, all four educators reported they did not think reinforcing on-task behavior was acceptable because completing academic work was an expectation of the classroom. Thus, further efforts were needed for developing a BIP that was a good contextual fit for the classroom aides, as well the student.

### Setting

All behavior analyst-selected intervention and survey-selected intervention sessions took place within the preschool classroom during routine instruction. Bart's teaching sessions were conducted in a 3x3 feet cubicle that contained a small desk and two chairs, as well as in designated play areas in the classroom. Only one teacher worked with Bart during a session (i.e. one-on-one instruction). Sessions were approximately 10 min and was conducted in a standard discrete trial instruction format with tasks such as labeling pictures, answering questions, and matching related items (e.g. Koegel *et al.* 1977).

### Dependent measures and data collection

There were two dependent variables. The first, 'integrity,' was defined as the percentage of correct implementation of designated BIP components, during a teaching session. The components are described in detail in the procedures section below. We scored each component as correct if used during every appropriate opportunity, and if participants refrained from use when it was not appropriate, for the entirety of the session. A single instance of failing to use a component or using a component inappropriately (i.e. wrong or when no opportunity) resulted in a component score of incorrect for that session. Sessions in which the participant worked with the child, but was not observed, were not scored. Dividing the total number of implemented components by the total number of plan components, and multiplying the result by 100, the percentage of integrity was calculated during a teaching session.

The second dependent variable was an ancillary measure of Bart's 'challenging behavior,' defined as kicking, screaming, and/or running more than five feet away from staff. Each instance was separated by the absence of challenging behavior for at least 10s. Instances of challenging behavior were counted within each teaching session and then divided by 10 min to reflect a rate of challenging behavior per minute, for that session. Challenging behavior was recorded during the first four sessions for each classroom aide, when all classroom aides were in BA-selected BIP phase and then again in the final four sessions when all classroom aides were in the survey-selected BIP phase. Rates of challenging behavior were summed across sessions and classroom aides, per phase, and then divided by the total number of sessions per the respective phase to reflect an average rate of challenging behavior.

### Interobserver agreement

One primary (lead author) and one secondary observer with a master's degree in school psychology scored classroom aides correct use of intervention components *in-vivo*, across both phases of the study. The primary scored 100% of sessions and the secondary observer scored approximately 50% of the teaching sessions across all participants and phases (range = 46–67% per participant). Bart's challenging behavior was scored by the primary observer and the classroom aide working with Bart at the time acted as the secondary observer for his challenging behavior during 100% of the sessions. Observers were trained by the researchers with verbal and written instructions, modeling, and simultaneous scoring with feedback until three consecutive observations with 100% agreement was obtained for all components and challenging behaviors.

Agreement was defined as both observers having similarly scored the presence or absence of correct usage of the intervention components by staff and similarly for the presence or absence of Bart's challenging behavior, during each teaching session. Interobserver agreement was calculated by dividing the total number of agreements by the total number of agreements and disagreements between the observers, multiplied by 100. Mean agreement averaged 92% across sessions for all classroom aides (range = 75–100%), and 94% for Bart's challenging behaviors (range = 75–100%). Please note that the lower bound of 75% agreement reflects three isolated instances for staff and one for Bart.

### Research designs

There were three parts to this study. First, researchers used a concurrent multiple-probe-baseline design across participants to show experimental control for staff integrity behavior (e.g. Horner and Baer 1978). A multiple-probe baseline design was selected because

discontinuous data collection was expected to occur periodically because of staff rotations in working with the child, as well as the nature of conducting research via consultation in an authentic educational setting. That is, there would be some unavoidable instances in which the participants worked with the child but could not be observed by researchers. Thus, these sessions are reflected as gaps in participants data series. Second, a questionnaire was used to assess staff acceptability of BIP components with ratings on a five-point Likert-type scale. Finally, Bart's challenging behavior is reflected in a separate pre-post design that corresponds to classroom aides BA- (baseline) and survey-selected BIP sessions.

## Procedures

### *Behavior analyst-selected BIP*

During this phase, participants were instructed to use a three-component BIP selected by a behavior analyst (BA-selected BIP) during teaching sessions with Bart. The BA-selected BIP components were verified as effective in promoting on-task behavior and reducing challenging behavior through brief treatment and component analyses following Bart's FBA. The first component involved showing Bart a visual schedule that included pictures of his instructional tasks, followed by a picture indicating access to free time in the play area (e.g. Bryan and Gast 2000). The second component allowed Bart to hold small, preferred items in his hand during the teaching sessions (i.e. noncontingent reinforcement; e.g. Lalli *et al.* 1997). Items included a small stuffed bear and a toy train engine. The third component used a token economy to reinforce appropriate and on-task behavior (e.g. Tarbox *et al.* 2006). Accumulating five tokens resulted in an immediate exchange for free-play away from the desk.

Training for the BA-selected BIP involved written and verbal descriptions of each component, answering questions, and then role-playing each component at Bart's desk. Training ended when the participant obtained 100% correct integrity across three consecutive trials. Sessions ranged from 15–20 min per participant. As noted previously, all participants had previous training and experience correctly using the components in this intervention and thus did not require extensive training.

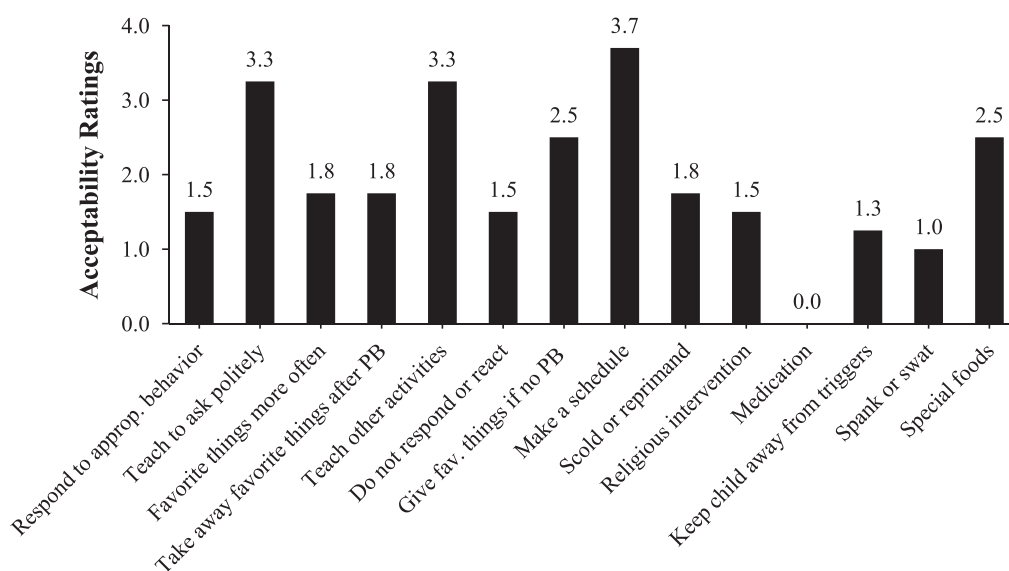
### *Acceptability questionnaire*

This part of the study involved a behavior analyst collaborating with classroom aides to select BIP components that were a good contextual fit (e.g. Moes and Frea 2002). First, participants completed a brief questionnaire asking them to rate how acceptable they found various behavioral and non-behavioral intervention strategies, in general (see Appendix). Ratings for each component ranged from 1 (not at all acceptable) to 4

(very acceptable). Responses of 'undecided,' were noted but not scored. Items in the questionnaire were based on input and reviews from three Board Certified Behavior Analysts<sup>®</sup> (BCBA<sup>®</sup>) who worked in multicultural settings, and one Ph.D. level social psychologist proficient in survey design. Thus, items were intended to capture the range of intervention strategies typically observed or recommended in their routine practice. The questionnaire initially gave examples of challenging behavior in everyday language. Next, each of the intervention strategies were also described in everyday language to increase understandability for consumers, as recommended by Rolider *et al.* (2009). For example, teaching a child functional communication was described as 'teach the child to ask politely for what they want, to get rid of challenging behavior'. Similarly, pharmacological intervention was described as 'give the child medication that may reduce challenging behavior.' Following the questionnaire, researchers averaged the participants acceptability ratings across all of the listed BIP components (excluding 'undecided' ratings) and selected components with the highest combined average ratings, above a score of 2 (i.e. somewhat acceptable), that would also address the functions of Bart's challenging behavior (e.g. tangible and escape functions).

### *Survey-selected BIP*

Acceptable components derived from the questionnaire results, that were also appropriate for the functions of Bart's challenging behavior, included: (a) using the visual schedule (as described above; e.g. Bryan and Gast 2000), (b) prompting a 2min break request when Bart started looking about the room or put his head on the desk (e.g. Carr and Durand 1985), (c) teaching him one recreational activity away from the desk such as bicycle riding during the session (e.g. Nicholson *et al.*, 2008), and (d) providing tokens only for time periods when challenging behavior did not occur (i.e. differential reinforcement of other behavior; e.g. Conyers *et al.* 2003). Participant were trained to use the four acceptable components on an individual-basis according to the multiple-probe design. Participants were trained in a similar manner as described for the baseline-intervention. Training included giving a verbal description of the group acceptability ratings, providing written and verbal instructions regarding each component, and then answering participants questions. Next, the participants role-played each component with the researcher until obtaining 100% correct integrity across three consecutive trials. Training sessions ranged from 15 to 20 min per participant. Following training, participants were instructed to use only the acceptable intervention components and to no longer use baseline-intervention components.



### Behavior Intervention Plan Components

**Figure 1.** The average acceptability ratings for each behavior intervention plan component. Ratings ranged from 1 (not at all acceptable) to 4 (very acceptable). Ratings of ‘undecided’ were not scored.

### Results

A summary of the questionnaire ratings is presented in Figure 1. In total, the participants gave a high average rating to five components. Overall, the highest rated intervention component, on average, was using a visual schedule (3.7 out of 4, range = 3 to 4). The lowest rated component was corporal punishment (i.e. spanking; average rating of 1). All four participants scored the use of medication as ‘undecided’ (i.e. no score). Finally, participants rated giving a child special food as acceptable (2.5 out of 4, range = 1 to 4); however, this component was not used in the survey-selected BIP because it did not match the functions of Bart’s challenging behavior.

Across the four participants, components for the BA-selected BIP were collectively rated as 2.32 out of 4, on average (range = 1.5 to 3.7). The overall average rating for the survey-selected components was 3.18 out of 4 (range = 2.5 to 3.7). Thus, participants collectively gave higher ratings to the survey-selected BIP components.

For the BA-selected BIP components, participants rated reinforcing appropriate and on-task behavior (e.g. Tarbox *et al.* 2006), with an average of 1.5 (range = 1 to 2 of 4). They rated noncontingent reinforcement (i.e. ‘give the child favorite things more often to reduce challenging behavior’; e.g. Lalli *et al.* 1997) at a 1.8 out of 4, on average (range = 1 to 2). Participants rated using a visual schedule (e.g. Bryan and Gast 2000) with an average of 3.7 (range = 3 to 4). The first two components of the Survey-selected BIP had average staff ratings of 3.3 for a functional communication break request (e.g. Carr and Durand 1985, range = 2 to 4), and a 3.3 for teaching an alternative activity (e.g.

Nicholson *et al.* 2008; range = 2 to 4). Staff also rated differential reinforcement of other behavior (i.e. providing tokens only for time periods when challenging behavior did not occur; e.g. Conyers *et al.* 2003) with a 2.5, on average (range = 2 to 3). Using a visual schedule was rated with an average of 3.7 (range = 3 to 4).

Figure 2 presents data for the percentage of BIP integrity during the baseline BIP and during the acceptable BIP for all four participants. During baseline, all four participants used less than 10% of the BIP components, on average (Mean (M)=8.25%, range = 0–33%). Following the acceptability questionnaire and modification of the BIP to include acceptable components, three of the four participants immediately improved their integrity to an average of 70% (M=70.24%, range = 50–75%).

During four baseline BIP sessions, Andrea used an average of 8.6% of the BIP components (range = 0–33%). Across eight intervention session probes, she consistently used 72% of the acceptable components, on average (range= 67–75%). The next participant, Jaclyn did not use any of the BIP components during five sessions of baseline (0%). Following the inclusion of components rated acceptable by the classroom aides, Jaclyn’s integrity improved slightly to 20.8%, across six session probes (range = 0 to 50%), however a decline in her integrity was observed in the final two sessions. During baseline, Gina’s BIP integrity was 16.5% across six probed sessions (range = 0– 33%). When using the acceptable BIP, her integrity improved to using 70% of the components, on average (range = 50–5%), across nine session probes. Finally, Kate’s integrity was an average of 7.3% during nine baseline

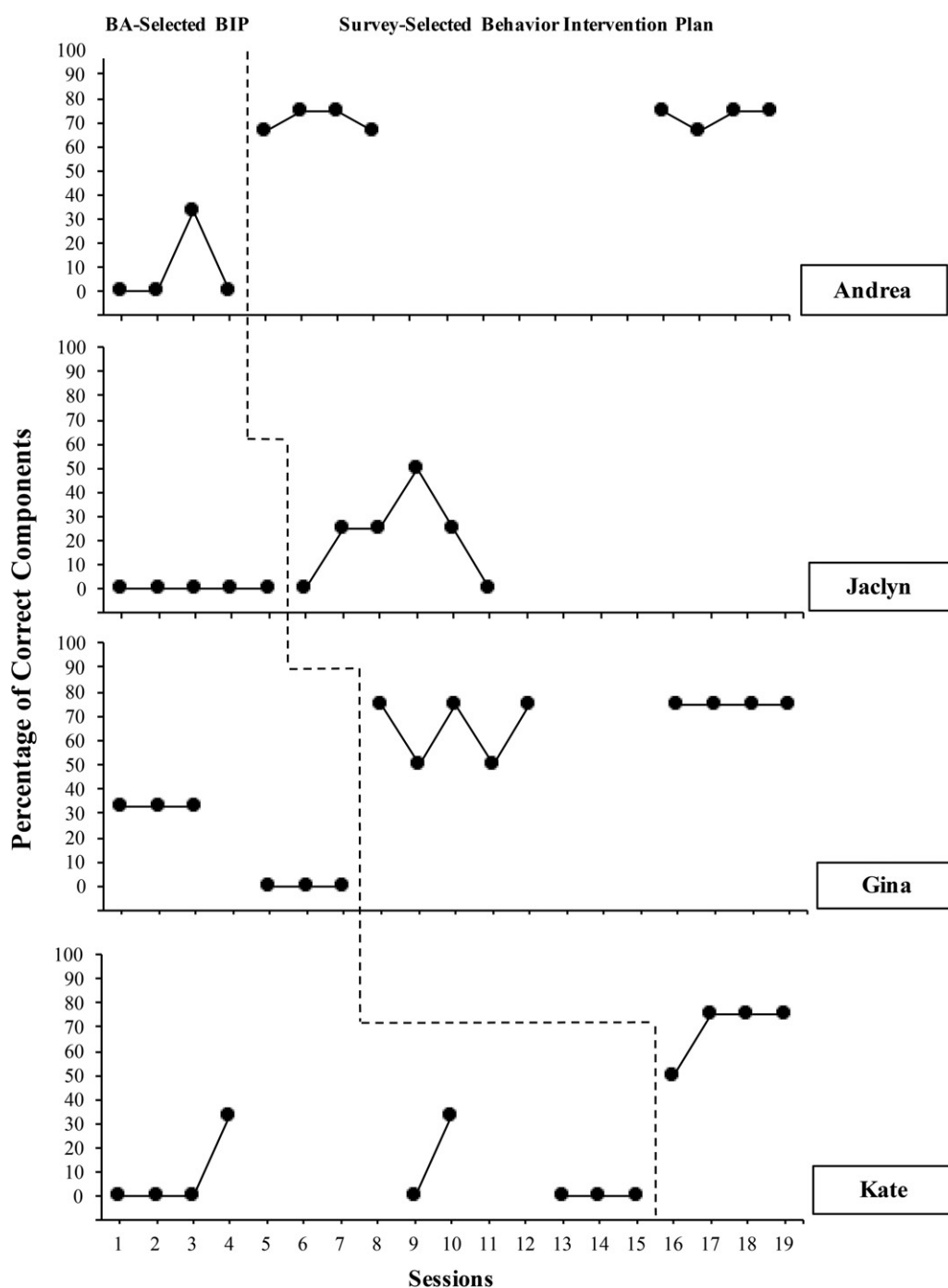


Figure 2. Percentage of correctly used behavior intervention plan components for each classroom aide during the behavior analyst-selected behavior intervention plan (i.e. baseline) and during the survey-selected behavior intervention plan.

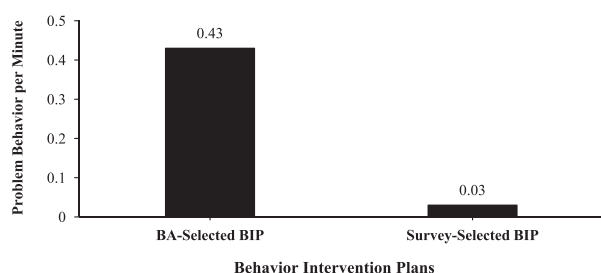
session probes (range = 0–33%). During the acceptable BIP, Kate’s integrity improved to an average of 69% in four session probes.

Figure 3 presents the average rate of Bart’s challenging behavior per minute during the BA-selected BIP and during the survey-selected BIP that included acceptable components. Bart engaged in an average of 0.43 challenging behaviors per minute (range = 0.3 to 0.6; increasing trend in behavior) during the first four sessions when all classroom aides used the baseline BIP. In the final four sessions in which the acceptable BIP was in place for all classroom aides, Bart engaged

in 0.03 challenging behaviors per minute, on average (range = 0 to 0.1; level trend in behavior).

### Discussion

Treatment integrity is essential for BIPs to be effective (e.g. Cook *et al.* 2010, Fryling *et al.* 2012; St. Peter Pipkin *et al.* 2010, Wilder *et al.* 2006). Unfortunately, staff may not always find BIP components to be acceptable (e.g. Allen and Bowles 2014) and this may result in poor treatment integrity. The present study used a multiple-probe-baseline across-participants design to evaluate the effects of using components four classroom



**Figure 3.** Average rate of Bart's challenging behavior per minute during the behavior analyst-selected behavior intervention plan and during the survey-selected behavior intervention plan.

aides rated as acceptable, on their subsequent treatment integrity while implementing a BIP for a boy with ASD. During baseline, all classroom aides seldom used the BA-selected BIP components and this was associated with frequent ancillary instances of Bart's challenging behavior during the teaching session probes. The inclusion of acceptably-rated components, that similarly addressed the functions of Bart's challenging behavior, was associated with a substantial increase in three of the four classroom aides integrity scores and Bart's challenging behavior occurred less often. In sum, despite training to proficiency, there appears to have been a relationship between the participating classroom aides acceptance and subsequent use of BIP components.

Research suggests that the FBA process can be improved when assessing client preference for reinforcers (e.g. Hagopian *et al.* 2001) as well as their preference for type of intervention used (e.g. Hanley *et al.* 1997). The preference or acceptance of interventions is not always assessed for the interventionist in this process, however (i.e. staff or parent; e.g. Andersen and Daly 2013, Johnson *et al.* 2013). This aspect should be especially important to consider when developing a BIP, because the intervention itself is comprised of many behaviors emitted by the interventionist. For example, interventionist behaviors can include physically arranging the teaching materials and environment, as well as responding to a child's behavior with an appropriate set of actions. Thus, efforts toward promoting staff behavior should be afforded analyses and considerations similar to those of the children they seek to help with the BIPs.

Along these lines, Schwartz and Baer (1991) assert that offering choices in behavioral programming is the definitive measure of social validity. While the authors suggest that those using interventions should have experience with available alternatives for comparison, inquiring about acceptability as a pre-intervention measure of social validity may aid behavioral consultants in narrowing the range of potential intervention choices, and thus minimize the potential for poor integrity due to low acceptability. Thus, the implications of staff

input in the intervention selection process may positively influence child behavior and could potentially reduce costly follow-up visits from consultants during treatment failures related to poor integrity (e.g. Thomas 2013). As such, including a collaborative step during the intervention selection process appears to show promise as a helpful tool for behavior analysts and school psychologists when determining which procedures may be effective for the child and used with integrity by staff. Similarly, including measures of acceptability at various points of intervention may also complement measures of integrity. In other words, staff may not find certain tasks acceptable and this might contribute to decreased staff happiness and self-efficacy. For example, if some staff members are no longer required to engage in behavior management tasks that are in conflict with their personal beliefs, they could take on other roles in the school that contribute to positive classroom learning environments.

There are some limitations and avenues for research within this study worth noting. First, consistency in BIP implementation is important for behavior change to occur (e.g. Koegel *et al.* 1977) and this generally implies that all staff should use similar procedures when interacting with a specific child. In this study, all staff were directed to use the same procedures with the child during baseline, as well as when using the alternative BIP in the intervention phase that was created by their collective acceptability ratings. Using the group average of acceptability ratings, however, resulted in consistent adoption by only three of the four staff members. For example, the group average likely masked Jaclyn's low ratings of the survey-selected BIP components ( $M = 2.25/4$ ) relative to those of her peers ( $M = 3.5/4$ ). In fact, her overall average rating for all components on the questionnaire was quite low ( $M = 1.38/4$ ) and this may explain her poor integrity during both phases of intervention. In terms of predictability, however, the classroom aides acceptability ratings did correspond to their subsequent intervention integrity.

Accordingly, future considerations could be made to individualize interventions to the interventionist. For example, there can be contextual differences in children's interactions with teachers, classroom aides, and parents, such as occurring in different settings or activities, as well as having different behavioral expectations. Across these situations, multiple schedules of reinforcement may also be operating on similar topographies of behavior, with different individuals, tasks, or other elements serving as discriminative stimuli for compliance and appropriate behavior (e.g. Cammilleri *et al.* 2008, Charlop *et al.* 1992). Given that there are a number of established and indicated intervention procedures that can match the functions of challenging behavior (e.g. differential reinforcement of alternative



behavior, noncontingent reinforcement, etc. ), it's plausible that consistent adherence to an alternative intervention by only one staff member may also be effective in the specific contexts in which they interact with a child.

Related to the above point, the number of components listed on the questionnaire was not exhaustive of all behavioral intervention components that are in the published literature. Therefore, the participating classroom aides might have collectively found other interventions acceptable (or unacceptable). Future research may wish to explore increasing the number of available intervention choices, as well as having staff generate potential intervention options from their experiences that are also appropriate to the context of the intervention setting. The questionnaire in this study was designed specifically with local setting and interventionist characteristics in mind, and as such, the questionnaire and descriptive analyses are limited to the small sample of classroom aides and one student. As such, future research and practice should extend the present procedures across more participants to test for generality and could also consider these contextual variables when deciding how to present and describe intervention options as well (e.g. Bailey 1991, Schwartz and Baer 1991).

Working collaboratively with staff during intervention design can aide in ensuring a good contextual fit and sustainability of the intervention (e.g. Andersen and Daly 2013, Johnson *et al.* 2013, Kelleher *et al.* 2008, Moes and Frea 2002). However, some individuals who interact with children may not have advanced training in behavioral analysis and intervention and therefore may wish to adopt contraindicated strategies. Consumer input, therefore, should be tempered with expert consultation and consideration for evidence-based practices to ensure ethical interventions will be used. In this study, a balance was achieved between classroom aides and the behavior analyst because only functionally-appropriate intervention components were selected from the classroom aides' survey results. For example, classroom aides collectively gave moderately high ratings to changing the participant's diet (i.e. 'special foods'; 2.5 average out of 4), but this strategy did not match the functions of the child's challenging behavior and was therefore not selected for implementation in this study.

In sum, collaborating with staff about their acceptance of intervention components appears to show promise for choosing components that will be associated with adequate implementation integrity. These results contribute to the literature on identifying and remediating potential barriers to intervention integrity related to the challenging behavior of children with ASD. There is hope the findings will generate further investigations into staff and consultant collaboration for behavioral intervention in school settings.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Appendix

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### Treatment Acceptability Questionnaire

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Some children do things that hurt others, hurt themselves, destroy things, or may be unusual and not acceptable - these are challenging behaviors. Below are ways that may stop a child's challenging behaviors. Please rate how acceptable you find each of the following strategies:

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**Respond to appropriate behavior by giving the child praise and/or the child's favorite things**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Teach the child to ask politely for what s/he wants to get rid of challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Let the child have his/her favorite things more often so s/he has less reason to behave badly**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Take away the child's favorite things or privileges for a while after challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Teach the child how to do other activities that may replace or reduce challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Do not respond or react to challenging behavior, and continue with the child's activity**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Give the child his/her favorite things if there's been NO challenging behavior for awhile**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Make a schedule so the child knows when to expect favorite activities and other activities**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Scold or reprimand the child after the challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Take the child to church or temple, or a religious or spiritual person to help reduce challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Give the child medication that may reduce challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Keep the child away from people, places, or things that may cause challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Spank or swat the child after the challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

**Give the child special foods to eat that may reduce the challenging behavior**

*Undecided – Not at all Acceptable – Somewhat Acceptable – Acceptable – Very Acceptable*

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