

Increasing Staff Provision of Choice to Adults with Disabilities in a Postsecondary Settings

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The ability to make choices fuels the development of one's sense of agency and personal control. Yet as individuals with disabilities age, choice opportunities often become more limited and restricted in nature. Previous research reports that staff practices directly influence choice-making opportunities for adults with disabilities (Cobigo, Lachapelle, & Morin, 2010). Given the link between consumer choice opportunities and staff behavior, there exists a need to evaluate research on staff training practices in providing choice-making opportunities within postsecondary disability service settings. The current study presents a systematic literature review of staff training interventions in choice. Nine studies met inclusion criteria for further analysis and discussion. Results tentatively demonstrate the potential effectiveness of staff trainings in choice on a variety of outcomes, but the quality of the research base limit broad implications and overall confidence in the findings. Based on the findings, the researcher conducted a single-subject multiple-baseline-across-participants study to investigate the effects of a multicomponent training in choice on staff provision of choices. Findings yielded a functional relationship between the multicomponent training and the increase in the frequency of staff choice offerings and the overall correct completion of a choice sequence. Additionally, results indicate a proportionate relationship between staff choice and consumer choice-making. The researcher discusses implications of results for future research.

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Preface

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1.0 Introduction

Choice represents a necessary and valued component of one's life (Brown & Brown, 2009). The act of choosing gives voice to preferences and provides a route for an individual to exert control over any decision. The literature published in the field of special education often discusses choice within the framework of self-determination, a construct defined as the inherent right for an individual to determine his or her own actions and destiny (Heller et al., 2011; Wehmeyer & Metzler, 1995). Self-determined adults who encounter choices report higher employment and social outcomes (Heller et al., 2011; Mehling & Tassé, 2015), a higher quality of life (Lachapelle et al., 2005), and increased independence (Wehmeyer & Palmer, 2003). Adults with disabilities who do not encounter choice or develop choice-making skills often fail to develop a positive self-image or engage in meaningful and valuable activities (Brown & Brown, 2009).

Historically, social perspectives of disability viewed individuals with disabilities as incapable and who required segregated services and institutionalization for their safety and the safety of others (Boelé, 2017). The civil rights movement of the 1950's exposed social and educational inequality and prompted a shift in public awareness of inequities (Spaulding & Pratt, 2015). Similarly, parents and families of individuals with disabilities became advocates for equal treatment and access for family members with disabilities, and revealed the shocking conditions of institutional life. A series of early legislation such as The Americans with Disabilities Act (ADA) promoted community integration and acceptance of people with disabilities (Boelé, 2017). This era of reform shifted societal attitudes towards people with disabilities and drove the

development of special education and the formation of community disability programs (Spaulding & Pratt, 2015).

Since disability reform and the rise of normalization, postsecondary services have largely embraced the concept of choice within their service models (Neely-Barnes, Marcenko, & Weber, 2008). Choice has traditionally translated to consumer participation in person-centered planning or goal-setting, but rarely has choice evolved into daily decision-making (Brown & Brown, 2009). Consumers of adult disability services often lack opportunities to exert choice in even minor aspects of their day to day living, and their lives often become determined by others around them—namely, staff and service providers (Agran, Storey, & Krupp, 2010). The high staff turnover and paucity of opportunities for professional development within adult disability services may contribute to the systemic lack of choice in these settings (Gerhardt & Lainer, 2011).

The gap between promoting the principle of choice as part of person-centered practices and fostering choice-making in practice highlight a common conflict in staff services (Salmon, Holmes, & Dodd, 2013). Research has shown that staff behaviors and perceptions of consumer needs directly facilitate or impede consumer-directed choice-making (Cobigo, Lachapelle, & Morin, 2010; Zakrajsek et al., 2014). During an investigation to determine vocational interests of adults with disabilities, Cobigo et al. (2010) compared staff perceptions of consumer job preferences with jobs ultimately chosen by consumers. Findings revealed a misalliance between choices hypothesized by staff and choices made by workers. These results confirm similar research findings that suggest reliance on a proxy to make consumer choices often yields inaccurate results (Agran et al., 2010; Smith et al., 2005).

2.0 Review of the Literature

Despite the importance of addressing staff practices in choice, a vast majority of previous literature examined the impact of choice on children and adolescents with disabilities (e.g., Lough, Rice, & Lough, 2012; Rispoli et al., 2013). Empirical studies in choice-making including adults with disabilities are more limited in number and scope. Furthermore, the majority of previous research focused on identifying effective practices to facilitate choice-making within school settings; however, fewer studies have investigated approaches within adult disability services.

Previous literature reviews explored choice-making and choice interventions for individuals with severe and profound disabilities (Tullis et al., 2011), effects of choice on academic outcomes (Reutebuch, El Zein, & Roberts, 2015), and behavior (Martin, Martin, Spevack, Verbeke, & Yu, 2002). The present review differs from prior literature in several areas. First, it focuses on the impact of choice on staff and consumers. Furthermore, the current review targets research occurring within various adult disability service settings. Given that staff practices directly influence the availability of consumer choice, a review of staff training literature in choice within adult service setting is necessary to better evaluate current knowledge and future directions in consumer choice.

This review of the literature intends to answer the following questions related to staff training in choice:

1. How have interventions evaluated in previous research trained staff to deliver choice?
2. What dependent variables have previous researchers measured in choice research literature?

3. What were the effects of the independent variables (i.e. choice trainings) on the dependent variables?

2.1 Methods

2.1.1 Search Procedures

The author conducted a search of databases ERIC, PsycINFO, and PsycArticles to identify potential articles for inclusion. The search included all combinations and truncations of terms *choice, training, staff, in service, disabilities, self-determination, and adults*. The article abstracts were evaluated to determine whether it required further examination using the inclusion criteria. An ancestral search of identified articles and relevant literature (e.g., Tullis et al., 2011) followed the computerized search.

2.1.2 Inclusion and Exclusion Criteria

Articles selected for the current review had to meet the following criteria:

1. Implement an experimental design (e.g., single-subject or group designs).
Articles were excluded if authors employed a qualitative methodology.
2. Include staff members who worked in a postsecondary setting serving adults with disabilities (e.g., residential, community, vocational, educational, or recreational environment). Articles were excluded if authors conducted research in a school, clinic, or early childhood settings, staff worked with

participant groups who did not have disabilities, and staff worked with individuals younger than 18 years old (e.g., Seybert, Dunlap, & Ferro, 1996).

3. Independent variable was staff training in choice. Studies teaching choice-making procedures to adults with disabilities (e.g., Tam, Phillips, & Mudford, 2000) or evaluating a multicomponent staff training that included other factors in addition to choice (e.g., Beadle-Brown, Hutchinson, & Whelton, 2012) failed to meet inclusion criteria.
4. Published in a peer-reviewed journal in the English language. Studies published in non-refereed journals or unpublished dissertations did not meet inclusion criteria.

2.1.3 Results of Literature Search

The initial literature search resulted in 8,369 studies including duplicates. Article abstracts were then reviewed for relevance to the inclusion criteria, which resulted in 154 studies for potential inclusion. A review of potential articles using the inclusion criteria resulted in seven studies. An ancestral search of identified articles produced duplicates and no additional studies. A final examination of relevant literature reviews (e.g., Reutebuch, El Zein, & Roberts, 2015) and references yielded two additional empirical studies (Bambara, Koger, Katzer, & Davenport, 1995; Reid & Parsons, 1991). The final sample considered for further analysis included nine studies published in seven journals (see Table 1 in appendix for a summary of included articles).

2.1.4 Coding Procedures

Articles were coded along the following dimensions: (a) staff and consumer characteristics (e.g., years of experience, age, consumer diagnosis); (b) intervention setting (residential, community, vocational, day program); (c) research design and quality of research (inter-rater reliability, social validity, treatment fidelity), (d) description of the independent variable and training components (i.e., definition, components, content, frequency, duration, performance criterion); (e) components of the dependent variable (i.e., definition, measurement); and, (f) study outcomes as defined by author.

2.2 Results

2.2.1.1 Staff Characteristics

A total of 55 staff members participated across the nine studies included in this review. Forty staff members (72.7%) received staff training in choice and 15 (27.2%) participated in the control groups. Control groups did not receive staff training in choice. One article did not describe how many staff participated in the training and instead reported the ratio of staff to consumers as 1:3 (Reid & Parsons, 1991). The studies varied in descriptions of staff characteristics. One article provided exact ages of staff participants (Cooper & Browder, 2001) and four reported the age ranges of participating staff members (Ip, Szymanski, Johnston-Rodriguez, & Karls, 1994; Reid, Green, & Parsons, 2003; Reid & Parsons, 1991; Wilson, Reid, & Green, 2006). Staff ages ranged from 19 to 53-years-old.

Six studies (66.6%) reported staff education. Education experiences of staff participants ranged from high-school ($n=25$; 44.6%) to graduate school ($n=7$; 12.5%). The work experiences of staff ranged from 8 months (e.g., Salmento & Bambara, 2000) to 23 years (e.g., Parsons et al., 1997). Four studies (44.4%) did not disclose information on staff work experience (Ip et al., 1994; Mcknight & Kearney, 2001; Reid et al., 2003; Reid & Parsons, 1991).

Seven studies (77.8%) took place in residential settings (Bambara et al., 1995; Cooper & Browder, 2001; Ip et al., 1994; Mcknight & Kearney, 2001; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006), one in a recreational day center (11.1%) (Parsons et al., 1997) and one in a vocational setting (11.1%) (Reid et al., 2003). Residential settings included group homes, independent residence of an adult with a disability, and intermediate residential facilities. The degree of descriptions varied \making it difficult to compare commonalities across settings.

2.2.1.2 Consumer Characteristics

A total of 56 adults receiving disability services participated with ages ranging from 20 to 68-years-old. All consumers had a primary diagnosis of intellectual disability. Eight consumers (14.2%) were described as having physical disabilities in conjunction with intellectual disabilities (Reid et al., 2003; Wilson et al., 2006) and four (7.1%) had multiple disabilities (Salmento & Bambara, 2000).

A majority of studies ($n=7$; 77.8%) described the communication skills of consumers. Descriptions of consumer communication varied with 15 participants (26.8% of participants with reported communication skills) described as having non-vocal verbal skills (i.e. not using oral language) and using communicative gestures or behaviors (Cooper & Browder, 2001; Reid & Parsons, 1991; Reid et al., 2003; Salmento and Bambara 2000; Wilson et al., 2006), eight participants (14.3%) communicating via brief utterances (e.g., one to four word phrases) (Bambara

et al., 1995) and two (3.6%) using vocal verbal communication with poor articulation (Bambara et al., 1995; Wilson et al., 2006). One study described the communicative abilities of participants in relation to choice-making by stating “ ...each could make valid choices when choice opportunities were presented by showing two objects representing different leisure activities “ (Parsons et al., 1997, p. 171). Two studies did not describe the communication characteristics of participants (Ip et al., 1994; Mcknight & Kearney, 2001).

2.2.1.3 Experimental Designs

Among the nine studies, seven (77.8%) implemented single-subject designs including multiple-baseline-across-participants designs (Cooper & Browder, 2001; Salmento & Bambara, 2000), multiple-probe-across-participants designs (Parsons et al., 1997; Reid & Parsons, 1991; Reid et al., 2003; Wilson et al., 2006), and a reversal design (Bambara et al., 1995). Two studies (22.2%) employed group designs (Ip et al., 1994; Mcknight & Kearney, 2001). McKnight and Kearney (2001) conducted a non-randomized two-group pretest-posttest design and Ip, Szymanski, Johnston-Rodriguez, and Karls (1994) implemented a nonequivalent control group pretest-posttest design.

2.2.1.4 Maintenance and Generalization

Four studies (44.2%) included a maintenance phase (Cooper & Browder, 2001; Reid et al., 2003; Salmento & Bambara, 2000; Wilson et al., 2006) and two studies (22%) assessed generalization (Cooper & Browder, 2001; Salmento & Bambara, 2000). Maintenance data was collected in all studies for an average of 3.5 sessions (range two to 15 sessions). Cooper and Browder (2001) conducted generalization probes of staff provision of choice with a different consumer a minimum of every fifth data point for each phase (approximately eight data points in

total). Salmento and Bambara (2000) assessed generalization of staff choice across consumers and routines within all phases of the study.

2.2.1.5 Inter-observer Agreement (IOA)

IOA measurement to determine reliability of data was included in seven studies (77.8%) (Bambara et al., 1995; Cooper & Browder, 2001; Ip et al., 1994; Parsons et al., 1997; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006). Authors collected IOA on a range of 10% to 46% of total observations (Ip et al., 1994; Reid & Parsons, 1991) and 43.5% to 100% of observations per condition (Cooper & Browder, 2001; Wilson et al., 2006). IOA outcomes ranged from 79% to 100%.

2.2.1.6 Treatment Fidelity

Only one of the nine studies (11.1%) included in the present review reported treatment fidelity data (Cooper & Browder, 2001). Cooper and Browder (2000) recorded and calculated treatment fidelity data for 30% of choice training sessions reporting a mean score of 100% accuracy.

2.2.1.7 Social Validity

Only one out of nine studies (11.1%) collected social validity data. Wilson et al. (2006) surveyed staff to assess their perceptions of choice as a strategy to increase choice-making and leisure engagement. This measure included a survey with a five-point Likert scale on the effectiveness and efficiency of choice procedures on increasing task engagement (1 “disagree strongly”, 5 “agree strongly”). Average responses indicated that staff perceived the intervention to be effective, easy to implement, and enjoyable. Responses also indicated that staff believed

consumers enjoyed participating in the choice procedure as well. No social validity was collected from the participants with disabilities in any of the studies.

2.2.2 Independent Variables

Every study in the present review included staff training in choice as the independent variable. The training components varied across articles with no two studies incorporating identical training elements.

2.2.2.1 Definition of Choice

A majority of studies ($n=7$; 77.8%) defined choice as a selection between two items or activities (Bambara et al., 1995; Cooper & Browder, 2001; Parsons et al., 1997; Reid et al., 2003; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006). Ip et al. (1994) implemented the definition that choice allowed an individual to select among several familiar options, yet it is unclear whether several (i.e. more than two) items were presented for every choice opportunity. Reid et al. (2003) defined choice as an opportunity to select between two items or activities or an open-ended question (e.g., “Do you want to do the puzzle?”). Similarly, McKnight and Kearney (2001) defined choice as either an open-ended question or between two or more items or activities. Parsons et al. (1997) defined choices as direct or indirect. Direct choice presentations were defined as “providing two items in view of the participant with a direction to choose one item” (p. 171). Indirect choice presentations were defined identically to direct choice presentations except the two items were named but not shown to the participant, or staff asked what the participant would like to do without naming alternatives. The authors also defined the manner in which participants made a choice as either a dependent choice, the participant choosing one of the

presented alternatives, or an independent choice in which the participant indicating what he or she wanted that was not provided by the staff person.

In addition to a definition of choice presentation, two studies also included choice content in their descriptions of choice. Salmento and Bambara (2000) included the *Model of Choice Diversity* (Brown, 1993) in their staff training and Parsons et al. (1997, p.173) described three types of choices (“how” to do something, “what” to do, and “where” to complete an activity). Bambara et al. (1995) included a diversity of choice options using Brown and colleagues’ (1993) choice diversity model during staff training and in the task analysis given to staff. Choice diversity training included discussing choices between or within activities or routines, choice of whether to participate, choice of whom to participate with, choice of where and when, and choice to terminate a routine or activity.

2.2.2.2 Format and Duration of Training

Group training was conducted in three studies (33.3%) (McKnight & Kearney, 2001; Parsons et al., 1997; Reid et al., 2003) and four (44.4%) conducted individual trainings with each staff member (Bambara et al., 1995; Cooper & Browder, 2001; Salmento & Bambara, 2000; Wilson et al., 2006). Of the total studies reviewed, two (22.2%) did not explicitly state the format of staff training (Ip et al., 1994; Reid & Parsons, 2001). Duration of the training program varied across studies. Two studies (22.2%) reported the approximate duration of group trainings, ranging from 20 minutes (e.g., Reid et al., 2003) to 60 minutes (e.g., Parsons et al., 1997). Only three authors disclosed the duration of individual trainings (Bambara et al., 1995; Salmento & Bambara, 2000; Wilson et al., 2006). The duration of individual training averaged approximately 80 minutes (ranged approximately 30 minutes (Bambara et al., 1995) to 90 minutes (Wilson et al., 2006). Two studies (22.2%) did not describe the duration of training (Ip et al., 1994; Reid & Parsons, 1991).

Training Components

Each study included in the present review implemented diverse training components discussed below.

Rationale. Seven of the nine studies (77.8%) included a description of the rationale for providing choice as the primary element of training (Ip et al., 1994; Mcknight & Kearney, 2001; Parsons et al., 1997; Reid et al., 2003; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006). None of the authors provided detailed descriptions of the rationale or how the rationale was presented to participants.

Modeling. Three studies (33.3%) included modeling of choice procedures during training (Cooper & Browder, 2001; Reid et al., 2003; Wilson et al., 2006) and three modeled choice procedures for staff during targeted activities (Parsons et al., 1997; Reid & Parsons, 1991; Salmento & Bambara, 2000).

Performance feedback. Some form of performance feedback was included within the independent variable in a majority of studies ($n=7$; 77.8%) (Cooper & Browder, 2001; Mcknight & Kearney, 2001; Parsons et al., 1997; Reid et al., 2003; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006). Studies that incorporated performance feedback during training used feedback in response to role-plays ($n=3$; 33.3%) (McKnight & Kearney, 2001; Parsons et al., 1997; Wilson et al., 2006). One study incorporated role-plays during choice training, but did not explicitly describe providing performance feedback (Bambara et al., 1995). Seven articles (77.8%) included performance feedback while observing staff members working with consumers during targeted choice routines or activities (Cooper & Browder, 2001; McKnight & Kearney, 2001; Parsons et al., 1997; Salmento & Bambara, 2000; Reid & Parsons, 1991; Reid et al., 2003; Wilson et al., 2006). Three studies (33.3%) continued feedback throughout the duration

of the study (Parsons et al., 1997; Reid & Parsons, 1991; Wilson et al., 2006) while four (44.4%) provided performance feedback for a set duration of time (Cooper & Browder, 2001) or until staff members met a predetermined criterion (McKnight & Kearney, 2001; Reid et al., 2003; Salmento & Bambara, 2000).

Out of the articles that included performance feedback, six (66.7%) described their performance feedback (McKnight & Kearney, 2001; Parsons et al., 1997; Reid & Parsons 1991; Reid et al., 2003; Salmento & Bambara, 2000; Wilson et al., 2006) and one did not (Cooper & Browder, 2001). Of the research that provided a description of the performance feedback given to staff, three provided positive and corrective feedback regarding choice procedures (Parsons et al., 1997; Reid & Parsons 1991; Salmento & Bambara, 2003). McKnight and Kearney (2001) provided staff with suggestions for increasing choice availability during the targeted routines. Reid et al. (2003) specified the number of choices staff offered during each observation and whether this amount increased from baseline.

Written procedures. In addition to presenting choice procedures to staff members, four studies (44.4%) provided staff members with a written description of choice procedures (Cooper & Browder, 2001; Bambara et al., 1995; Parsons et al., 1997; Wilson et al., 2006). Bambara (1995) provide a script for staff to follow for every condition of the study. Cooper and Browder (2000) taught staff members to utilize a self-monitoring checklist of choice and prompting procedures.

Discussion. Three studies (33.3%) included unique variables to their training discussions (McKnight & Kearney, 2001; Reid et al., 2003; Salmento & Bambara, 2000). These studies encouraged staff members to brainstorm potential opportunities for choice during selected activities and routines and identify choices to offer consumers (McKnight & Kearney, 2001; Reid et al., 2003; Salmento & Bambara, 2000). In addition, one article reported a problem-solving

activity targeted to increase choice availability during group training (McKnight & Kearney, 2001).

Preference. Only two studies (22.2%) in the present review directly discussed preferences in relation to choice during staff trainings (Ip et al., 1994; Wilson et al., 2006). Wilson et al. (2006) was the only study to include preference assessment procedures.

2.2.3 Dependent Variables

The authors grouped dependent variables into the following categories: (a) staff and consumer choice behavior; (b) choice availability; and (c) consumer behavior.

2.2.3.1 Staff and Consumer Choice Behavior

Seven studies (77.7%) investigated the effects of a choice training on choices offered by staff to consumers. All used direct observation to collect data. Five articles described the dependent measures as the number of choices presented to consumers during each observation (Cooper & Browder, 2001; Ip et al., 1994; Reid & Parsons, 1991; Reid et al., 2003; Salmento & Bambara 2000). One study reported the average number of choice presentations per minute by staff members to consumers (Parsons et al., 1997). Wilson et al. (2006) included staff presentations of choices as a secondary dependent variable in their study. A continuous 20-second, partial-interval time-sampling procedure was implemented during each observation. The authors reported the percentage of observation intervals staff offered choices.

A secondary dependent variable in five of the studies described above included the number of choice responses made by adults with disabilities (Cooper & Browder, 2001; Parsons et al., 1997; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006). Four studies

reported the number or percentage of choices made by consumers with disabilities (Cooper & Browder, 2001; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006) and one calculated the average number of choices made per minute during each observation session (Parsons et al.,1997). Cooper and Browder (2001) also collected data on how staff prompted consumers to perform their choice using a least to most prompting sequence (specific verbal, specific verbal and gesture, and physical) and the level of prompting each participant required to complete the choice.

2.2.3.2 Choice Availability

One study (11.1%) evaluated choice availability as a dependent variable. McKnight and Kearney (2001) hypothesized that a staff training would increase overall choice availability across home-based activities (i.e., leisure, eating, and personal hygiene) of the treatment group compared with the control group. The authors included three measures to assess choice availability and consumer behavior. The first measure, The Resident Choice Assessment Scale (RCAS), assesses the degree of choice given by direct-care-staff who serve a particular resident with a disability. It includes 25 questions with each question associated with a 7-point Likert-type scale with higher scores indicating more choice availability. Staff rated the perceived degree of choice given by the direct-care staff to residents. The authors reported reliability of the RCAS (test-retest = .91; interrater reliability =.84) but did not provide metrics on the validity, sensitivity, or application of the measure. The other measures, the Vineland Adaptive Behavior Scale (VABS-M) and the Vineland Maladaptive Behavior Scale (VBMS) are discussed below.

2.2.3.3 Consumer Behavior

Four studies examined adaptive and maladaptive components of consumer behavior. Three studies (33.3%) included at least one dependent variable that addressed challenging behaviors of consumers (Bambara et al., 1995; Ip et al., 1994; McKnight & Kearney, 2001) and three studies included examinations of positive consumer behavior (Bambara et al., 1995; McKnight & Kearney, 2001; Wilson et al., 2006). Bambara et al., (1995) collected data on the frequency of protests and task initiations during a designated task. Ip et al. (1994) observed residents for 10-minute intervals at various times of the day and rated the occurrence and severity of challenging behaviors during each interval. McKnight and Kearney (2001) examined changes in adaptive and maladaptive behavior using a modified version of the Vineland Adaptive Behavior Scale (VBAS-M) and the Vineland Maladaptive Behavior Scale (VBMAS). Staff members completed both scales during preintervention and follow up sessions. The authors reported test-rests (.88) and inter-rater reliability (.74) for the VABS.

Only one study (11.1%) investigated consumer engagement in tasks as a primary dependent variable. Wilson et al. (2006) targeted engagement in a leisure activity and used a partial-interval system to collect data.

2.3 Findings

2.3.1.1 Single-Subject Designs

All studies implementing a single-subject design reported successful outcomes with staff members acquiring the choice skills from training and implementing those skills with consumers.

Each study demonstrated a functional relationship between staff training and the corresponding dependent variables ($n=7$).

2.3.1.2 Group Designs

Only one group design (11.1%) demonstrated a significant difference in dependent measures following intervention, allowing the authors to reject the null hypothesis (Ip et al., 1994). Ip et al., (1994) observed a decrease in consumer challenging behaviors when staff began implementing a Daily Choice Plan for each participant. McKnight & Kearney (2001) did not observe significant changes in consumer adaptive or maladaptive behavior between the treatment and control group after the treatment group received a staff training in choice. However, the authors recorded an increase in overall choice availability across time in the treatment group compared with the control group.

Staff and Consumer Choice

Studies investigating the effects of training on staff provision of choices observed immediately higher levels of choice offerings to participants with disabilities after training. Frequency of choice offerings went from a range of zero to two choice presentations per observation in baseline conditions to an average of six choices in the first data point of intervention (Cooper & Browder, 2001; Reid et al., 2003; Reid & Parsons, 1991; Salmento & Bambara, 2000). Wilson et al., (2006) reported staff offering choices from 0% of observation intervals in baseline to an average of 8.6% of observation intervals after staff training.

Three single-subject studies investigated consumer choice behavior and demonstrated an immediate increase in choices made from baseline to intervention. Frequency of choices made by consumers ranged from zero to three in baseline ($M=2$) to an immediate increase ranging from

three to eight choices in the first data point after staff training ($M=3$) (Cooper & Browder, 2001; Salmento & Bambara, 2000). Parsons et al., (1997) reported the average rate of choices made by each participant was 0.1 per minute in baseline and increased to an average of 1.6 choices per minute after staff training.

Consumer Behavior

Two single-subject studies found staff provision of choices increased consumer participation in leisure and daily activities. All consumers in Wilson et al., (2006) participated in choice-making for a range of 27% to 90% of observations ($M=65.6\%$) and Bambara et al., (1995) found that appropriate task initiations increased to approximately seven occurrences within the first choice condition ($M=6$ across choice conditions). In addition, Bambara et al., (1995) found that challenging behavior decreased from approximately four occurrences in baseline to an average of 0.42 occurrences in both conditions in which staff provided choice.

Ip et al. (1994) examined the impact of the choice program on challenging behaviors using an analysis of covariance (ANCOVA). The results of the ANCOVA for the frequency of challenging behavior indicated a significant effect of the intervention ($F(1,18) = 6.96, p = 0.02$). The results of the ANCOVA for the severity of challenging behavior showed a significant effect of the intervention ($F(1,18)=5.48, p = 0.03$). Increases in choice offerings from pretest to posttest were observed in five staff members of the experimental group and one in the control group. No increases were observed in six members of the experimental group and nine in the control. This difference proved to be significant ($p = .08$).

McKnight and Kearney (2001) found that the choice training program led to higher levels of overall choice availability compared with a control group. From preintervention to follow up, scores on the RCAS increased significantly for the treatment group in comparison to the control

group ($t(16) = 3.48; p < 0.003$). Although these changes appeared significant, the differences were deemed not significant after a Bonferroni correction. Changes in adaptive and maladaptive behavior were not significant.

Maintenance and Generalization

The four studies that included maintenance data showed higher levels of choice offerings during maintenance observations than in baseline, but only one study maintained consistent effects from the intervention phase throughout maintenance (Cooper & Browder, 2001). Two studies collected generalization data (Cooper & Browder, 2001; Salmento & Bambara, 2000). Generalization probes within Cooper and Browder's study (2001) generated almost identical data to intervention results. While Salmento and Bambara (2000) demonstrated an immediate increase in staff choice offerings during generalization probes, generalization of choice across a different routine held consistently lower levels than generalization measures with a different adult.

2.4 Discussion

Although choice is often understood as a fundamental right reserved for every person regardless of perceived ability, research demonstrates that adults with disabilities experience limited opportunities for choice-making (Heller et al., 2011). In the current review, the author analyzed existing research on training staff members within adult service settings in choice procedures. Results revealed a small but seemingly effective literature base. While each study targeted staff training in choice, there were clear differences in training methods, conceptualizations of choice, and quality of research. The research reviewed suggests staff

trainings in choice have a positive effect on a range of target behaviors of both staff and adults with disabilities. The absence of substantial literature examining staff training in choice combined with the variability of training protocols limits broad implications.

2.4.1 Training Components

The first research question in this review examined the components of staff training in choice procedures across the literature. The most common training element across a majority of articles ($n = 7$) was performance feedback, although each study varied in the description of what performance feedback entailed. Three of the studies that included performance feedback provided staff with positive and corrective feedback regarding choice procedures (Parsons et al., 1997; Reid & Parsons, 1991; Salmento & Bambara, 2000) and two provided staff members with suggestions and data regarding their performance (McKnight & Kearney, 2001; Salmento & Bambara, 2000). Performance feedback has moderate to strong evidence as a practice, therefore the inclusion of performance feedback may be an indicator of effective trainings (Fallon, 2015). Prior research in feedback suggests the immediacy of feedback is the most important indicator of effectiveness (Scheeler, Ruhl, & McAfee, 2004). In addition, the inclusion of specific, positive, and corrective feedback also appears as a promising practice and potentially effective component of performance feedback (Scheeler et al., 2004). While the specific timing of performance feedback and descriptions of content of feedback varied across studies, the inclusion of performance feedback alone as a primary training strategy may have contributed to the overall positive outcomes observed across the included literature.

Six studies included a rationale of choice and modeling of choice procedures as part of staff training, however none of these components were described in sufficient detail to allow for

direct replication. Other aspects of staff training such as training format and duration of training may have influenced staff acquisition of choice procedures. Due to inconsistent reporting, different intervention components, and differences in study quality, the current literature does not reveal a single, effective training approach.

While not explicitly stated, all of the studies included in the current review implemented elements of or the entire Behavior Skills Training (BST) sequence (Parsons, Rollyson, & Reid, 2012). An evidence-based practice, BST promotes the performance and competency of a specific skill by direct care staff (Ward-Horner & Sturmey, 2012). BST protocol consists of a rationale, written description, demonstration, practice, and feedback with practice and feedback continuing until the trainee demonstrates a set level of competency (Parsons et al., 2012). Given the effectiveness of BST, the inclusion of some or all of the elements within many of the studies potentially contributed to the success of the training on increasing staff performance of skills. Future research may consider conducting a component analysis between each of the training elements to determine which had the greatest effect on staff and consumer behavior.

2.4.2 Definition of Choice

The foundation of choice research rests in the conceptualization of choice. Seven studies within this review defined choice as between two items or activities or a single-stimulus presentation (Bambara et al., 1995; Cooper & Browder, 2001; Parsons et al., 1997; Reid & Parsons, 1991; Reid et al., 2003, Salmento & Bambara, 2000; Wilson et al., 2006) and three included open-ended choices (McKnight & Kearney, 2001; Parsons et al., 1997; Reid et al., 2003). Cooper & Browder (2001) also described allowing consumers opportunities to make choices based on natural environmental cues in the restaurant prior to providing a prompt to make a choice. Commonly

referred to as a paired choice, a choice of two may allow for clear stimulus distinctions between each item (Cannella, O'Reilly, & Lancioni, 2005). While paired choices are invaluable as a component of choice literature, they may also lead to a restrictive definition of choice and limited provision of choices for adults who are capable of choosing from several options.

In identifying what constitutes a choice, the literature supports the use of consumer familiarity with choice options and multiple opportunities for diverse choices that allow for individuals with disabilities to express preferences (Agran, Storey, & Krupp, 2010; Wehmeyer, Bersani Jr., & Gagne, 2000). The first potential issue within the literature reviewed is the restriction of choice to primarily two options without an assessment of consumer choice-making abilities. Presenting two choice options represents one format of choice provision, but individuals with disabilities, even significant disabilities, may be capable of making choices from multiple stimuli. The presentation of choices should match the skill level of the individual, therefore staff training should include the assessment of choice provision to determine the most appropriate format for each consumer (Parsons et al., 1997). If the individual making a choice must choose between only two items but does not prefer either option, the choice itself no longer has meaning. Only one study reported assessing consumer responses and it is unclear why remaining studies chose to train staff using a paired choice presentation.

The constraint in the type of choice provided by staff leads to the final limitation of the definition choice within this literature. Numerous researchers exploring the construct of choice have discussed the importance of providing an extensive range of choice options and choice types (e.g., Agran et al., 2010; Brown & Brown, 2009; Stalker & Harris, 1998). While several articles within this review discussed choice diversity either in staff training or within staff procedures, data on the implementation of choice diversity continues to be needed. For choice to be meaningful, it

should include a range of choice types such as choices of when to do something, where, and with whom (Brown et al., 1993; Green, Mays, & Jolivet, 2010). Without a firmer grasp on how to incorporate diverse choices within adult disability settings and, more importantly, train staff to implement diverse choice, participants with disabilities will continue to encounter choices that are externally controlled by others.

2.4.3 Quality of Research

The publication of quality standards for experimental, quasi-experimental, and single-subject research provides a thorough approach for the critical examination of research (e.g., Gersten, Fuchs, Compton, Greenwood, & Innocenti, 2005; Kratochwill et al., 2012). This review shed light on the methodological rigor of research in staff training in choice and potential avenues moving forward. Overall, the included articles, regardless of methodology, required a more comprehensive description of training components and study procedures to allow for future replication (Gersten et al., 2005). With the exception of two articles (Cooper & Browder, 2001; Salmento & Bambara, 2000), none of the training procedures included a systematic account of the training content or format. For the two studies implementing group designs, neither article demonstrates equivalency of groups on key demographic variables or provided sufficient information on the intervention. The majority of articles using a single-subject design ($n=5$) demonstrated sufficient replications of effect, but the paucity of detail on the independent variable and staff participants presents a challenge for in-depth evaluations and comparisons across studies. Furthermore, the lack of detailed information, small number of studies, and small number of participants, limits the generalizability of results.

Collection of treatment fidelity data provides evidence of internal validity. Within the current review, only one study included a measure of treatment fidelity (Cooper & Browder, 2001). Treatment fidelity assesses if the researchers consistently implemented the intervention as intended (Gersten et al., 2005). Since eight of the articles did not collect treatment fidelity, there is no evidence that the staff training was implemented correctly or consistently. The lack of treatment fidelity data limits confidence of study results and ability to draw strong conclusions from the literature.

Similarly, only one study included social validity measures (Wilson et al., 2006). As with treatment fidelity, the inclusion of social validity is recommended within experimental research (Gersten et al., 2005). Social validity data provides invaluable feedback as to the acceptability of the intervention and the perceived impact on staff behavior. Furthermore, social validity can capture feedback from both staff and recipients of services. None of the studies reviewed collected social validity measures on participants with disabilities. How consumers perceived being offered choices would have provided valuable insight into the significance of the intervention on service delivery. Without social validity data, it is difficult to assess how providing choices affects the lives and services of individuals with disabilities.

Lastly, the demographics of staff participants warrant further consideration. Differences in staff and consumer demographics may impact the feasibility and utility of specific training components or entire models. For example, the educational background of staff participants ranged from a high school diploma to the pursuit of a Master's degree in special education. Cooper and Browder (2001) recruited four graduate students in special education to serve as participants in their studies. The authors reported immediate effects from training and the only study to demonstrate consistent, therapeutic effects in maintenance and generalization phases. Prior

research has documented that most staff in disability services, specifically services for adults, receive limited training and often do not have an academic background in special education (Gerhardt & Lainer, 2011). While the findings from Cooper and Browder's study may support the training model, the background of the staff participants may limit the generalizability of the findings.

In addition to determining the external validity of the research, detailed descriptions of participants allow for a more extensive analysis of the literature base. Gersten et al., (2005) recommend a comprehensive description of participants as part of conducting high-quality experimental research. The literature reviewed in the current synthesis does not provide adequate descriptions of staff or consumer participants to allow for broad implications regarding the generalizability of intervention effects. Information such as educational background, professional experiences, and previous professional development in addition to standard socioeconomic and cultural details (e.g., age, gender, race, and ethnicity) may provide potentially critical information towards understanding the effects of an intervention (Robertson, Sobeck, Wynkoop, & Schwartz, 2017).

The shift towards higher standards within experimental research provides a foundation for analysis and a framework for moving forward. Despite the positive findings of this review, increased attention to scientific rigor is needed. Replication represents the heart of research and never is it more imperative than for a burgeoning branch of research such as the one reviewed here (Gast & Ledford, 2009). Without sufficient descriptions of intervention procedures, participant characteristics, and diligence to quality guidelines for each research methodology, systematic replication becomes more difficult, if not impossible.

2.5 Limitations

This review was limited by the availability of literature on this topic that met inclusion criteria. An expansion of the literature search to include research in multicomponent staff trainings with choice serving as one component of the training (e.g., Active Support) may have allowed for the identification of additional research. The author excluded studies that included choice as part of a multicomponent training and/or worked with children or adolescents. Future literature reviews on this topic may consider exploring staff training including choice procedures in K-12 settings to better determine the quality and breadth of research on this topic. Another limitation of this review is the lack of inter-observer agreement in identifying and coding potential articles. The author was the sole coder and therefore results may represent author bias.

2.5.1 Implications for Practice

The findings offer some guidance towards practical application of staff trainings in choice. Staff members with diverse professional experiences and educational backgrounds may acquire skills to increase their provision of choices to adult consumers when provided with limited training. Results of the present review indicates that various training models may prove effective, but the inclusion of performance feedback and a rationale supporting the use of choice may provide a strong foundation for professional development.

Despite self-determination and choice-making discussed as fundamental to adult disability services, staff practices often impede the ability of adults with disabilities to participate in or make autonomous choices (Webber & Cobgio, 2014). As demonstrated in the research which examined staff and consumer behavior, training staff in how to provide choices may act as a catalyst for

change in staff behavior and provide consumers with greater opportunities to exercise choice (Cooper & Browder, 2001; Parsons et al., 1997; Salmento & Bambara, 2000). When training staff, organizations may consider an internal evaluation of choice occasions to ensure that consumers have multiple opportunities to engage in diverse choices (Brown & Brown, 2009). Although the current literature presents a limited definition of choice and choice types, the positive results suggest that even predetermined choices within a specific routine may provide a starting point for staff to expand choice opportunities. As staff become more fluent with providing choices, service providers may consider adding additional components to the training such as self-monitoring (e.g., Cooper & Browder, 2001) or a model of choice diversity (e.g., Salmento & Bambara, 2000).

2.5.2 Implications for Research

This review has several implications for future research. First, the overall positive findings indicate the potential effectiveness of staff trainings in choice to influence staff and consumer behavior. Future research should continue to investigate the effects of staff training on staff behavior of offering choices and the effects of choice on various consumer behaviors (e.g., maladaptive behavior, task engagement, indices of happiness). In addition, different approaches to staff training should be considered including the most effective and efficient training components and content. Furthermore, future research should adhere to quality standards (e.g., Gersten et al., 2005) for quasi-experimental and experimental research. The enhancement of the methodology of research in this area will allow for greater confidence in study findings and broader conclusions to be drawn regarding the internal and external validity of the research. Similarly, further research should include generalization and maintenance data as well as treatment integrity and social

validity measures. The inclusion of these components will enhance the quality of the design and assist in interpreting and generalizing findings.

Lastly, future research should expand the conceptual framework of choice to promote not only quantity of choice offerings, but the meaningfulness of the choice to each individual (Brown & Brown, 2009; Jolivet, Stichter, Sibilsky, Scott, & Ridgely, 2002). Choice gives individuals the ability to identify a preference, therefore choices should be individualized and significant to each person (Heller et al., 2011). If researchers train staff to offer only a predetermined type of choice in a singular setting (e.g., lunch), staff members may not fully understand the diversity of choice presentations and the breadth of choice opportunities within every activity (Brown et al., 1993). Encouraging diverse choices has become a common standard within choice research, yet promoting the inclusion of various choice types and presentations during staff training requires additional investigation and advancement. Furthermore, researchers may consider including discussions and assessment of preference within choice training (Cannella et al., 2005). Choice does not occur in a vacuum, and an understanding of how preference influences choice-making may assist staff acquisition and understanding of choice.

2.6 Rationale for Study

Opportunities for consumer choice and staff training represents one of the highest unmet needs in postsecondary services (Burke & Heller, 2017). Previous researches successfully trained staff in residential settings to offer specific choices during leisure activities (e.g., Parsons et al., 1997; Wilson, Reid, & Green, 2006) and routines of daily living (e.g., Salmento & Bambara, 2000). Each study reported an increase in the number of choices staff members offered as well as

an increase in consumer choice-making. Similarly, Reid, Green, and Parsons (2003) used behavior skills training (BST) to train job coaches in a vocational setting to increase on-the-job choices. Reid and colleagues implemented comparable training components to Parsons et al. (1997) and Salmento and Bambara (2000) with equally positive findings.

Despite encouraging results, the conceptualization of choice requires further examination. Prior studies largely defined choice as between one or two fixed options during prearranged routines. Training staff to offer only staff-selected or prearranged choices preserves the problematic practice of choices being controlled by others, not adults with disabilities themselves. In addition, reducing choice to count alone minimizes the importance of diversity in choice type, corresponding choice content, and the correct implementation of a choice sequence (Reid et al., 2003; Stalker & Harris, 1998). Numerous researchers exploring the construct of choice have discussed the importance of providing diverse choice opportunities rather than a limited number of predetermined and prearranged options (Agran et al., 2010).

The current study extends choice literature in multiple ways. First, researchers expanded the definition of choice to include diverse choice types. Furthermore, dependent variables included staff performance of the choice sequence and consumer responses to choice to attempt to address the effects of the training on both staff and adults with disabilities. Lastly, researchers conducted interviews with staff members to learn more about how they perceived the use of choice in their workplace. The results of this study provide further guidance towards the efficacy of staff trainings in choice on staff behavior and consumer responses. The specific lines of inquiry include the following research questions: Will a multicomponent staff training in choice (a) increase the total percentage of correctly implemented steps of a choice sequence offered by staff to consumers with disabilities?, b) increase the frequency of correct choice offerings by staff to consumers with

disabilities?, c) decrease the frequency of incorrect choice offerings by staff to consumers with disabilities?, and d) increase the diversity of choices offered by staff to adults with disabilities?.

3.0 Methods

3.1 Participants, Setting, and Materials

3.1.1 Participants

A total of three staff members consented to participate in this research. All three staff members were the only full-time staff members within a postsecondary program serving adults with disabilities. None of the staff received any previous staff training relating to choice. Research personnel screened staff to ensure they did not consistently or correctly implement a choice sequence or provided a diverse range of choices according to the *Model of Choice Diversity* (Brown et al., 1993) or a similar choice model (e.g., Green et al., 2010). Pseudonyms were used to protect participant identity. None of the participants had received any prior training in providing choices, identifying choice opportunities, or choice diversity.

3.1.1.1 Annie.

Annie, Danielle, and June were all between the ages of 25 and 35 years old. Annie identified as Black and held an Associate's degree. She began working in social services doing Hospice and group home care for approximately five years. She had been working with the present organization for six months at the start of this study. When asked about why she chose to get into this work, she initially said "I don't know". The PI asked a follow-up question "Is there something you really enjoy about what you do here?" Annie responded that she liked the atmosphere and

activities. In response to a question regarding her strategies for working with consumers, she responded “Talk to them, they are there with you, you know?”

3.1.1.2 Danielle

Danielle identified as Black, had a high-school diploma and a few college credits. At the time of the study, she had been working in the organization for 10 months. She had previously worked for 10 years with children and adults in behavioral health. In her initial interview with the PI, Danielle stated she began working with individuals with disabilities because a lot of people in her family had mental health issues. She wanted to “...better herself and help others have a voice.” In response to a question on what strategies she uses with consumers, Danielle stated that she enjoys working on art projects since everyone brings different skills to the activities.

3.1.1.3 June

June identified as Puerto Rican and Dominican. At the time the study began, she had worked in the community program for one year as the lead instructor. She held a Master’s degree in web design and had previously worked at a local behavioral health unit. She pursued special education employment after she left a job at a bank and her friend mentioned special education, suggesting it as a potential avenue for June since she had a “heart for people”. After being in special education, June expressed feeling committed to staying in the field. She told the PI how she feels that the consumers “... teach her how to be a decent human being and they have a wealth of information to share”. In terms of strategies that she uses, June discussed how she first likes to build rapport and learn how different consumers like to communicate and how they are most comfortable learning. She mentioned using eye contact and thinking about her voice when she

interacts with consumers. June also stated her belief in the importance of having a variety of activities for every individual in the program.

3.1.2 Setting.

The day program was located within a school servicing students' ages 3-21 years old with vision loss and multiple disabilities. In addition to vision services, this organization housed a residential program in a separate wing of the main building, a daycare, and a postsecondary program. The current study took place in the area of the postsecondary program. The program occupied one room that included one computer desk, two beds to allow consumers to stretch, and three tables where program staff and nurses did paperwork. A TV was hung on one wall and the opposite wall contained a sink and area to store arts and crafts supplies. The daily schedule of the community program consisted of toileting and repositioning, recreation and leisure activities, and meals. Recreation and leisure tasks typically occurred in small group formats with staff arranging the activity and assisting consumers in participating. The program did not assign staff to work with specific consumers but rather, staff members rotated around to different consumers throughout the day. Each staff member attempted to spend equal time across consumers across the daily routines.

Nine adults with multiple disabilities, some of whom with the co-diagnosis of medically fragile, attended the program. All of the adults had once been students within the school program. Consumers ranged in ages from 20 to 29 years old. All participants lived at a relative's home except for one who lived in a residential program. All consumers used wheelchairs and communicated using eye gaze, single hand gestures, or a range of vocalizations. One consumer guided staff hands to the item, activity, or picture card to communicate with staff. Staff had a

communication dictionary for consumers that described the meaning behind vocalizations, gestures, or movements.

3.1.3 Materials

To ensure that each observation lasted strictly 15 minutes, researchers used the timer function on an iPhone6. Researchers collected individual data using a data sheet of the choice sequence and a pen or pencil. During training, participants watched a video recording of the choice training played on a MacBook Air. Consumer interviews took place in a private lounge away from the program. Researchers recorded interviews using a Sony ECMCS3 omnidirectional stereo microphone.

3.2 Experimental Design

Researchers implemented a multiple-baseline-across-participants single-subject design to evaluate the effects of staff training and feedback (Wolery, Gast, & Hammond, 2010). Initial observations of staff occurred during baseline. Once the first staff member reached a stable baseline or a decreasing therapeutic trend, researchers introduced the choice training program and began performance feedback for the first staff member while the other participants remained in baseline. Researchers introduced the choice training sequentially across staff; therefore training for each staff member began after the previous staff reached criteria on correct choice opportunities during the feedback phase. The research team collected weekly generalization probes throughout the study.

3.2.1 Response Definitions and Data Collection

Researchers collected data during each condition on (a) percentage of total correctly completed steps of the choice sequence; (b) frequency of choice attempts including frequency of correct and incorrect choices offered by staff to consumers; (c) frequency of choice diversity (e.g., different choice types); and, (d) consumer responses to choice opportunities. They identified choice attempts as any attempt by staff participants to offer a choice regardless if the participants followed the choice sequence. A choice was marked as “correct” when participants followed each step of the choice sequence, outlined in Figure 1. If staff skipped or did not correctly complete one or more steps, researchers marked the choice as “incorrect”. This allowed researchers to analyze what steps of the choice sequence participants performed correctly each observation and what steps they struggled to implement. At the end of every observation, the primary investigator (PI) calculated and graphed all dependent variables. For graphing the percentage of total correctly completed steps on the choice sequence, the PI calculated how many steps each participant performed correctly and divided this number by the total number of anticipated steps. For example, if a staff member attempted to offer one choice and completed 3 out of 5 steps correctly on the choice sequence, the PI reported the performance as 60% correct and a frequency of one incorrect choice. By graphing and analyzing each data set, the research team could determine trends in staff performance (e.g., if staff implemented more or less choices correctly). The PI also calculated data on how staff members performed each step of the choice sequence to better understand where individual staff members made errors and if certain steps resulted in consistent errors across participants.

For this study, researchers defined choice as providing verbal options for any single action (Brown et al., 1997; Stancliffe, 2001). Researchers only counted choices if the choices were

appropriate (i.e. not harmful to consumer(s) or illegal), contextually relevant, and immediately available. Hypothetical choices that could not be delivered within the immediate future (e.g., "Do you want to go swimming this summer?" during the winter) and choices that were fantastical or impossible to deliver were not counted (e.g., "Do you want to go to the moon?"). In addition, questions that included "we" such as "Should we go clean up the table?" and "Should we put your bag away?" were not counted as choices since these questions included the staff member as part of the decision making rather than the consumer's permission alone. Researchers described choice diversity as the inclusion of different choice types. Brown's *Model of Choice Diversity* guided the development and definition of each choice type (Brown et al., 1993). These choice types included choices within an activity, between activities, choice of refusal, choice of who to engage with or include in an activity, choice of time, and choice to terminate an ongoing activity (Brown et al., 1993; Brown, Raphael, & Renwick, 1997). Table 2 provides researcher-developed operational definitions and examples to distinguish between choice types.

3.2.1.1 Consumer responses to choice

The extensiveness of consumer needs made it difficult to directly interview consumers with disabilities regarding their views on choice. Rather, researchers assessed the acceptability of choice and potential impact of choice on consumers by collecting data on consumer responses to staff choice offerings. Data on consumer responses included a) affirmative response to choice offering(s) (e.g., communicating, "Yes" by moving closer to, pointing, smiling, vocalizing, eye gaze, or taking in hand the desired item); b) refusal of choice offering (e.g., may include communicating "No" either verbally or through other means such as moving away from choices, shaking head "No", or physically moving the items away, crying, shaking head; c) choosing an

alternative activity or option not offered; d) no response to choice offering; e) engagement in challenging behavior; or f) other behaviors.

Prior to beginning the study, researchers reviewed how each consumer responds to questions in order to understand how each consumer may make a choice. The PI gathered this information from direct observations and interviews with staff. Information on consumer communication assisted the PI in examining how consumers responded to staff choice offerings. If consumers did not respond to choice, engaged in challenging behavior, engaged in negation or refusal of staff or choice options, researchers hypothesized that consumers did not enjoy or want the choice being offered the staff selected item(s) (i.e. lack of choice). If consumers responded to choices with acceptance or affirmative behaviors, researchers hypothesized that consumers enjoyed or accepted the choice they made or the staff-selected choices.

3.2.2 Independent Variables

The PI implemented Behavior Skills Training (BST) during the choice training with staff (Parsons et al., 2012). BST is an evidence-based approach developed for training human service personnel in behavior change programs. BST training for the current study included a rationale, written description of choice sequence and choice model, demonstrations, role-plays practicing the choice sequence across each choice type, and immediate performance feedback. After participants completed behavior skills training, the PI conducted performance feedback alone after observing participants attempt to implement the skills during their daily routines in the program. Performance feedback was given to participants directly after observations and followed a feedback script. A description of the training and feedback sessions is described in “General Procedures”.

3.2.3 Inter-observer Agreement, Procedural Fidelity, and Accuracy

3.2.3.1 Training

The primary investigator trained a doctoral student as a secondary coder to identify a correct choice sequence, differentiate between choice types, and recognize consumer responses to choice. The secondary coder scored sample audio and video recordings for following the correct choice sequence and identification of choice types. For consumer responses, the PI used video examples and in-person models to train the secondary consumer in consumer responses to choice. Using examples, the PI and the secondary coder independently identified if the sample consumers accepted, refused, or did not respond to choice offerings. The primary investigator and the secondary coder calculated their IOA on this sample data until they scored 80% reliability (range 86-100%).

3.2.3.2 IOA and Procedural Fidelity

Researchers collected inter-observer agreement and procedural fidelity data a minimum of 40% of all sessions. Agreement data were scored based on direct observations. The PI and a secondary observer used the same data sheets during all phases of the study and the PI calculated agreement from the two data sheets. To ensure that observers evaluated the same choice opportunities, each observer transcribed the choice staff offered and consumer responses in addition to staff performance of the choice protocol. Agreement was calculated for each of the measures by adding the total number of agreements and dividing the total number of agreements and disagreements, then multiplying that number by 100%. Calculations on the level of agreement for observing the same choice offering generated a mean of 98% (range 87.5-100%), agreement

for choice types resulted in a mean of 99% (range 90-100%), a mean of 100% agreement for staff performance on choice protocols., and a mean of 100% for consumer responses to choice.

In addition, a secondary observer collected procedural fidelity data for a minimum of 40% of sessions. During training and feedback sessions, the secondary coder collected procedural fidelity on following the training and feedback scripts. Researchers calculated procedural fidelity to be 100% across conditions.

3.3 General Procedures

3.3.1 Baseline

All observation sessions lasted 30 minutes. During baseline sessions, staff participants completed their work routines as usual without any feedback or guidance from the researcher. This phase replicated typical events environment during naturally occurring program routines. Researchers collected observation data once per day for each participant on all dependent variables. Baseline continued until the first staff member reached steady state responding or a non-therapeutic trend. At this time, training began in a staggered fashion for the first staff member while the other participants remained in baseline.

3.3.1.1 Skills training

Each staff received 1:1 training in choice by the primary investigator in a small, private room located within the program. Prior to training, the PI told the staff member “Today we are going to watch a video, have some discussion, and do some role-plays over the skills discussed.

Let me know if you have any questions during the training.” A pre-recorded PowerPoint presentation created by the PI in which the choice sequence and diversity model were outlined and explained guided the training. The PI responded to any participant questions with further explanations, examples, and demonstrations. Each training session lasted approximately 45 minutes.

Current recommendations on training direct service staff using BST and previous research in choice training by Salmento and Bambara (2000) guided the development of the training protocol (Parsons et al., 2012). Training included a) a verbal and written description of choice and choice-making including a review of Brown’s *Model of Choice Diversity* (1993) and the researcher-developed operational definitions of each choice type, b) a demonstration of the choice sequence and each choice types with written handout, c) staff creation of potential choices across choice types during program activities, d) role-plays of staff’s creation of choices with staff and the primary researcher reversing roles and, e) feedback on staff performance during role-plays. The PI who conducted the training followed a feedback script that specified how to respond to participant performance of each step of the choice sequence. Specifically, the script first had the PI providing verbal praise to the staff member on their choice attempts, corrective feedback and examples on any errors staff made in the choice sequence, the frequency of choice types staff implemented, examples of how unused choice types could be implemented, and considerations moving forward to the next role-play or training segment. The feedback script used during training paralleled the script implemented during the feedback phase.

Similar to the training utilized in Salmento and Bambara’s study (2000), researchers taught staff a sequence for offering and responding to choices (see Figure 1). This sequence was adapted from previous research (Green et al., 1988; Salmento & Bambara, 2000; Sigafos & Dempsey,

1992; Sigafos et al., 1993) and modified to align with Brown and associates' *Model of Choice Diversity* (1993). The PI collected data during training role-plays on the correct implementation of each step of the choice sequence and the diversity of choice types. Each participant remained in training until they correctly implemented each step of the choice sequence for at least three consecutive choices and across at least five choice types. After each staff member reached the performance criterion, they returned to their typical shift for the feedback condition.

3.3.1.2 Feedback

After completing the training and reaching criterion during role-plays, staff returned to their usual work routine and researchers initiated the feedback condition. During this condition, researchers provided staff with specific positive and corrective feedback using a feedback script immediately following each observation session. Feedback for all staff included a) the number of correct choices staff offered, b) the number of choice types staff offered, c) correctly completed steps in the choice sequence, d) specific praise for correct steps, e) where staff committed errors in the choice sequence, f) how to correct the errors, g) specific praise for the choice types implemented, and, h) considerations for including additional choice types. Feedback took approximately 5 minutes for each participant.

When staff offered at least five correctly completed choice sequences across three consecutive observations, the next staff participant entered skills training. At this time, the previous staff member moved into maintenance.

3.3.1.3 Maintenance

Maintenance replicated baseline procedures with no feedback being provided. Maintenance continued for approximately five observations.

3.3.1.4 Generalization

The research team collected generalization probes for each staff person during afternoon activities. These activities typically included leisure activities as well as community outings, meals within the cafeteria of the program, and educational activities. Generalization probes allowed researchers to evaluate if staff members could generalize the skills to new environments and stimuli. Generalization probes were taken a minimum of every fifth observation during each condition of the study. The researchers provided no feedback to staff during generalization probes.

3.3.2 Other Measures

3.3.2.1 Social Validity

Each staff participant took part in an initial and final interview. The initial interview discussed their background and interest in disabilities and current strategies they implemented in the program. The final interview focused on the training, their acceptability of the intervention, usefulness of choice, perceived barriers to choice, and their perceptions of choice-making within their workplace. The research team analyzed each interview for overarching themes to better assess the impact of the training on staff and their workplace.

3.4 Results

Figures 2-4 illustrate the total percentage of correctly implemented steps, frequency of correct and incorrect offerings, and the frequency of different choice types implemented by staff. Table 3 shows how staff performed each step of the choice sequence throughout the study.

Researchers calculated the total occurrences of each step of the choice sequence and divided this number by the expected number of occurrences. For example, if a staff member attempted to offer three choices but only gained consumer attention one time out of those three choices, the step “gained attention” occurred 66% of the time. Since the choice sequence depends on consumer responses, some components of the choice protocol occurred only a few times over the course of the study (e.g., offering a choice or making a selection for the consumer). The results are presented for each staff member.

3.4.1 Annie

In baseline, Annie rarely offered choices with the exception of one observation. In the first observation she offered one choice with 33% of the choice sequence implemented correctly (baseline $M = 6\%$; range 0-33%). Immediately after receiving skills training, Annie demonstrated an increase in the correct implementation of the complete choice protocol ($M = 92\%$ correctly implemented steps; range 74%- 100%), and an increase in frequency of choices offered from zero choices in baseline to an average of seven correct choices (range 4-9). Additionally, Annie decreased her incorrect choice offerings to approximately one incorrect choice (range 0-3). Furthermore, Annie expanded the diversity of her choice offerings from only one choice type to approximately three choice types (range 2-3 choice types). She met criteria for moving from feedback into maintenance after five consecutive observations.

During the maintenance phase, Annie continued to implement the choice sequence with an average of 98% accuracy (range 94% to 100%). She displayed variability in the frequency of correct choice offerings ($M = 5$; range 3- 8 correct choices) but decreased incorrect choice offerings to an average of one incorrect per observation (range 0-2). Annie continued to offer above her

baseline levels in correct choices throughout maintenance. Her diversity of choice types decreased during maintenance from offering three types to offering an average of only one type (refusal).

3.4.2 June

June attempted to offer choices to consumers with an average of two choice attempts across baseline observations (range 0-8) and an average of one choice type (range 0-2 choice types). She did not correctly implement choice protocol for any choice attempts ($M = 26\%$; range 0%- 60%). After skills training, June immediately incorporated the choice protocol into observations with 100% accuracy across an average of six correct choices per observation (range 4-7). Her use of choice types increased to approximately three types per session (range 1- 3) and she had no incorrect choice offerings (i.e. choice offerings not following the steps of the choice protocol). June met criteria to move from feedback to maintenance after three consecutive observations.

After feedback ended, June continued to correctly implement the choice sequence across observations with almost 100% accuracy ($M = 100\%$; range 96%-100%) and an average of five correct choices (range 2-7) and an average of two choice types (range 1-3). The frequency of choices she offered to consumers varied during maintenance with a slightly decreasing trend. June increased her correct choice offerings from approximately four choices in the first half of maintenance (range 2-6) to approximately five correct choices (range 3-7) during the second half of the maintenance phase.

3.4.3 Danielle

During baseline, Danielle demonstrated variable data. She achieved an average of 22% accuracy in completion of the choice sequence (range 0-60%). She offered choices inconsistently with an average frequency of one choice attempt per observation (range 0-4) and use of one choice type. While she demonstrated variability in her baseline data, visual analysis of her performance on the choice sequence followed a consistent pattern of low frequency of choice offerings (i.e. one choice per observation) and a predictable trend during her performance on the choice sequence (Sidman, 1960). Researchers determined her low level of choice offerings and the predictability of her baseline performance on the choice sequence were contratherapeutic and implementing training was reasonable. After skills training, Danielle immediately increased her implementation of the choices sequence to approximately 98% accuracy (range 95-100%) across an average of six correct choices (range 5-8 correct choices, range 6-8 total choice attempts). Danielle increased her use of choice types from one type in baseline to two choice types (range 1-2) after training. Danielle met criteria to move from feedback to maintenance after three consecutive observations.

During maintenance, Danielle implemented the choice sequence with approximately 98% accuracy (range 91-100%) and provided, on average, four correct choices (range 3-7), one incorrect choice (range 0-2), and two different choice types (range 1-4). She exhibited a fairly stable trend in her overall implementation of choice protocol during maintenance. While the frequency of correct choices she offered declined, they remained above her baseline levels.

3.4.4 Generalization

All staff demonstrated generalization of the choice protocol across a different time of day and activity. Generalization probes occurred during afternoon leisure, small group horticulture, and meals. Prior to training, Annie demonstrated 0% accuracy in offering choices during generalization probes. After training, Annie achieved 100% accuracy during each generalization observation. June offered choices with an average of 11% accuracy on generalization probes (range 0% to 42%) during baseline. After skills training, June demonstrated 96% accuracy (range 90% to 100%) and 98% accuracy during maintenance (range 93-100). Danielle demonstrated 26% accuracy during generalization probes in baseline (range 0% to 88%) and 100% accuracy on generalization probes after training.

3.4.5 Staff Completion of Steps

Table 3 displays participant performance on the choice sequence before, during, and after training. Each participant went from not implementing or inconsistently implementing steps in the choice sequence to using all steps of the choice protocol on a more reliable basis. The step of repeating the choice if the consumer did not respond to the initial choice offering proved the most difficult step for staff to consistently implement, even after training. Since consumers responded to choices more regularly after staff received training, the opportunity to repeat a choice due to non-responses from consumers decreased. During baseline, all staff participants struggled to gain consumer attention prior to offering a choice, wait for consumer responses, and repeat the choice if consumers did not respond initially. After training, these steps improved across participants, in some cases from 0% to 100% of instances.

3.4.6 Social Validity

Researchers assessed acceptability of the intervention upon conclusion of the study using two different methods. The first method required staff members to complete a questionnaire using a 5-point Likert scale with higher numbers representing greater acceptability and use of choice-making. There were a total of ten questions addressing staff perceptions of the skills training, the acceptability of the skills training, the usefulness of understanding choice in their setting, and their perceptions of choice-making with consumers. Final scores ranged from 48 to 50 with a mean score of 49 out of a possible 50.

3.4.6.1 Interviews

The second method consisted of brief one to one interviews with each staff member (see questions in Appendix). The interviews allowed for reflection and sense-making of the entire training and process of participating in the study. Researchers incorporated four questions into the interviews to facilitate exploration of choice in their work and their current understandings of choice. The research team transcribed the interviews and then summarized and analyzed within and across interviews to identify any trends or overarching themes related to their experiences in the study and perceptions of choice.

3.4.6.2 Results

All staff members discussed how consumers should encounter choices regardless of perceived ability. In response to a question regarding the use of choice in her work environment, Annie said:

Choice is definitely good. Sometimes I don't think that they understand but then you are surprised and they do. You might get a blink or a laugh; you never know how smart an individual is so it is always good to offer choice... Um... I would say choice is just good and everyone should be offered a choice even if you don't think they are capable of making a choice.

June made a similar remark, stating:

So one of the things that is really important about the program is giving individuals a sense of independence and anyone who has a choice to make it involves their ability to be independent. Every day that we make choices we find out what will be the best choice for us but we don't often give choice to someone else. We assume that we are making the right choice for them but if you don't give the opportunity to make a choice how do they get a choice to feel independent?

In describing the use of choice for individuals with disabilities, all participants mentioned that the way an individual presents does not mean that they should not get a choice. In answering the question "Would staff discuss choice as a strategy to a new staff member?" all participants said that they would. June commented, "I would discuss choice, especially in the program. I think they are engaging more in the program now that they have choices versus before when they didn't have as many opportunities to make a choice." Similarly, Annie said "I think it is good to be a role model for someone who may or may not be able to make choices. Like Nate, he might make a noise and he may interact with you...with choice."

When asked if they felt that there were times they could not offer a choice, all participants agreed that these scenarios occurred but differed in what they viewed as choice versus non-choice situations. Both Danielle and Annie commented on how the program had a set schedule and that the schedule wasn't optional for consumers. Staff created the calendar and they would give consumers options within activities but not a choice of whether or not to participate in activities.

Danielle described how staff members gave consumers choices between two activities in the morning and in the afternoon. Annie also referenced the commitment to the schedule, saying, “You can’t ask if they want to go to horticulture because that is the schedule. Some (other) kids will voice it, they don’t want to go, but it isn’t a choice for them or these guys.” June described how hygiene and medication were two times that consumers could not get choices, that hygiene checks could not be optional. No staff elaborated on these comments.

3.4.6.3 Consumer responses

Researchers collected consumer responses to choice during each observation (see Figure 4). These responses indicated whether consumer behavior differed during choice offerings after trainings in comparison to baseline conditions (e.g., lower rate of choices). Researchers calculated the total frequency consumers engaged in specific behaviors in response to choice attempts (correct or incorrect) and divided this number by the total choice attempts. During baseline, consumers responded to approximately 16% of choice attempts. After training, consumers responded to approximately 63% of all choice attempts. Consumer affirmative responses in which consumers chose items or activities being offered to them by staff members increased from 1% in baseline to approximately 60% after training. While consumers infrequently engaged in refusal responses (i.e., refusing the choice offerings presented), their refusal responses increased from 0% in baseline to 3% after training. Researchers also observed differences in the frequency of challenging behavior(s) before and after trainings. During baseline, consumers displayed challenging behavior during 6% of total choice attempts across staff. After training, challenging behavior decreased to one incidence across all choice attempts or .05% of observations.

4.0 Discussion

The primary focus of this study was to investigate the effects of a multicomponent training in choice on staff implementation of a choice sequence and consumer responses to choice. Findings indicate that all staff members incorporated the choice protocol into their daily routines, maintained the choice sequence over time, and generalized choice to other activities. Each staff member demonstrated an immediate change in level and trend in the frequency of choices provided and the implementation of choice protocol. In addition to increasing correct choice opportunities, all participants decreased and maintained low levels of incorrect choices after training. Furthermore, consumers within the program responded to choices staff provided and had more opportunities to make choices due to the increase in choice offerings provided by staff.

Similar to previous research, the multicomponent training resulted in an immediate and substantial increase in the frequency of choices staff provided consumers (Cooper & Browder, 2001; Ip et al., 1994; Reid & Parsons, 1991; Reid et al., 2003; Salmento & Bambara 2000). In addition to frequency, the present study included the novel measure of assessing staff performance on each step of the choice sequence. Results indicate that after receiving a systematic training in choice, staff members immediately increased in their correct implementation of the choice sequence, in the instance of one participant from 0% to 100% immediately after training. Additionally, the inclusion of the frequency and type of choice implemented by staff broadened prior research and allowed for the first in-depth analysis of choice diversity within a staff training study (Parsons et al., 1997; Salmento & Bambara, 2000). Findings demonstrate that as staff members increased in the number and type of choices they offered, these results corresponded with an increase in choices made by consumers. The results support prior research regarding the

effectiveness of a staff training to increase the provision of choice and opportunities for choice-making for both staff and consumers (Cooper & Browder, 2001; Parsons et al., 1997; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006). While these results are consistent with previous research findings on staff trainings in choice, the inclusion of multiple dependent variables provides a necessary extension of staff training and choice literature.

4.1 Dependent Measures

While numerous studies have cited positive results following similar trainings (e.g., Salmento & Bambara, 2000), the current study varies in a few substantial ways. A majority of prior research calculated the frequency of choice and consumer choice behaviors (e.g. Reid et al., 2003) or choice availability (McKnight & Kearney, 2001) as the primary dependent measures. This study extends choice literature by capturing several aspects of staff performance including the types of choices offered, errors made by staff during choice sequences, staff performance of the choice sequence, and the choice responses of consumers. Results indicate that the training and feedback increased overall choice attempts, the accuracy and frequency of correct choices, and the responses of consumers being offered choices. While the study included a very small sample of staff participants, findings enhance choice literature by combining previously measured components of choice with additional dependent measures into one study. The collection of dependent measures creates a comprehensive lens into how a multicomponent behavior skills training and performance feedback impacts staff members and a sample of adult consumers with multiple disabilities.

4.1.1 Staff Error

Staff error represented one of the novel variables analyzed within the current study. The inclusion of errors allowed researchers to review where staff struggled within the choice sequence. Staff had no access to the choice protocol in baseline and data collected suggests none of the staff performed basic steps of client-staff interactions such as gaining consumer attention before offering a choice or waiting for a consumer to respond to a choice. During baseline, all staff struggled to gain consumer attention, wait for a consumer to respond to a choice, repeat the choice offering, and provide the choice within 5 seconds of a consumer making a decision. Even though all staff significantly improved in their implementation of the choice sequence after training, some errors persisted. The most common errors during feedback and maintenance phases included not waiting for a consumer to make a choice and failing to repeat a choice if a consumer did not respond.

While no other study reviewed previously explicitly collected and analyzed staff errors on the choice sequence, staff errors in the current study align with observations made by prior researchers conducting trainings (e.g., Cooper & Browder, 2001; Salmento & Bambara, 2000; Wilson et al., 2006) and other reviews of choice research (e.g., Webber & Cobigo, 2014). Cooper and Browder (2001) and Wilson et al., (2006) discuss how staff inconsistently offered choices prior to training and used intrusive prompting techniques to try to engage consumers in making choices. These descriptions relate to baseline data in the current study in which staff members varied in their frequency of choice attempts and often prompted a consumer to engage with a choice option prior to allowing a consumer to make a choice. Salmento & Bambara (2000) describe in their study how participants struggled to wait five seconds for a response and often needed to

self-prompt by counting out loud. Results of the current study found a similar result in regards to staff consistently waiting five seconds for a consumer response.

Prior research hypothesized that the effort of providing choices may impact the ability of staff to consistently and correctly provide choices (Reid & Parsons, 1991; Sigafoos, Roberts, Couzens, & Kerr, 1993; Salmento & Bambara, 2000). Although no formal data was taken, potentially the effort to prepare a choice presentation impacted staff performance of choice across conditions. Reid and Parsons (1991) described how staff members in their study had to engage in more work activity in order to prepare choice presentations. While researchers in the present study did not observe staff working more to create choice opportunities, it is possible that preparing choice materials and responding to choice requests required additional effort on the part of staff. If staff members felt that they needed to adhere to a schedule or found providing a new choice too effortful, that may have impacted their willingness to follow the designated choice sequence consistently. However, as stated by Reid and Parsons (1991), given the lack of choice during baseline, it appears logical that allowing consumers to engage in choice would require some different, and potentially more intensive, work by staff members.

In addition, findings from the current study combined with prior research (e.g., Reid & Parsons, 1991; Webber & Cobigo, 2014) indicate staff may view their daily schedule and calendar as non-negotiable activities. This perspective may have influenced the willingness of staff to wait for consumers to make a choice. Research conducted by Stancliffe, Abery, and Smith (2000) indicated that environmental variables such as program schedules had a direct impact on consumer control and choice. More broadly, organizational culture may also provide a potential reason for the focus on adhering to a schedule over the development of consumer choice opportunities (Finlay, Walton, & Antaki, 2008; Stancliffe, 2001). Finlay and colleagues (2008) describe how

offering choices may conflict with an organizational focus on getting specific activities accomplished or staff responsibilities for health and safety. Potentially staff neglecting to wait during a choice offering may have resulted from staff feeling responsible to engage consumers in the assigned activity rather than waiting for consumers to make a different or new choice (Webber & Cobigo, 2014). Results from the present study combined with previous literature indicate that while service providers typically encourage staff use of choice with consumers, developing systems for choice at the service level requires further development (Finlay et al., 2008; Webber & Cobigo, 2014). Future research should continue to facilitate staff engagement with consumers throughout choice trainings, and incorporate organizational leadership into trainings as well.

4.1.2 Diversity of Choices

Building off of research by Parsons et al., (1997), Salmento and Bambara (2000), and Schwartz, Robertson, and Westerfield (under review), the present study attempted to expand measurement of choice by including choice diversity as a dependent variable (Figure 3). Including the diversity of choices attempts to address the participation of individuals with disabilities in meaningful choices and provide a quantitative evaluation of those choices. In the current study, staff increased in the diversity of choices offered during feedback sessions and maintained higher than baseline levels over time. While staff increased in the overall frequency of diverse choices they implemented over time, the consistency of using each choice type varied. All staff members relied on refusal choices as the primary choice type. Refusal choices function to provide the individual with an opportunity to accept or refuse items or activities.

These results replicate the findings of Schwartz et al., (under review) in which all three staff members also decreased in their diversity of choices over time and heavily relied on refusal

choice offerings. Parsons et al (1997) was the only other prior research study in choice training to collect data on diverse choice types. Parsons and colleagues (1997) defined choices by three categories (how, what, and where) rather than using a published model of choice diversity (e.g., Brown et al., 1993). Their results showed that while choices became somewhat more varied after training, most staff continuing to offer a majority of one choice type (“how” choices). Comparisons between Parsons et al (1997) and the present study are difficult considering how each research team categorized choice. However, both studies indicate a staff preference for a primary choice type. A potential explanation may be the effort in offering other types of choices (i.e. “where” or “who” choices) and, in the present study, the ability to offer diverse choice types in a format that consumers could understand. Potentially staff members resorted to a refusal choice (i.e. “Do you want the red paper?”) due to the severity of the consumer’s disability and presumptions regarding the choice-making ability or communicative ability of consumers.

While the present study provides a more comprehensive analysis of the diversity of choices staff offered, the inclination by staff to offer one choice type consistently over others requires further investigations. Future research should investigate methods of training and sustaining diversity of choices with staff. Potentially a staggered training that would allow staff members to first gain fluency with the choice sequence prior to incorporating diverse choice types may promote the acquisition and sustained use of diverse choice types in practice (Binder et al., 1996). If consumer responses impacted the type of choices staff implemented, potentially exploring different presentation formats for each choice type would promote the inclusion of diverse choices. The results of the present study support continued investigations in how staff perceive, acquire, and implement diverse choice types with adults with disabilities and methods to enhance staff use of various choices.

4.1.3 Consumer Responses

The inclusion of consumer responses provides another contribution of this study to choice literature (Figure 5). While previous studies included the frequency of consumer responses to choice (Cooper & Browder, 2001; Parsons et al., 1997; Reid & Parsons, 1991; Salmento & Bambara, 2000; Wilson et al., 2006), the current study attempted to further count and categorize consumer responses to glean a more inclusive picture of consumer reactions. Consumers went from not responding to staff members during choice offerings to responding with higher frequency and with greater variety of responses. Since staff members offered more frequent choices, the research team anecdotally observed staff and consumers engaged in more consistent and extended interactions. Consumers began frequently responding to choice offerings by choosing items or activities offered. Furthermore, staff commented in their interviews how some consumers began to smile and engage more with staff and the activities after staff provided a choice.

The data generated on consumer responses, the use of choice types, and staff errors reaffirms findings from prior literature that suggest the frequency of choice-making is directly proportionate to opportunities for choice, and thus the need for consistent staff-consumer interactions (Bambara, 2004). As seen in the current study, the increased frequency of choices provided by staff resulted in consumers making more choices. In order to maintain the frequency of meaningful staff and consumer choice interactions over time, staff may need additional training to become consistently engaged partners. In her article, Bambara (2004) suggests staff members receive explicit training in responsive partnering to facilitate reciprocal exchanges between consumers and staff members. She describes responsive partnering as a partnership in which partners “ pay attention to nonconventional expressions of preference, interpret behavior, encourage new choice forms, and adjust their responses to accommodate their partner’s wishes”

(p. 170). Her suggestion and description of responsive partnerships aligns with other literature in training support staff (e.g., Beadle-Brown et al., 2012) that describes an explicit and equal partnership between staff and consumers. Explicit training in how to engage consistently and meaningfully with consumers may address issues with staff and disability services facilitating and maintaining diverse, significant choice opportunities (Bambara, 2004; Beadle-Brown et al., 2012; Mansell, Beadle-Brown, Whelton, Beckett, & Hutchinson, 2008). If staff learn how to engage in productive and meaningful exchanges with participants, then perhaps choice interactions will become more frequent, individualized, and constructive for both staff and consumers.

Additionally, a discussion of preference and the connection between preference and choice may also provide a starting point for future trainings. Previous literature has established the benefits of exposing individuals to option-rich environments to encourage the development of preference and choice-making (Cannella et al., 2005). This type of exposure requires staff to facilitate multiple, diverse encounters across activities to allow individuals with disabilities to engage with items. Through these encounters, individuals with disabilities may begin to develop preferences for specific items and activities from which support staff can foster and cultivate new choice opportunities (Beadle-Brown et al., 2012). While consumer responses in this study strongly indicate individual preference towards specific activities, materials, or individuals, including preference within choice training may provide staff with guidance towards how to interpret individual choice responses. A potential research goal for the future may include specific training in preference and environmental arrangements to enhance diverse, individualized choice opportunities.

4.2 Limitations

This study has several limitations. Researchers did not attempt to interview consumers before or after the study. The objective and results of this research address the impact of training on staff behavior whilst measuring and providing information on how choice offerings affected consumers. Additional information on consumer attitudes and behaviors towards choice needs ongoing examination. Current research in severe disabilities identifies potential methods to determine consumer preference (Cannella et al., 2005), and future research should include and consider methods of assessing consumer preference for choice. In addition, the current study did not attempt an analysis of individual consumer choice-making skills. Prior to conducting future research, an inclusion of if and how consumers make choices may aid in individualizing staff training procedures for the study site.

The use of a multicomponent training without an analysis of the effects of each individual component represents another limitation of this research. While results of the current study demonstrated a positive outcome, it is difficult to assess the impact of each training component without data taken in-between each element. Future research may consider a component analysis to determine essential training components or if there are components, such as performance feedback, that exert greater influence over choice performance (Ward-Horner & Sturmey, 2012).

Lastly, the study took place in one setting with a very small sample. The opportunity to observe staff in other locations (e.g., community) may provide further information regarding staff allocation of choices. It may be important to observe participants across settings to analyze whether participants could generalize choice procedures to unknown settings and stimuli. Similarly, future research should include a larger sample of staff to allow for a more comprehensive analysis on the effects of choice training across various participants and settings.

4.3 Conclusion

Supporting adults with disabilities to make choices and providing diverse opportunities for them to participate in choice-making embodies a fundamental component of adult disability services (Webber & Cobigo, 2014). Findings indicate that staff working within a postsecondary disability program can acquire skills to offer diverse choices to individuals with disabilities. Moreover, staff members can maintain and generalize those skills over time, consumers, and activities. Postsecondary organizations and researchers should continue to investigate how best to facilitate choice and engage staff members in promoting consistent, meaningful choice opportunities for adults with disabilities in their care. This research can help to establish a technology of trainings in choice and encourage the voices and values of adults with disabilities to be heard.

Appendix A Tables

Table 1 Summary of Findings

Table 1. *Summary of findings*

Study	Participants	Setting	Dependent variable(s)	Design	Training Components
Bambara, Koger, Katzer, & Davenport (1995)	Three home support staff. One adult with an intellectual disability	Independent residence	1) Frequency of task initiations 2) Frequency of protests	Withdrawal A-B-A-B	Roleplays and written script of how to offer choices.
Cooper & Browder, (2001)	Four staff in an alternate educational facility. Eight adults with intellectual disabilities	Fast food restaurants	1) Level of staff assistance for each step of a purchasing task analysis (offering choice and prompting performance) 2) Level of independence the learner demonstrated for each step of the purchasing task analysis (choice and performance responses)	Multiple-baseline-across-participants	Inservice with written manual, role-play, videotape demonstrations, and training in self-monitoring. After the initial training, in vivo feedback was given for four sessions.
Ip, Szymanski, Johnston-Rodriguez, & Karls, 1994).	21 support staff; 21 adults with intellectual disabilities	Residential programs (i.e. group homes, supported apartments, intensive apartment programs)	1) Frequency of challenging behavior 2) Severity of challenging behavior	Nonequivalent control group pretest-posttest design	Inservice group trainings over several weeks that included a definition of choice, identification of preference and choices, and a recording of choices.
McKnight & Kearney (2001)	11 support staff; eight consumers with intellectual disabilities	Residential program	1) Resident Choice Assessment Scale indicating choice availability 2) Vineland Adaptive Behavior Scale 3) Vineland Maladaptive Behavior Scale	Non-randomized two-group pretest-posttest design	Inservice program involving modeling, role-play, feedback, and descriptions of choice.

Study	Participants	Setting	Dependent variable(s)	Design	Training Components
Parsons, Harper, Jensen, & Reid (1997)	Seven support staff; three adults with intellectual disabilities	Senior day program	1) Number of choice presentations 2) Number of choice responses made by adults with disabilities	Multiple-probe-across-participants design	Inservice training including rationale, written description of choice procedures, role-plays with feedback, and on-the-job training and feedback.
Reid & Parsons (1991)	Mealtime staff (number not specified); three adults with intellectual disabilities	Residential program	1) Number of choice presentations 2) Number of choice responses made by adults with disabilities	Multiple-baseline-across-participants design. For one, a reversal design was embedded	Inservice training including a rationale for increasing choices, program procedures, and on-the-job feedback.
Reid, Green, & Parsons (2003)	Two job coaches; Five supported workers with severe intellectual and physical disabilities	Publishing company	1) Number of choice opportunities 2) Number of choice responses made by adults with disabilities	Multiple-probe-across-work periods	Inservice training with a definition and rationale of choices, demonstration of choice formats, and brainstorming of potential choices. In vivo feedback was given on the frequency of these choices and, if this number fell below baseline, corrective feedback was given.

Study	Participants	Setting	Dependent variable(s)	Design	Training Components
Salmento & Bambara, (2000)	Four support staff in a residential facility; Four adults with multiple disabilities	Residential program	1) Number of choice opportunities provided by staff members; 2) Number of choice responses made by adults with disabilities	Multiple-baseline-across-participants	Consultation meeting that included: 1) a demonstration and rationale of choice, 2)staff identifying potential choice opportunities, and 3) role-play. In vivo feedback was given to staff until all staff offered at least 75% of choice opportunities.
Wilson, Reid, & Green, (2006)	Three support staff across three community residences; Three adults with severe intellectual, mobility, and communication needs	Independent residences	1) Percentage of time engaged in chosen leisure activity 2) Choice presentations provided by staff 3) Choice responses by adults with disabilities	Multiple-probe-across-participants	Individual training to provide paired choices using instructions, role-plays demonstrations, and practice with feedback.

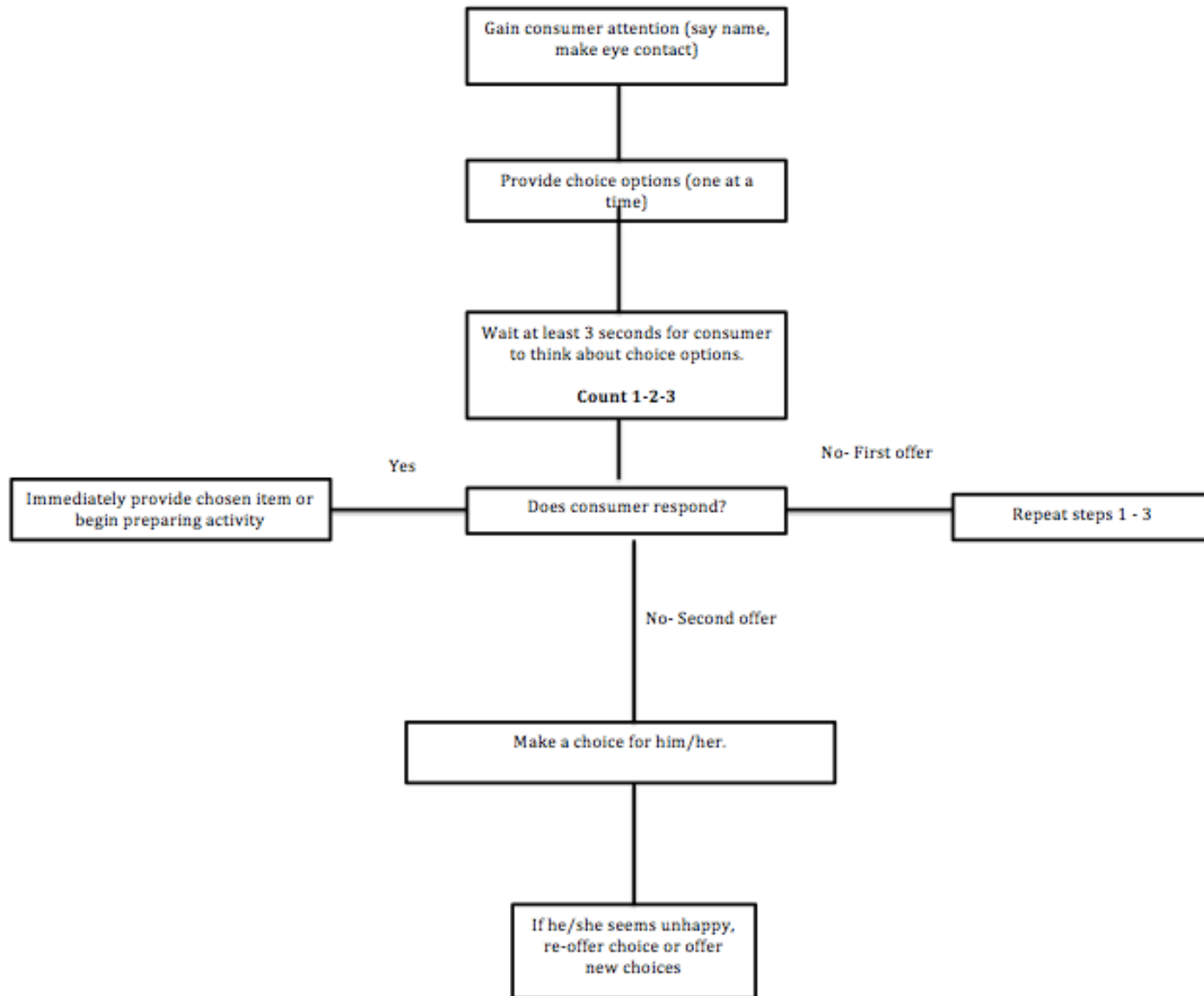


Figure 1 Flowchart of Choice Sequenc

Table 2 Operational Definitions of Choice Type

Choice Type	Definition	Examples
Within	A choice that functions to provide different materials within one activity. Speaker responses are typically specific items.	"Which color of paper do you want?"
Between	A choice that functions to provide options between two or more activities. Activities could be present in the environment or not. Speaker responses are typically specific activities.	"What do you want to do today?"
Refusal	A choice that provides an option to refuse what is being offered. Speaker responses limited to a "Yes" or "No"	"Do you want a drink of water?" "
Termination	A choice that functions to end a current activity. Speaker responses typically a "Yes" or "No".	"Are you finished?"
Who	A choice that functions to provide options for persons involved in an activity. Speaker responses may be a specific names or a "Yes" or "No"	"Who do you want to work with today?"
Where	A choice that functions to provide options of locations for an activity. Speaker responses typically name a specific location.	"Do you want to eat lunch outside or inside?"
When	A choice that functions to provide options for the timing of an activity. Speaker responses may include, time, "Yes" or "No".	"When do you want to watch TV?"

Table 3 Overall Staff Performance on Choice Sequence

Steps	Annie			June			Danielle		
	Baseline	Training	Maintenance	Baseline	Training	Maintenance	Baseline	Training	Maintenance
Gains attention	0%	97%	100%	50%	100%	100%	22%	100%	100%
Provide choice	100%	100%	100%	93%	100%	100%	89%	100%	100%
Wait	0%	94%	98%	14%	100%	100%	0%	100%	94%
<i>No response?</i>									
Repeat	0%	80%	84%	0%	100%	88%	0%	67%	100%
<i>Choice?</i>									
Provide within 5s	0%	95%	100%	50%	100%	100%	67%	100%	100%
<i>No response?</i>									
Make selection	0%	78%	100%	42%	100%	100%	17%	100%	100%
<i>Unhappy or not engaged?</i>									
Offer new choice	NA	100%	100%	0%	100%	100%	NA	100%	100%

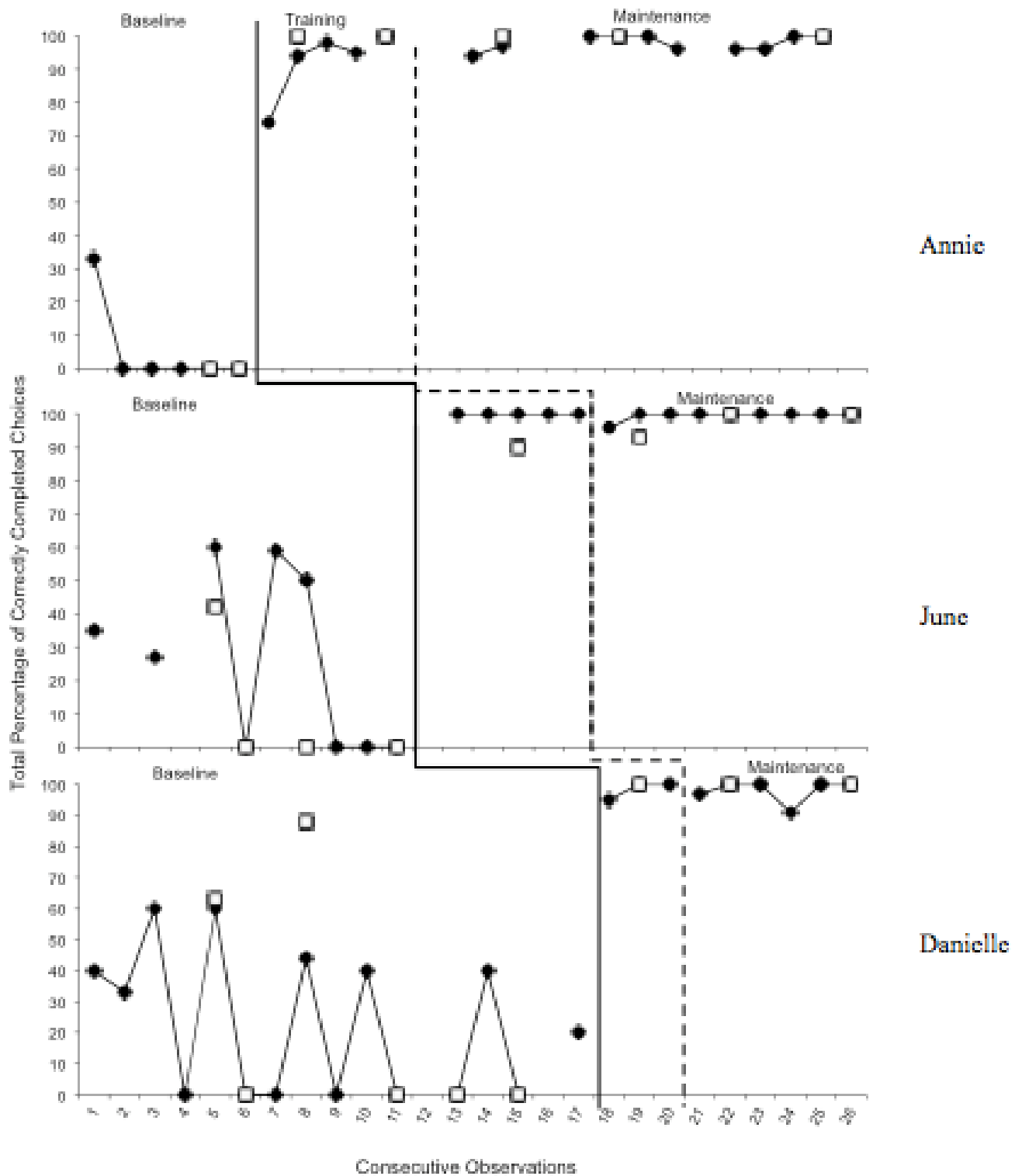


Figure 2 Staff Overall Completion of the Choice Sequence

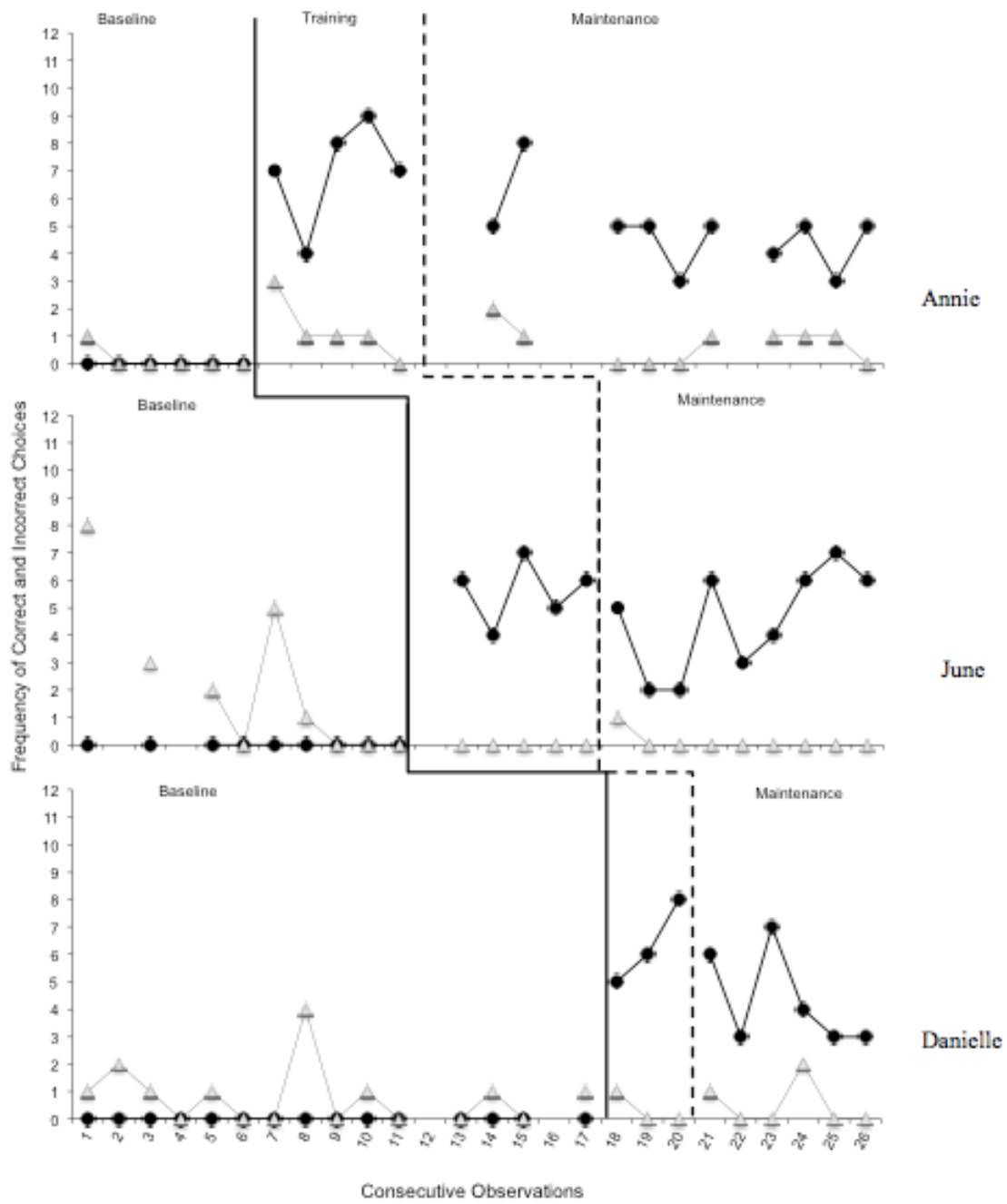


Figure 3 Frequency of Correct and Incorrect Choices Offered by Staff. Circles represent correct choices, triangles incorrect.

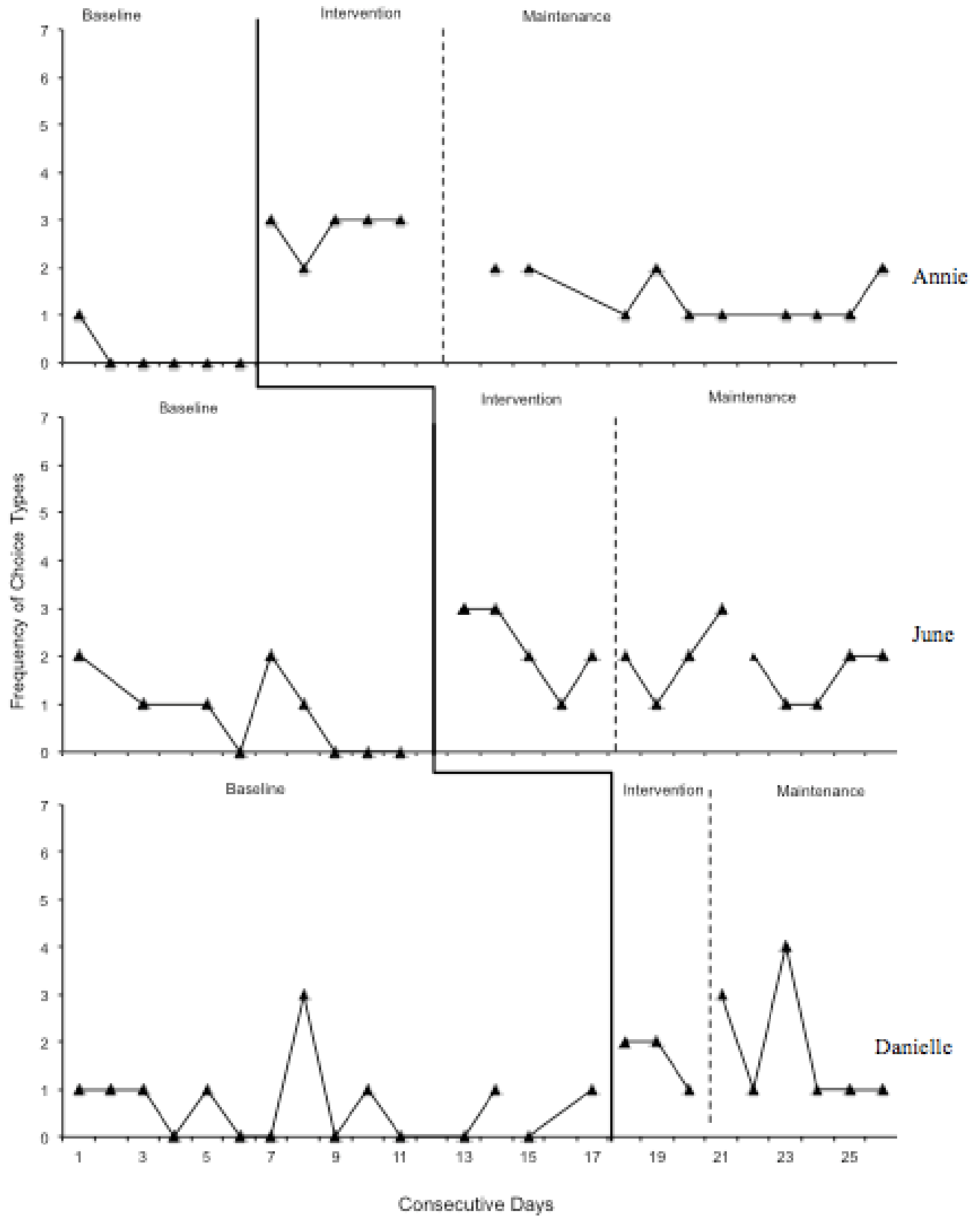


Figure 4 Frequency of Choice Types Offered By Staff

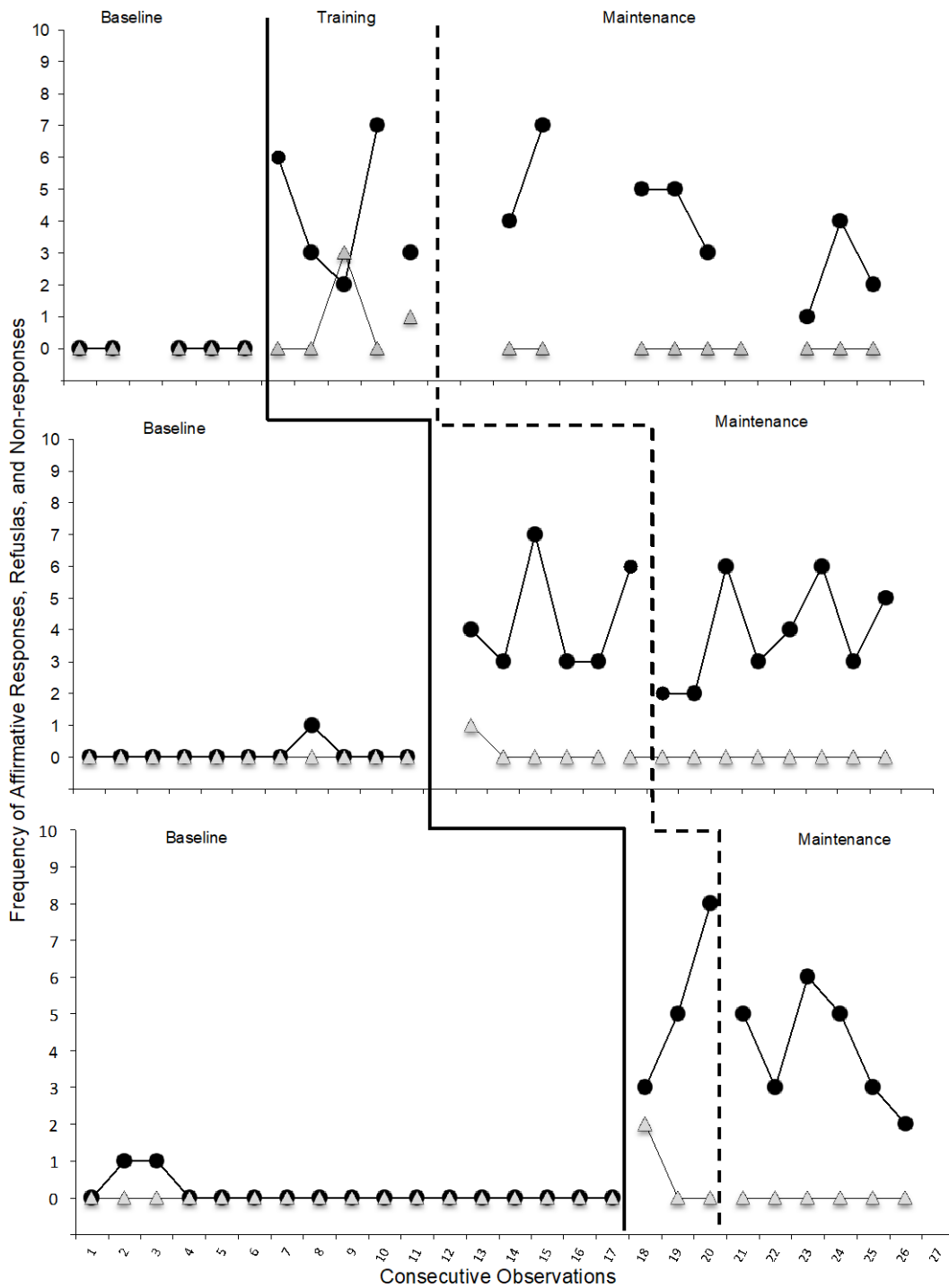


Figure 5 Frequency of Consumer Affirmative and Refusal Responses. Circles represent Affirmatives and Triangles Refusals.

Appendix B Figures

1. Feedback Scripts
2. Final Staff Interviews
3. Social Validity Questionnaire
4. Fidelity Checklist

Feedback Script During Training	
Choice Sequence	<p>Great job on the choice sequence! You did steps (name steps) really well.</p> <p>Steps you need to work on are (insert steps). You can work on these steps by:</p> <ul style="list-style-type: none"> - Gaining attention. Saying client's name, going up to him, touching his shoulder, being in his eyeline. - Offering choices. Make sure you have choice options in mind. Pick those out before getting client's attention. - Waiting. Count to at least 3 before moving on. 1-2-3. - Make choice. Let clients sample a choice. If they seem unhappy, then - Reoffer choice or make new choice
Choice Types	<p>Really good job offering different types of choices!</p> <p>You delivered X choice types. Good job! Some other choices to consider are (insert not used choice types).</p>
Example of Unused Choice types	<p>Define each and give examples of some of these choice types are:</p> <p>Refusal- Do you want a drink?</p> <p>Within- If eating, do you want orange juice or milk?</p> <p>Between- Do you want to get a snack or go outside?</p> <p>Terminate- Are you finished?</p> <p>Where- Do you want to sit in the blue or green chair?</p> <p>Who -You can work with Deb or Rachel. Who do you want to work with?</p> <p>When- Do you want to go to work now or in 10 minutes?</p>

Feedback for Staff During Intervention	
Number of correct choices staff offered	Great job! You offered X number of choices!
Number of choice types	You offered X choice types. Good job!
Correctly completed steps	In the choice sequence, you did a lot of steps really well. Some of those steps were (name correctly completed steps)
Errors in the choice sequence	There were some steps in the choice sequence that still need some work. These steps include (name steps)
How to correct errors in choice sequence	<p>You can fix these steps by (identify step and how to fix it):</p> <ul style="list-style-type: none"> - Gaining attention. Saying client's name, going up to him, touching his shoulder, being in his eyeline. - Offering choices. Make sure you have choice options in mind. Pick those out before getting client's attention. - Waiting. Count to at least 3 before moving on. 1-2-3. - Make choice. Let clients sample a choice. If they seem unhappy, then - Reoffer choice or make new choice
Choice Types	<p>Really good job offering different types of choices!</p> <p>You used X choice types. Great job implementing those types. Some other choices to consider are (insert not used choice types).</p>
Example of Unused Choice types	<p>Define each and give examples of some of these choice types are:</p>

Figure 6 Feedback Scripts

Final Staff Interview

1. How do you think choice can be used in your work environment?
2. Are there situations you think you can or cannot implement choice?
3. How would you describe the use of choice for people with disabilities to someone?
4. Would you discuss choice as a potential strategy for a new staff member in your organization?

Figure 7 Final Interview Questions

Staff Questionnaire

The following questions will be given to staff to complete anonymously.

Directions: Please answer the following questions by circling the number of each statement that corresponds most closely to your desired response.

Questions	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
I have a better understanding of choice and how it can be identified.	1	2	3	4	5
I have a better understanding of how to incorporate choice into the daily lives of adults with disabilities.	1	2	3	4	5
I believe offering choice is important in being able to learn more about the clients I work with and what they prefer.	1	2	3	4	5
I believe choice is something that should always be offered to adults with adults regardless of setting.	1	2	3	4	5
I feel confident in offering choices to the clients I work with.	1	2	3	4	5
I believe clients can and should make choices on all aspects of their life.	1	2	3	4	5
I think implementing choices is possible within my job.	1	2	3	4	5
I felt the skills training and coaching was important and relevant to the work that I do.	1	2	3	4	5
I felt the skills training did not take too much time.	1	2	3	4	5
I felt the skills training and coaching was enjoyable.	1	2	3	4	5

Figure 8 Social Validity Questionnaire

Procedural Fidelity

Staff Training Checklist												
Task	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?
Describe choice and choice-making including Brown's choice diversity model. Use powerpoint video												
Demonstrate choice-making sequence. Model.												
Describe different choice types												
Provide examples of each choice type using worksheet.												
Role play choices with staff												
Give feedback using script												
Continue until criteria												

Baseline												
Task	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?
Researcher collects data but does not provide any feedback												

Feedback phase												
Task	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?	Date:	Completed?
Collect frequency data on correct choices												
Collect frequency data on incorrect choices												
Collect frequency data on choice types												
Provide feedback to staff to staff at end of each session												
Follow script for feedback												

Figure 9 Procedural Fidelity Checklist

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