Contextual Fit in ABA Practice: Utilizing a Contextual Fit Tool to Achieve Social Validity

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Abstract

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The field of ABA has grappled with assessing and measuring social validity since the 1970s. Conjunctively, contextual fit has been utilized in home and school settings to make interventions viable and sustainable for those implementing them within diverse settings. A sizable portion of ABA practice typically involves providing services within home settings and supporting caregivers with child challenging behavior is a common practice. However, whether these supports and interventions are social valid is often not measured or assessed. Moreover, the process by which behavior analysts can achieve social valid goals, interventions and outcomes remains murky. Recent research has pointed towards collaboration tools being an effective mechanism to produce socially valid interventions, but has not explored the utility of contextual fit to achieve similar ends. This study examined that utility of contextual fit and aimed to determine if the use of a contextual fit tool would achieve socially valid goals, interventions and outcomes compared to a prescriptive intervention for caregivers implementing interventions for challenging behaviors in their home routines. Results demonstrate that caregivers implemented strategies more frequently and with a greater percentage in the contextualized phase, and that the mean challenging behavior decreased between baseline and intervention conditions. These results are analyzed and the future practical use of the contextual fit tool is explored

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I can recall my first meeting as a doctoral student in September of 2019 and feeling immense Imposter Syndrome. The idea that I would be able to complete all of the doctoral steps and finish a dissertation seemed insurmountable at the time. Throughout the program, I was ready to quit several times, only to look back and see that I had taken another step forward toward the end destination. I am so proud of the fact that I persevered.

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Chapter 1: Overview

In 1968, Donald Baer, Montrose Wolf & Todd Risley defined Applied Behavior Analysis (ABA) as "a self-examining, self-evaluating, discovery-oriented research procedure for studying behavior" (p. 91). Their article outlined the seven dimensions of ABA: behavioral, applied, conceptually systematic, effective, technological, analytic, and generality. Utilizing a process of self-examination, these authors reflected on these seven dimensions in 1987 and found that the same dimensions were still applicable to the growing field of ABA (Baer et al., 1987). However, since 1987, ABA has undergone a radical shift in social perception, application, research, and service delivery (Penney et al., 2023; Schwartz et al., 2023). Currently, a primary use of ABA is as a treatment for Autism Spectrum Disorder (ASD) that insurance funders are mandated to pay for within each state across the US (Baller et al., 2016). Providers such as Board Certified Behavior Analysts (BCBAs), henceforth referred to as behavior analysts, design individualized treatment plans for persons diagnosed with ASD to remediate the "core deficits of ASD" (Council of Autism Service Providers, 2020, p. 4). These treatment plans are based on developmental assessments to gauge a child's "skills deficits" and "the extent to which these deficits…impede the life of the individual and the family" (Council of Autism Service Providers, 2020, p. 19). Treatment plan goals utilize Evidence-Based Practices (EBPs) to address the deficits highlighted within the assessment process for these children with ASD (Steinbrenner et al., 2020). In turn, the use of ABA in practice settings typically utilizes a comprehensive approach employing multiple EBPs to achieve behavior-change goals.

A rationale for ABA becoming a leading treatment for autistic children is based on a 1987 study conducted by O. Ivar Lovaas in which autistic children were treated using ABA principles. Teachers reported that following the study, the autistic children were

"indistinguishable from their normal friends" (Lovaas, 1987, p. 8). This research prompted caregivers to begin searching for ABA services for their children over the next twenty years, expending a great number of resources to obtain these services. By 2005, the Behavior Analyst Certification Board (BACB) was formed and became the credentialing board across the US (Kelly et al., 2019). Additionally, national organizations such as the National Resource Council and the American Psychological Association made reports declaring ABA as a viable and effective treatment option for autistic children (Larsson, 2013). Credentialing of behavior analysts began to increase, and more insurance funders began to fund ABA services, many of these funders referencing behavioral strategies in research as the fundamental rationale. By 2019, funding for ABA treatment through insurance providers for autistic individuals was mandated across all 50 states, including Washington, D.C. (Zhang & Cummings, 2020).

This course of events transpired in ABA services becoming the benchmark for "medically necessary" treatment of ASD over the past 25 years. However, challenges associated with delivering effective ABA services have emerged with the widespread implementation of ABA services within differing contexts, such as schools, homes, and community settings. The challenges concerning the assessment and implementation of ABA within these contexts range widely. This section focuses on the challenges associated with implementing ABA services in home settings, particularly regarding caregiver perceptions of interventions recommended by behavior analysts. When ABA service delivery is referenced, the above is the type of service delivery being discussed. In reviewing the literature, this type of ABA service delivery has encountered several challenges, including a) ABA service often being situated in the medical model of disability, b) problematic ABA research literature on culturally responsive service delivery, and c) family and caregiver concerns with service delivery.

ABA Service Situated in the Medical Model of Disability

Insurance mandates enacted by states have led to ABA services being delivered in the context of the medical model of disability (Baller et al., 2016; Brown et al., 2022). This model "attributes disability as inherent to the individual and ignores societal, cultural, and environmental variables that contribute to disability" (Brown et al., p. 11). With insurance-funded ABA service, this deficit model is reflected in treatment planning and intervention focused on the "remediation of core deficits of ASD" (Council of Autism Service Providers, 2020, p. 4). Despite the field of ABA attempting to better contextualize the delivery of services by addressing culture, soft skills, and collaboration (Fong et al., 2017; Rohrer et al., 2021; Taylor et al., 2019), service delivery predominately being provided within the medical model of disability can still reinforce notions of ableism, according to many within the neurodivergent community (Brown et al.; Ne'eman, 2010; Shyman, 2016). This insurance-funded method of service delivery has resulted in the field being criticized for reinforcing ableist rhetoric of "rehabilitating" autistic individuals to "normal" states (Shyman, 2016, p. 369).

Members of the neurodivergent community and their families have expressed concerns about ABA being solely focused on addressing deficits rather than building upon existing strengths (Kapp et al., 2013; Ne'eman, 2010). This deficit framing within the medical model tends to only highlight the apparent issues of an autistic child rather than celebrating and building upon existing strengths (Kapp et al.). The neurodivergent community has expressed a desire to address behaviors perceived as problematic through self-assessment rather than from an outsider's perspective. For instance, some members of the neurodivergent community believe behavior analysts should focus only on challenging behaviors, such as self-injury, instead of perceived societal expectations, such as initiating and maintaining eye contact (Ne'eman). The

field's participation within the medical model has primarily been for funding purposes. However, this funding mechanism has confounded behavior analysts' ability to reconcile providing intervention according to the neurodivergent community's desires.

ABA Research on Addressing Culture

Recent research concerning culture has exploded within the field of ABA over the past ten years (e.g. Beaulieu et al., 2019; Beaulieu & Jimenez-Gomez, 2022; Čolić et al., 2021; Conners & Capell, 2020; Fong et al., 2016, 2017; Fong & Tanaka, 2013; Hugh-Pennie et al., 2022; Jimenez-Gomez & Beaulieu, 2022). Researchers attending to culture and diversity issues is vital for the continued growth of the field of ABA, particularly with the population of those with ASD remaining diverse (CDC, 2022). However, research in the field has oscillated from how to work with specific cultural groups, e.g., Asian families (Conners & Capell, 2020), to identifying variables, characteristics, and contexts of specific individuals to best work with them and their families (Fong et al., 2016; Slocum et al., 2014).

The method of working with specific cultural groups is centered around learning and working with statically defined cultures using culturally competent practices (Conners & Capell, 2020). Behavior analysts utilizing culturally competent practices theoretically become more knowledgeable of the various cultures they work with and can then provide more culturally responsive interventions (Fong et al., 2016). For instance, a behavior analyst who understands a cultural value that de-emphasizes independent eating skills will then place less priority on implementing behavior-change goals centered on independent eating, despite developmental assessments indicating this as an area of "deficit." However, these types of culturally competent practices tend to "reinforce stereotypes, rather than dispel them" (Ayers et al., 2008, p. 170), particularly when white individuals are working with historically marginalized communities

(HMCs). These practices also reinforce culture as being static and set in stone, whereas culture is defined in other settings, such as education, as fluid and consistently shifting (Paris & Alim, 2017). As an example, in their book *Multiculturalism and Diversity in Applied Behavior Analysis: Bridging Theory and Application*, Conners & Capell provide recommendations for working with specific groups of HMCs, e.g., those of African American or Asian descent. The authors stipulate that individuals participate within their cultures in various ways but name practices that are stereotypic of these HMCs, such as Asian individuals avoiding eye contact as a sign of respect. The particular stereotypes named are not inherently problematic but continuing to utilize stereotypic notions of non-white cultures centers white culture as the norm others should aspire to (Ayers et al.; Ladson-Billings, 2014; Paris & Alim).

Gloria Ladson-Billings (2008) highlights a more constructive approach for teachers to utilize cultural competency, which accentuates teachers supporting students to "recognize and honor" their own culture while becoming exposed to cultures that deviate from their own. Others within the field of ABA have begun to shift towards behavior analysts being these supports for individuals and families they work for (Hugh-Pennie et al., 2022; Taylor et al., 2019). Additionally, other sects of ABA have shifted away from recommending culturally competent practices to utilizing more culturally responsive practices (Čolić et al., 2021; Fong et al., 2017; Hugh-Pennie et al.). Cultural responsiveness entails understanding the characteristics, values, and contexts of the individuals whom behavior analysts serve and building interventions that are responsive to those needs, values, and strengths (Brodhead et al., 2014; Brown et al., 2022; Slocum et al., 2014). Behavior analysts supporting consumers in developing their own understanding of their culture can then lead to consumers readily identifying their individual or

family needs and lead to behavior analysts being able to build interventions that better fit within their familial contexts.

Family/Caregiver Concerns with Service Delivery

ABA moving into a wide-scale service delivery model has prompted researchers to explore stakeholders' perceptions of ABA service (Čolić et al., 2021; Taylor et al., 2019). Families have indicated issues centered around three main themes: a) discrepancies between service provided and expected service, b) poor relationships between families and behavior analysts, and c) a lack of social validity assessment and measurement in practice.

Once families begin to receive ABA services, there are discrepancies between families' expectations of service delivery and the actual service delivery provided (Angell et al., 2016; Čolić et al., 2021; Taylor et al., 2019; Zuckerman et al., 2017). Families have indicated that ABA providers prescribed too many service delivery hours, which resulted in families experiencing increased stress (Angell et al.). Caregivers have also expressed feelings of mistrust with the behavior analyst working with their family, which has led to communication issues between the family and the behavior analyst (Čolić et al.; Zuckerman et al.). Additionally, families have specified that behavior analysts lack concern for the whole family unit, only celebrating improvements with the child with ASD (Taylor et al.).

Taylor and colleagues (2019) highlighted how families have also reported issues with behavior analysts' ability to build meaningful relationships with each family member, citing a lack of care, compassion, and empathy on behalf of the behavior analyst. Moreover, caregivers indicated behavior analysts are only concerned with individual client progress and ignore family successes. Caregivers and families have also cited that behavior analysts rely too heavily on prescriptive practice and not listening to families' experiences and expertise (Angell et al., 2016).

Despite the issues outlined, caregivers and their families have also expressed gratitude for the services they have received (Rosales et al., 2021). Thus, it is vital to heed family and caregiver critiques to provide a meaningful service delivery model that reflects practices that lead to more families feeling a sense of gratitude.

The social validity of interventions, goals, and outcomes is inconsistently assessed and measured throughout the ABA literature (Ferguson et al., 2019; Snodgrass et al., 2018). Consequently, the mechanisms by which behavior analysts obtain information from consumers about what is or is not socially valid in practice settings have not been researched (Huntington et al., 2023). Recent research has aimed at creating tools for practitioners to use to achieve socially valid goals, interventions, and outcomes by utilizing collaborative strategies (Marchese & Weiss, 2023; Nicolson et al., 2020). However, these tools have recently been developed, and it is unclear how wide the research-to-practice gap is concerning behavior analytic practice in achieving social validity. The best knowledge available about social validity is caregivers' concerns about behavior analysts' practices in the field (Angell et al., 2016; Taylor et al., 2019).

Purpose of This Study

The issues related to ABA service delivery highlight the need for behavior analysts to consider the contextual fit of interventions that address family culture and the needs of consumers to remediate family concerns surrounding the goals, implementation, and outcomes. To date, the use of social validity within ABA research has been used to help researchers address these issues in intervention research studies. However, the identification of socially valid practices has been inconsistently implemented in research (Ferguson et al., 2019; Snodgrass et al., 2018) or has not produced the types of consumer information researchers might find beneficial (Schwartz & Baer, 1991). Moreover, information on social validity assessments and

measurements used by behavior analysts in practical settings is non-existent (Huntington et al., 2023). Pritchett and colleagues (2022) have also recently highlighted the transactional nature by which social validity is assessed and a concerning trend of research neglecting to report social validity outcomes. Instead of social validity being an afterthought that researchers and practitioners feel compelled to measure, it should be built into collaborative relationships between behavior analysts and intervention consumers.

Within Positive Behavior Support (PBS), Contextual Fit (CF) is a concept used by practitioners to produce socially valid goals, interventions, and outcomes for consumers. Many of the constructs of CF directly address the areas of concern highlighted within insurance-funded ABA service delivery. For instance, CF utilizes a family-centered framework that identifies and builds upon family strengths rather than only identifying child and family deficits that might need support. Thus, implementation of CF within ABA service delivery could help practitioners to a) engage in practices that produce socially valid goals, interventions, and outcomes, b) address contextual variables and avoid prescriptive intervention plans, c) build on family/child strengths, and d) create collaborative relationships between behavior analysts and families with whom they work. Thus, this study aims to utilize a Contextual Fit Tool (CFT) to understand its efficacy in creating socially valid goals, interventions, and outcomes. This social validity construct will be measured through parent implementation fidelity of a prescribed and contextualized intervention and the impact of the CFT on child-challenging behavior. This study will address the following research questions:

1. To what extent does using a Contextual Fit Tool (CFT) increase caregiver implementation of behavioral strategies compared to a prescriptive intervention?

2. To what extent does using a Contextual Fit Tool (CFT) increase parent fidelity in implementation? To what extent does this increased parent fidelity impact a child's challenging behavior compared to a prescriptive intervention?
3. To what extent does using a Contextual Fit Tool (CFT) increase caregiver-reported contextual fit ratings between a prescriptive and contextualized intervention?

Theoretical/Conceptual Framework

Two theories guide the work in this study to utilize contextual fit within ABA service delivery: Family-Centered Practice (FCP) (Bailey Jr. et al., 1986; Epley et al., 2010) and Radical Behaviorism (Skinner, 1953, 1974). Vital aspects of these concepts highlight the importance of behavior analysts attuning to the familial contexts in which they work, a core philosophy of FCP, and employing behavior analytic strategies across all human behavior, including the private events of caregivers, to achieve observable behavior-change outcomes.

Family-Centered Practice (FCP)

FCP is a central practice in working with young children with disabilities and has "become an integral principle guiding the design and delivery of service models" (Epley et al., 2010, p. 269). FCP has long been a recommended practice within the Division of Early Childhood (McWilliam & Strain, 1993) and continues to be a core principle in the majority of Early Intervention (EI) work (Brown et al., 2022). Historically, FCP has been largely excluded from ABA service delivery despite these services often occurring in home or community settings. However, recent literature has called for aspects of FCP to become a part of routine practice when delivering ABA services to families with autistic children (Brown et al.; Rohrer et al., 2021).

FCP consists of numerous constructs that researchers find central to its application, several of which are pertinent to this study. A core philosophy of FCP is to acknowledge and create goals for the child in the context of the family environment (Brown et al., 2022). In ABA service delivery, goals are often centered on "core deficits" of disability to appease funders of services. Utilizing a FCP framework requires practitioners to meld goals that are both "medically necessary," to align with funders' criteria, and be beneficial for the child and family. In this study, identifying relevant contextual variables within the family structure will be vital to determining how interventions should be built. The premise of this work will be dependent on the context in which the child spends most of their time within the family structure, so family input in determining goals is vital for their continued sustainability.

To better learn from the family and create goals that align with the family's values, practitioners must also facilitate family-professional collaboration, another core construct of FCP (Epley et al., 2010; Kokorelias et al., 2019). Transparent collaboration and communication between the family and the practitioner ensures that the goals align with the funders' expectations and the family's hopes and values. Collaboration is a critical variable that can separate an intervention from being prescriptive to being designed and implemented contextually. The goals and plans for implementation must be co-constructed, with the family and practitioner providing relevant input based on each party's given areas of expertise.

This collaborative effort involves each party exchanging clear, unbiased, and complete information (Brown et al., 2022; Epley et al., 2010; Kokorelias et al., 2019). This hypothetical perfect exchange of information is a theoretical concept rarely achieved in practical settings. However, practitioners must make concerted efforts to provide transparency with families about their work, particularly challenges associated with outside influences such as their agencies' or

funders' concerns (Čolić et al., 2021). Practitioners modeling transparent communication can highlight for families how to be clear and complete in describing complex situations. This type of communication can also showcase the "messiness" of navigating the varying complexities of cases and demonstrate how each party thinks about different ways to solve these issues.

This study will also incorporate an FCP construct of highlighting and building upon family and child strengths rather than only seeking to remediate deficits (Epley et al., 2010; Kokorelias et al., 2019). Many families in the world of disability are repeatedly told the areas in which they and their child struggle and the domains in which they need to become more proficient. A FCP approach acknowledges that families and their children have areas in which they struggle but seeks to use family and child strengths to address those problematic domains (Epley et al.). During this study, the focus of utilizing the CFT will be framed on *what families and children do well* and highlighting their respective strengths. In turn, these strengths, both observed and reported, will be used to address areas of concern that the families or children report.

Radical Behaviorism

Radical behaviorism is a theoretical approach that "...attempts to understand all human behavior, including private events such as thoughts and feelings, in terms of controlling variables in the history of the person (ontogeny) and the species (phylogeny)" (Cooper et al., 2007, p. 702). This approach was hypothesized by B.F. Skinner (1953), who sought to better understand the complexities of human behavior in the contexts of education, law, and government. Skinner's definition of radical behaviorism differs from previous behaviorist approaches because of his attempt to understand *all* behavior, including events within one's "own skin" (Skinner, p. 257).

From this framing came the construct that all behavior does not necessarily need to be observed by more than one individual; a person can come into contact with stimuli from the environment, accessible to either just themselves or to others, and "observe" them internally (J. Moore, 2008). For instance, an individual may have a thought - a private event - and react to that thought with an observable action or respond with another thought, both of which would be considered consequences of a stimulus. However, these private events are not "random," nor are they explained away as "mentalisms" that are separate from behavioral principles. Skinner (1974) highlights how past experiences serve as controlling variables for individuals and that these experiences influence their future behavior, both private and public events.

However, Skinner (1953) was not convinced that individuals could accurately report their private events publicly. He felt individuals were unreliable in accurately reporting their own private events and reporting the controlling variables that led to those events. Thus, his approach to radical behaviorism did not necessarily treat verbal self-reports as valid. However, these self-reports are valuable in serving as concomitants to observable behavior (Baum, 2011). For example, an individual may self-report pain in their tooth, but a strict radical behaviorist would not receive this information as reliable or valid. They would look for observable behaviors that align with the self-reported tooth pain, such as grimacing, holding their jaw, or reaching for and taking aspirin (Baum).

For this study, the private events of caregivers and their self-report of values, needs, and other private events will not be treated as invalid or unreliable in a strict, radical behaviorist manner. However, considerable work will be done to verify these self-reports through observable measures (Kennedy, 2002). For instance, a family may report that an intervention strategy is acceptable or valuable to them, but observations indicate they rarely use it, particularly when it is

warranted. This misalignment may suggest that the intervention strategy is actually not acceptable or valued. I will use a Contextual Fit Tool to co-create an approach that the family observably uses and also reports as being valued.

Throughout this study, elements of both of these theories will drive the methods of utilizing a CFT to create meaningful behavior change for families with children with ASD who are exhibiting challenging behaviors. A conceptual approach using the CFT will position the family's strengths in contrast to discussing areas of improvement and utilizing strengths to address those areas in which families report themselves and their children struggling. Furthermore, these goals will be created collaboratively by considering how the child exists and functions within the family unit and positioning families as experts on themselves, their child, and their home environment, with myself serving as a support for families to achieve these goals or amend them if deemed necessary. In conjunction with these co-constructed goals, I will model clear communication and their own unabridged private events to facilitate clear communication between the family and myself as much as possible. These private events of both myself and the family will be assessed by tracking observable changes in behavior, such as parent implementation of strategies. These theoretical constructs underpin the framing of this study and provide a framework by which this study will be conducted.

Chapter 2: Literature Review

In 1978, Montrose Wolf proposed that for ABA treatment to be socially valid, practitioners must find ways to measure the social importance of behavior-change interventions. Otherwise, without the assent and approval of those receiving or in proximity to the intervention, they may "avoid it, run away, or complain loudly" (Wolf, 1978, p. 206). As of 2024, the application of ABA has encountered a loud contingent of individuals who are avoiding, running away, and complaining about the current state of ABA services (Arthur et al., 2023; Kupferstein, 2018; McGill & Robinson, 2020). These reactions are likely due to the implementation of social validity measures being sporadic in research (Ferguson et al., 2019; Huntington et al., 2023; Snodgrass et al., 2018) and current research on how ABA practitioners conduct social validity in the field of commercial ABA treatment being non-existent. ABA in research settings often uses specific measurement systems, commonly surveys, to ascertain how relevant stakeholders perceive goals, interventions, and outcomes. However, these mechanisms are typically a transactional method of determining social validity, particularly when these measurements are taken after the implementation of the intervention (Pritchett et al., 2022). Moreover, practitioners "possibly lack training about how to conduct social validity assessment as a component of routine practice" (Luiselli, 2021, p. 98). Thus, it is likely that social validity measures and the implementation of these measures in practice have failed to unearth the aspects of goals, interventions, and outcomes that consumers find unsatisfactory.

Social validity is used for various functions within the world of ABA, e.g., to assess significant or unanticipated effects of an intervention (Strain et al., 2012), to promote consumers' voice (Fawcett, 1991a; Pritchett et al., 2022) or to inform the decision-making of program implementation (Finney, 1991; Schwartz & Baer, 1991). However, the field of ABA will

continue to grapple with implementing social validity measurements effectively unless practitioners can ensure the consumers' satisfaction with goals, interventions, and outcomes **before, during,** and **after** the intervention (Finney, 1991). Schwartz & Baer (1991) highlighted the need for practitioners to ascertain the social validity of goals, methods, and outcomes and adjust intervention planning accordingly. However, the mechanisms by which a practitioner engages in contextualizing the plan are not made explicitly clear. To date, ABA researchers have utilized many tools to *measure and assess* social validity, both objectively and subjectively (Common & Lane, 2017; Snodgrass et al., 2022) but lack a practical tool for practitioners to use to *achieve* socially valid goals, interventions, and outcomes.

Conversely, contextual fit is a concept researchers and practitioners have used to define the constructs that can facilitate a match between an intervention and the localized variables (R. Horner et al., 2014). This "goodness-of-fit concept" was initially discussed by Donald Bailey Jr, (1987) when attempting to unpack why some families experience favorable outcomes while other families experience poor results despite facing similar circumstances. Bailey Jr. and his colleagues emphasized the importance of family dynamics, mainly centered on families' needs, highlighting the importance of a FCP framework when implementing interventions in these contexts. Richard Albin and colleagues (1996) built upon this family-centered approach, establishing family ecology and other constructs as vital elements to assess before and during the intervention to determine the "goodness-of-fit," which they henceforth described as contextual fit. Contextual fit remains a central component of promoting consumer-acceptable interventions, with most research on contextual fit centered on school-based services (R. Horner et al., 2003; Monzalve & Horner, 2021; Sugai et al., 2012). This conceptualization of contextual fit has only been referenced in ABA literature tertiarily (Fong et al., 2016; Slocum et al., 2014), and most

references to practitioners assessing the contexts in which they work are centered on building collaborative relationships with consumers (predominantly families) (Čolić et al., 2021; Marchese & Weiss, 2023; Rohrer et al., 2021; Taylor et al., 2019). Again, ABA researchers have identified various means of assessment of social validity (Common & Lane, 2017) but have yet to outline for practitioners how to use these results to effectively inform a contextually fit intervention.

The following is a breakdown of social validity in the field of ABA and how it has largely failed to achieve its intended goals, particularly in the more recent context of widespread ABA delivery for autistic individuals and their families. An argument is made for practitioners to use contextual fit to inform the construction of plans, goals, and interventions to achieve socially valid outcomes when providing ABA services in family settings with autistic children. By understanding the relevant constructs highlighted in the contextual fit literature and how these constructs align with the delivery of ABA services, practitioners can make more informed and collaborative decisions about goal creation, interventions, and intended outcomes.

The Theoretical History and Dynamics of Social Validity in ABA

Social validity is broadly defined as "the appropriateness and acceptability of ABA interventions as both process and outcome measures" (Nicolson et al., 2020, p. 758). Since the conceptualization of social validity in the late 1970s, researchers and practitioners have grappled with assessments and data collection measures that precisely and accurately define the "appropriateness and acceptability" of the implemented interventions. They have wrestled with whether subjective measures will be reliable and valid enough for behavior analysts to accept and whether more objective measures effectively examine social validity constructs (Snodgrass et al., 2022). Currently, psychometrically evaluated Likert scale measures such as the Usage

Rating Profile (URP) (Chafouleas et al., 2012) and the Treatment Acceptability Rating Form Revised (TARF-R) (Reimers et al., 1992) are commonly used by researchers to determine consumers satisfaction with treatment. However, these are often delivered after the conclusion of an intervention and may unduly influence consumers' responses (Pritchett et al., 2022). The Likert scale survey being delivered after the intervention was not originally the sole intended utility of social validity, despite most current social validity assessments and measurements resorting to this practice.

The Birth of Social Validity

In the late 1970s, Montrose Wolf (1978) wrote a seminal article outlining the purpose of ABA practices and arrived at a pivotal question: How do researchers determine what is and is not socially significant? And, more importantly, in his mind, how does one objectively measure such a subjective idea? Wolf wondered how his colleagues seemed to immediately understand what it meant for an intervention, or a goal, to have social significance, despite many being unable to measure or explain how they knew. Still, he defined social validity as three critical components that needed to be measured: the social significance of the goals, the procedures, and the effects. These constructs remain the three vital components that comprise the social validity of implementing interventions to this day (Huntington et al., 2023; Nicolson et al., 2020). Wolf argued that social validity measurements remain subjective, as they informed practitioners about "the values…and reinforcers" of consumers (p. 213) and paired nicely with the presumption of objectivity in ABA. In today's terms, this would be referenced as a mixed methodology approach to measuring social validity. Building off these concepts, Kazdin (1977) investigated *who* gets to make these determinations of social significance in practice and *how* they can do so. He hypothesized that there were two approaches to measuring social validity: social comparison and

subjective evaluation. Social comparison, he hypothesized, could be used to create a goal for a client to work toward and then used as a measure to determine the effectiveness of the intervention. For instance, bringing a child to an on-grade reading level, in unity with their peers, would merit the *goal* having social significance because the child has become indistinguishable from their peers. Furthermore, elevating the child to an on-grade reading level, after being below, would merit the intervention *effective* since the child would now be indistinguishable from their peers. Conversely, the subjective evaluation method hinges upon the researcher finding the appropriate "judges" of goals, interventions, and effects to determine their social validity.

Both articles' contributions are instrumental in highlighting a vital dimension of ABA. Still, both articles reference the potential pitfalls of aiming for normative goals and solely relying on the professional opinion of others. Kazdin, when considering the subjective evaluation method, opined that a professional's opinion of goals, treatment, or effects with no contact with the client might mean little compared to someone working with that client daily, such as a caregiver.

The Rebirth of Social Validity

In the 1990s, Schwartz & Baer (1991) authored a seminal article tackling the question of whose satisfaction matters. Conjunctively, they dove deeper into the essence of social validity and the value of social *invalidity.* They delineated the consumers of the intervention as either direct (the client), indirect (those that recommended the client for treatment, such as family members), or a part of the larger community (e.g., teachers, neighbors, or the child's bus driver). Schwartz and Baer highlighted the importance of social validity being assessed throughout the implementation of the intervention (before, during, and after) and the vitality of shifting methods when the direct or indirect consumer demonstrated dissatisfaction with some aspect of the

intervention. Kazdin argued against placing the onus of what is socially valid with nonprofessionals, or these indirect consumers, since they may be more concerned with "managing behaviors" (p. 442) that may not align with direct consumers' long-term goals. However, Schwartz, Baer, and Wolf noted that all consumers receiving interventions drive the future desire to participate in interventions. Thus, they should be prominently assessed to determine their satisfaction with the intervention process.

Perhaps appealing to Kazdin's argument, Fawcett (1991a) outlined a method of evaluating the social validity of effectiveness across three levels: proximal, intermediate, and distal outcomes. Fawcett highlighted that ascertaining consumer satisfaction with the immediate effects of the intervention was not enough. Consumers should also share how intermediate and distal results align with previously described goals. In essence, consumers should be able to share their satisfaction with the different levels of plans created and the effectiveness of the intervention in meeting them (Nicolson et al., 2020). Fawcett also established a ten-step process of "conducting a social validation" (p. 236) that still serves as a tool for researchers creating their own social validity scales, which occurs frequently throughout the literature (Nicolson et al., 2020).

In 1987, Baer, Wolf, and Risley stated with optimism: "Perhaps a review 20 years from now will report a great deal of progress in that dimension (social validity) of effectiveness" (p. 323). In a likely response to this statement, the early 1990s saw a score of articles seeking to better define, assess, understand, and determine the essential aspects of what social validity entailed (e.g., Baer & Schwartz, 1991; Elliott & Treuting, 1991; Fawcett, 1991a; Fox & McEvoy, 1993; Hawkins, 1991; Schwartz & Baer, 1991; Storey & Horner, 1991; Winett et al., 1991). Snodgrass and colleagues (2022) highlighted the immense variation in philosophical

approaches to assessing, measuring, and attaining social validity during this time. They noted how researchers agonized over the validity and reliability of "subjective" and "objective" results while disagreeing over what methods constituted being "subjective" or "objective." For instance, an objective approach for some scholars might consist of a psychometrically evaluated rating scale. In contrast, those who subscribe to a stricter form of radical behaviorism might describe these methods as "subjective" since they lack observable data. Moreover, some researchers attempted to define core factors influencing social validity (Reimers et al., 1987; Winett et al., 1991) but lacked empirical research to support their claims. And perhaps most importantly, researchers disagreed on the *purpose* of assessing social validity. Some researchers believed the intention was to ascertain the "comprehensiveness of the effects" (Hawkins, 1991, p. 211). Others felt the purpose centered around providing consumers with a voice and more appropriately centering them as a part of the intervention process (Fawcett, 1991b; Poling & LeSage, 1995). Still, others felt the aim was to make assessments about the viability of the intervention and aid in amending aspects that consumers found to be incongruent with their needs (Hawkins, 1991; Schwartz & Baer, 1991). The multiplicity of theoretical perspectives highlights the significant variance around the issue of social validity in the field.

Social Validity: Remaining a Complex Puzzle

The various perspectives highlighted above likely resulted in the field of ABA having far more questions about the utility of social validity than answers. The complexity and subjectivity of such questions likely led to theoretical research centered on social validity remaining largely untouched throughout the rest of the 1990s until the 2010s. In the early 2010s, as ABA became a prominent fixture in treating ASD, the concept of social validity began to experience a minor renaissance in the research literature. Hanley (2010) highlighted the importance of including

direct participants' acceptability of treatment and not only relying on the opinions of indirect consumers, such as parents. He outlined incorporating choice elements into the intervention and the participants' choice, demonstrating their acceptability of the procedure being implemented over time. Nicolson and colleagues (2020) spotlighted the need for social validity to become paramount in the minds of practitioners. They emphasized the vitality of practitioners to continually assess social validity, "especially during times of uncertainty, such as the Covid-19 pandemic" (p. 759). The Consumer Feedback Tool she and her colleagues created is a piece of social validity that has been missing for quite some time. This tool helps contextualize support specific to the family's needs but currently lacks empirical evidence of its effectiveness.

The recent literature on social validity remains divided on *when* and *how* to assess social validity. Indeed, some researchers argue for the continuation of rating scales and surveys due to their ease of use and efficiency (Marchant et al., 2013). However, others assert that to truly understand consumers' positions on interventions and their level of satisfaction, we must dig deeper than surveys and scales (Finn & Sladeczek, 2001). More importantly, despite the social validity cannon of literature clearly describing the assessment of goals, intervention, and the outcomes across phases of the intervention (Schwartz & Baer, 1991; Wolf, 1978), researchers continue to assess social validity only after the intervention has been completed (e.g., Gerow et al., 2019; McLay et al., 2019; Robertson, 2016; Rose & Beaulieu, 2019; Tsami et al., 2019).

In sum, across decades of research concerning social validity, only two items remain clear: it is vital to assess consumers' satisfaction with goals, procedures, and outcomes, and researchers understand the results are inherently different than a dependent variable measurement. The complexity of social validity has left researchers wondering how to measure and assess this construct in practical settings. Indeed, developing tools that can support

practitioners in achieving socially valid goals, interventions, and outcomes remains essential for the sustained success of ABA service delivery in the future.

Issues with Social Validity

The lack of convergence around measurement, rigor, timeliness, and the fundamental philosophical underpinnings that make social validity important can be attributed to the issues with social validity that the field of ABA faces today. When reviewing the literature, three key concerns impact practitioners' willingness and ability to implement social validity assessments and measurements in practice: a) researchers' variation and lack of reporting on social validity, b) social validity being a mechanism of reinforcing systemic power dynamics, and c) social validity lacking clear parameters, or constructs, to assess its meaning in local contexts.

A Poor Model of Social Validity Reporting

The reporting of social validity has long been researched and is continually referenced as underreported despite researchers' and practitioners' understanding of its value in intervention. During the 1980s, following Wolf's (1978) and Kazdin's (1978) seminal articles, over 30% of articles reported on treatment outcomes or acceptability compared to the 1970s when fewer than 10% reported such measures, demonstrating a sharp increase in trend (Carr et al., 1999). However, this surge did not maintain during the 1990s or 2000s, as the reporting percentage dipped below 20% (Carr et al.; Ferguson et al., 2019). A lack of theoretical discussion on social validity likely contributed to the low usage of social validity assessments in research studies throughout the later 1990s and early 2000s despite the initial increase during the 1980s. However, Snodgrass and colleagues (2018) highlighted a slight uptick in reporting beginning in 2010. Supporting this data, Huntington and her colleagues (2023) noted an increase to 48% of articles reporting on social validity between 2010 and 2020.

These recent increases in reporting align with a growing contingent of consumers declaring dissatisfaction with ABA service related to poor practice implementation, adverse mental health effects, and ethical considerations associated with working with neurodiverse communities (e.g., Anderson & Carr, 2021; Kupferstein, 2018; McGill & Robinson, 2020; Ne'eman, 2010). It seems probable that the increased social validity reporting has been a built-in defense of the use of ABA practice in treating behavior challenges. Still, less than 50% of articles reporting their findings on social validity sets a poor example for practitioners in the field. Additionally, Snodgrass and colleagues (2018) highlighted that most studies that conducted social validity assessments only did so after the intervention had been implemented, reinforcing claims made by Pritchett and colleagues (2022). The field of ABA ardently asks its practitioners to be current on evidence-based practices and innovative, evidence-based behavioral learning methods. Thus, when researchers do not report social validity findings, practitioners may perceive that social validity is not a valuable domain of ABA practice. Moreover, the methods by which social validity is commonly assessed are through "objective" rating scales that practitioners may feel uncomfortable administering to their familiar clients in typical ABA practice settings.

Further cementing this poor model is researchers' insistence on utilizing limiting methods of measuring social validity. Of particular concern are studies that conduct research around caregiver-implemented interventions lacking clear and comprehensive social validity assessments and measurements. For instance, Gerow and colleagues (2019) conducted a Functional Communication Training (FCT) study focused on caregivers delivering an intervention after learning to perform a Trial-Based Functional Assessment (TBFA). The authors claim the study aims to "evaluate the accuracy and social validity of a parent-implemented

TBFA" (p. 36). However, the only parent input referenced within the article is regarding the intervention outcomes through the social validity scores administered at the conclusion of the study. Another example is a study by Tsami and colleagues (2019) that mirrored Gerow's study across several domains. Again, parent input appeared to be welcomed only after the study, and only a rating scale was utilized. Both studies are centered on the "acceptability" of intervention for consumers but seem content with essentially receiving a binary yes or no response.

To their credit, Gerow and colleagues (2021) conducted another study that asked for caregiver input (choosing between intervention packages) *before* the implementation of the intervention, along with rating scores at the end of the intervention, offering a longitudinal reporting of social validity to their study. Hoffmann and colleagues (2019) utilized a similar assessment strategy to help incorporate parent and child choice into the intervention. However, they did not conduct social validity measurements before, during, or after the study. Several empirical studies concerned with improving caregiver implementation of behavioral strategies (e.g., Gerow et al., 2019; McLay et al., 2019; Robertson, 2016; Rose & Beaulieu, 2019; Tsami et al., 2019) are limited to social validity measurements only being conducted after the completion of the study and only using survey rating scales, again demonstrating a poor model for practitioners to emulate. Even more alarming, there are a plethora of recent studies concerned with improving caregiver implementation of strategies that conducted no form of social validity assessment or measurement (e.g., Lindgren et al., 2020; Monlux et al., 2019; Olive et al., 2008; Schieltz et al., 2018; Suess et al., 2014, 2020; Tsami & Lerman, 2020; Wacker et al., 2013). The current trend of social validity continuing to be an afterthought highlights how practitioners could perceive social validity measurements and assessments as unimportant and, thus, not worth their time. Moreover, the limited variation in *how* to learn about socially valid elements of the

intervention plagues the research field of ABA. To date, there is no research on how behavior analysts conduct social validity in practical settings (Huntington et al., 2023), thus exacerbating the issue of how social validity in research impacts practitioners in the field.

Power Dynamics and the Client/Practitioner Relationship

Fawcett (1991b) highlighted how ABA practices typically serve a niche, "dependent" group, whereas those in positions of power can neatly evade participation in research. He argued that this disproportionally places people in need as the subjects of experimental designs in ABA research. Pritchett and colleagues (2022) build upon this case by arguing that client/researcher relationships, in the context of systemic research practices, highlight a "hierarchical paternalistic authority" which places the researcher as the dominant figure in the relationship (p. 1076). In turn, a "coercive contingency" can emerge in which participants feel obligated to act in the best interests of the researcher to avoid future punishment or loss of vital services (Pritchett et al., p. 1076). Exacerbating this contingency are social validity practices in which measurement only occurs after the intervention (e.g., Gerow et al., 2019; McLay et al., 2019; Tsami et al., 2019). Participants who received intervention may feel obligated to report satisfaction or acceptability with the goals, intervention, and outcomes to gain acceptance from the influential, hierarchical figure within the client/researcher relationship. Participants may tell researchers that their practices are acceptable because they do not want to irk or potentially damage a relationship they may need in the future.

In an attempt to counteract these potential perceived power imbalances, some researchers have worked diligently to incorporate family/caregiver choice into the building and implementing of the intervention (e.g., Cheremshynski et al., 2013; Fettig et al., 2015; Lucyshyn et al., 2007). However, despite some of these researchers holding a behavioral analyst title, all

are firmly planted in Positive Behavior Support (PBS) rather than Applied Behavior Analysis. Nevertheless, Lucyshyn and colleagues (2007) conducted their study across six months but continued to check in for 86 months following the conclusion of the intervention. They also carefully stipulated how they met, collaborated, and valued each of their meetings with the family concerning the child's challenging behavior. Cheremshynski and colleagues (2013) utilized a qualitative method of journaling by themselves and the family in conjunction with their BSP plan. The journaling process was used to gain insight into the family's culture as the BSP progressed and served as a mechanism by which the researcher could self-divulge their feelings and concerns about the intervention. Lastly, Fettig and colleagues (2015) clearly outlined their collaboration method with the family, with a six-point plan of areas to discuss and receive feedback on. Notably, this plan described how "the researchers and parents brainstormed ideas of what might be helpful for the child based on the child's strengths and the parent's own home/parenting philosophies and values" (p. 173). Each of these studies highlights different methods researchers could use to make their participants feel valued and a part of the intervention process, not as if they solely rely on the researcher's goodwill.

Lack of Definition of Social Validity Boundaries

Social validity is used for various functions within the world of ABA, e.g., to assess significant or unanticipated effects of an intervention (Strain et al., 2012), to promote consumer's voice (Fawcett, 1991b; Pritchett et al., 2022), or to inform the decision-making of program implementation (Finney, 1991; Schwartz & Baer, 1991). As a result, the parameters of social validity have varied widely across the breadth of the literature. Snodgrass and colleagues (2022) highlighted that because of these differing philosophical rationales, there were no precise components of what comprised the basic tenets of social validity. Some researchers have

attempted to define these boundaries and the factors affecting satisfaction (Reimers et al., 1992; Winett et al., 1991). However, the ABA community has yet to reach a consensus on these constructs that inform the acceptability of goals, procedures, and outcomes. This lack of agreement is likely due to the vast use of ABA in differing contexts. Ledford and colleagues (2016) discussed using objective or subjective social validity measures within different contexts to discover acceptability, feasibility, and significance. Moreover, they called for researchers to unearth the specific components of interventions consumers found valid or invalid and explicitly describe those features in future literature.

To date, researchers in the field of ABA have yet to empirically research the components that make up how we can effectively determine what could become socially valid. Researchers most commonly measure the acceptability of outcomes by consumers (e.g., Gerow et al., 2019; McLay et al., 2019), and others have utilized interviews to learn what may or may not be socially valid to families before beginning intervention (Gerow et al., 2021; Hoffmann et al., 2019). However, specific empirical research studies that uncover the elements impacting what makes goals, procedures, and outcomes socially valid (or not) have yet to be fully explored.

Social Validity Moving Forward

Researchers and practitioners likely agree that social validity is necessary to determine consumers' feelings about an intervention's goals, procedures, and effects. However, researchers have mainly focused on consumer satisfaction, typically only after an intervention has been completed (Snodgrass et al., 2018). Additionally, researchers' inconsistency with demonstrating social validity assessment and measurement may harm practitioners' ability to mimic positive social validity practices. Thus, it is vital to define the constructs/factors of social validity within specific contexts in which practitioners are utilizing ABA practices, e.g., in clients' homes.

Determining these constructs may enable practitioners to conduct social validity assessments across intervention phases and unearth the socially valid aspects within each specific domain.

A Marriage Between Social Validity and Contextual Fit to Improve ABA Practice

Contextual fit is a concept borne from the 1980s which has highlighted several constructs that are vital in creating congruence between an intervention and its local context (Albin et al., 1996; Bailey Jr. et al., 1986; R. Horner et al., 2014; Lucyshyn et al., 2002). Notably, researchers utilizing contextual fit have attempted to define the constructs affecting interventions far more frequently than what appears in the ABA literature. ABA researchers have been more concerned with the objective or subjective means of measuring social validity. In contrast, contextual fit researchers seem more concerned with local environmental variables that impact social validity. Thus, a common critique of contextual fit is the need for valid measurement criteria (Horner et al., 2014). Additionally, contextual fit has been implemented utilizing core concepts of FCP, such as collaboration and centering consumer input (Bailey Jr., 1987; Lucyshyn et al., 2007). Despite these minute differences in philosophy, researchers within both disciplines aim to understand the consumer factors that impact intervention and how interventions impact direct and indirect consumers. This select focus underscores that contextual fit can be utilized to understand local environments better and thus create socially valid interventions in ABA practice.

Contextual Fit's Shift Through the Years

The concept of contextual fit dates back to the 1980s and has seen a sizable shift in its implementation over time. Initially viewed as a concept meant for working specifically with families, it has since morphed into an idea that can also be applied at a systemic level. This shift

has prompted research on contextual fit to primarily focus on school-based interventions instead of home-based ones.

Contextual Fit in Family-Centered, Positive Behavior Support (PBS) Interventions

Donald Bailey Jr. and colleagues (1986) initially highlighted the concept of "goodness-of-fit" when applying interventions in family settings. This idea of "goodness-of-fit" was generated by Alexander Thomas & Stella Chess (1977), who were interested in analyzing the environmental factors that affected parent and child interactions. Bailey and colleagues integrated this concept with FCP to hypothesize how to create uniquely individualized interventions for families. This contextualizing involved assessing a family's needs and demonstrating how an interventionist's task was to "optimize the fit" between an intervention and a family's characteristics (p. 157). Bailey Jr. (1987) identified that his previous work had an inherent tension that could arise between an interventionist and the family. He described the focus for a family-focused intervention, which would be aimed at supporting the family's needs. However, he noted that the interventionist may need to add goals that the family may not identify as an area of need. This incongruency prompted his work to focus on collaborative goal setting, which addressed the tension around incongruent values between an interventionist and the family. He highlighted a critical first step for interventionists to consider: to view families through the lens of family systems theory (Turnbull & Turnbull, 1986). Bailey Jr. argued that interventionists could more accurately assess family needs by operating from this perspective. Additionally, after identifying these needs, he outlined a three-step method interventionists can take to create collaborative goals with family members.

In 1996, Richard Albin, Joseph Lucyshyn, Robert Horner, and K. Brigid Flannery dove deeper into the specifics of contextual fit and described how to build a contextually fit behavioral

support plan (BSP). They supported the need for interventionists to operate with a FCP lens but also noted the need for a true family ecological assessment to take place. This measure went beyond interventionists simply identifying family needs; it also alluded to identifying the values and dynamics of families. Moreover, Albin and his colleagues created an interview protocol for assessing family ecology. This protocol investigates family characteristics, child activity settings, and the family's vision for what those activities might look like in the future. They also attempted to quantify the level of contextual fit by creating a "goodness-of-fit" survey that is to be completed after "the support plan is finalized" (Albin et al., 1996, p. 94), before implementation begins, and after the intervention. This scale contains elements of a social validity survey but is focused on how well the interventionist fits the plan into the family's needs, values, and resources.

Moes & Frea (2000, 2002) conducted two studies that attempted to contextualize an intervention after initially prescribing a technically sound intervention. In the first study (2000), only one child participated, and the authors referred to their research as a "case study." However, the child demonstrated significant gains in on-task behavior and reduced disruptive behavior. Moreover, the family reported higher levels of acceptability with the contextualized plan compared to the prescribed program. Due to a lack of methodological rigor, they replicated the study with three child participants and their families (2002). This reincarnation demonstrated behavior change utilizing a multiple-baseline design and the necessary replication of behavior change across tiers (Ledford & Gast, 2018). The contextualization of the intervention is mapped out and presents a compelling case for how the individualization of the plan can impact challenging behavior in a trained and generalized routine, also referred to as an activity schedule. Both of these interventions highlight the differences in the prescribed and contextualized BSPs;

however, the mechanisms by which they come to those decisions are unclear. Despite this unintended lack of transparency, each study offers a blueprint for future research on contextuality in BSPs.

Lucyshyn and colleagues (2002) further unpacked contextual fit's application and more appropriately applied it to a Positive Behavior Support (PBS) method of producing a BSP. Their chapter outlined the current research that demonstrated contextual fit and the necessity of identifying activity settings, as Moes and Frea (2000) did. They aligned their argument for contextual fit with Albin and colleagues' argument that many variables could impact the intervention. However, Lucyshyn and his colleagues highlighted previously undiscussed variables such as family cohesion, the stage of the family life cycle, and the family's current accommodations for their child. They also built upon the collaborative goal-setting suggestion outlined by Bailey Jr. et al. (1987) and pinpointed methods to improve the contextual fit of intervention. For instance, the authors introduced the idea that families may be impacted by factors related to social circumstances, such as poverty or work stress, that could affect the intervention. Lucyshyn and his colleagues also created a five-step process by which interventionists could effectively build contextually fit interventions in collaboration with families.

Ultimately, this work within family-centered practices would fade out during the 2000s. PBS work began to shift towards school-based interventions, and the subjectivity of contextual fit likely discouraged ABA researchers from wanting to explore the idea. As a result, the literature around contextual fit within family-centered interventions became sporadic during the early 2010s, with notable exceptions related to the work of Joseph Lucyshyn and his colleagues

(Binnendyk & Lucyshyn, 2009; Cheremshynski et al., 2013; Lucyshyn et al., 2007; Neufeld & Lucyshyn, 2020).

Putting a cap on this era of contextual fit in PBS home settings, McLaughlin and colleagues (2012) reviewed the Journal of Positive Behavior Interventions (JPBI) literature to assess the contextual fit of family-led interventions. This article primarily focused on parent and child outcomes but also on researchers reporting contextual fit variables, such as whether a family ecology assessment was conducted. Results determined that fewer than 40% of articles typically assessed these contextual variables or explicitly highlighted their importance in implementing an intervention. However, the constructs assessed by Mclaughlin and her colleagues primarily centered on family variables, such as ecology, routine choice, and acceptability of procedures. Still, they did not assess how the literature determines other extraneous variables. Nevertheless, these findings highlight the lack of concern about the "fit" of interventions in research or practice, despite training families to implement interventions that would hopefully maintain durability and sustainability over time.

The Shift of Contextual Fit to School-Based Interventions

While Lucyshyn continued his work in supporting families utilizing contextual fit, Robert Horner and his colleagues began to center their focus on building BSPs with contextual fit in school settings (e.g., Benazzi et al., 2006; Horner et al., 2003; Horner, 2000; Horner & Carr, 1997; March & Horner, 2002; Monzalve & Horner, 2021; Sugai et al., 2000). Following the legislation of the Individuals with Disabilities Education Act (IDEA) in 1997, the University of Oregon became a prominent center for PBIS and, consequently, contextual fit work in school settings (Sugai & Simonsen, 2012). This shift to working in schools likely centered on available funding following IDEA's legislation. Moreover, PBIS became synonymous with IDEA after the

law utilized language such as “PBS” and “Functional Behavior Assessment (FBA)” (Sugai et al., 2000).

In 1997, Horner & Carr emphasized the need for FBAs to be utilized in school settings and for comprehensive interventions to fully support students’ individualized needs. FBAs have long been a staple of function-based intervention in ABA practice (Lucyshyn et al., 2002). Horner and Carr (1997) outlined the implications of comprehensive support but noted: “considerable work needs to be done…on the variables that result in durable, generalized changes in problem behavior” (p. 97). In essence, these variables are the constructs that comprise a contextually fit intervention. However, until this point, these variables across educational macro- and micro-systems had yet to be entirely determined or vetted. Horner (2000) highlighted this issue in classroom settings, noting that the intervention needs to be durable and viable for all consumers involved, particularly the direct consumer (the student), their families, assistive personnel, and other students in the class. This totality of intervention emphasizes the complexity of implementation practices in school settings and the difficulty in ensuring that an intervention “fits” all parties involved. Thus, to begin assessing this complex puzzle, Horner and colleagues (2003) created a contextual fit self-assessment for teachers to use to ascertain a level of contextual fit based on some basic constructs. This self-assessment highlights the levels of intervention and the support necessary for successful implementation across micro- and macro-systems.

Since these conceptions of context fit in school settings have been unearthed, the conceptions of variables impacting contextual fit have primarily remained stable. However, Sugai and colleagues (2012) took a unique approach by examining how culture can affect the intervention variables. Their examination method dove a bit deeper into the factors that influence

the implementation of intervention, such as a student's learning history. This reflection on cultural variables is synonymous with other works in PBS literature examining the cultural impacts on intervention (Cheremshynski et al., 2013; Lucyshyn et al., 2007; Wang et al., 2007) that extend beyond some of contextual fit's basic constructs.

A primary issue that has remained unresolved is how to best measure contextual fit. Monzalve & Horner (2021) attempted to reflect a contextually fit plan by demonstrating an improvement in fidelity of teacher-implemented BSPs and examining how improved fidelity led to a decrease in student-challenging behavior. Additionally, they measured the contextual fit ratings using the Contextual Fit Self-Assessment Scale (Horner et al., 2003) in baseline and compared these results to post-intervention. Benazzi and colleagues (2006) attempted to measure contextual fit using the same Self-Assessment Tool but also utilized survey methods to understand what kind of plan was perceived by school professionals as contextually fit. These results indicated that "only plans developed by teams with knowledge about the context, student, and behavioral theory…produced behavior support plans that were evaluated as both technically sound and contextually appropriate" (p. 167). Their measurement tool reflected school professionals embracing the team approach to building a BSP and utilizing each professional's area of expertise to construct a comprehensive, contextualized plan.

An Expanded Role for Contextual Fit in ABA Practice

As ABA service delivery has expanded into different service settings, incorporating consumers' perspectives and more appropriately amending interventions to fit those settings has become a vital concern. Incorporating caregiver perspectives and amending interventions is especially crucial when implementing ABA interventions in home and community settings. Horner and colleagues (2014) issued an Issue Brief to the Assistant Secretary for Planning and

Evaluation (ASPE) Office outlining how contextual fit could improve outcomes for interventionists and consumers across multiple human service domains, such as ABA. The Brief describes what the authors believe to be the constructs that comprise a contextually fit intervention. Many of the constructs are highlighted in the contextual fit literature and seen in schools and in-home settings. However, these authors focus more on macro lens constructs impacting contextual fit, such as available resources and organizational support, which are essential when incorporating contextual fit for "large-scale adoption" (p. 2). Despite this call for contextual fit to be incorporated with the implementation of EBPs, this has not become commonplace, likely due to the difficulty of defining and describing contextual fit (Horner et al.).

When considering best practices for delivering ABA services in home and community settings, contextual fit has a limited, if not non-existent, scope in ABA literature. Slocum and colleagues (2014) acknowledged the importance of analyzing contextual variables when delivering EBPs in ABA practice. They denoted the value of a contextually fit intervention "producing behavioral changes with practical value" (p. 51). However, ABA practice has been inconsistent in assessing practical outcomes through social validity (Ferguson et al., 2019) or service quality assessments (Silbaugh & El Fattal, 2022). The lack of attention the concept of contextual fit receives emphasizes a clear gap concerning how to build contextually fit interventions that produce socially valid results.

Defining Contextual Fit and its Constructs for ABA Service Delivery

Operational definitions of contextual fit were standard throughout the literature, mostly centered on the match or congruence of the features of interventions to the context in which they were applied (Albin et al., 1996; Horner et al., 2014; Lucyshyn et al., 2002; Monzalve & Horner,

2021). However, each setting's operational definition shifted slightly to align with the environment where implementation occurred. To mirror this practice of aligning the definition within its specific context, I am proposing the following as an operational definition of contextual fit within ABA services in home and community settings: **the congruence between the features of evidence-based interventions and the variety of relevant constructs relating to individuals, their families, and the home and community environments in which they function.** In conjunction with this definition are constructs that must be considered, assessed, and understood as essential when delivering an ABA intervention with contextual fit. They are a) assessing and understanding family ecology and culture (FEC), b) understanding and building upon families' strengths, skills, and abilities (FSSA), c) assessing and responding to the availability of resources (Resources), d) the intervention(s) being efficient and effective (E&E), and e) cognizance of organizational support for contextualizing the intervention (OS). These constructs are borne from the contextual fit literature and have been contextualized for delivering ABA services, particularly to those with ASD and their families.

Family Ecology & Culture (FEC)

Two theoretical underpinnings are central to behavior analytic practitioners incorporating this construct into building interventions with contextual fit. Firstly, FCP is at the core of understanding a family's ecology and culture, as it establishes the family and the child's relationship within the family as the central unit for which behavior analysts should be concerned (Albin et al., 1996; Lucyshyn et al., 1997). Secondly, utilizing this construct requires extensive collaboration among stakeholders, families, and behavior analysts, a core theme in FCP (Brown et al., 2022; Marchese & Weiss, 2023; Rohrer et al., 2021). Behavior analysts should begin the

planning and assessment processes with these framings at the forefront of mind to align goals and interventions that sustain behavior change for individuals *and* their families.

Family ecology is vital for behavior analysts to understand the "characteristics, family values and objectives, and how the family has constructed its home life" (Albin et al., 1996, p. 91). Moreover, assessing the family culture can give behavior analysts relevant information that can contextually shape the intervention (Cheremshynski et al., 2013). Families vary in routines that they value or goals they have for their children (Albin et al., 1996). A family may place immense value on improving academic skills, whereas others may value their child's independence over attaining academic skills. Further complicating what constitutes a family ecology is the inevitability that these goals, values, and beliefs may not align *within* families. This can become particularly difficult when autistic children reach teen and adulthood and have conflicting values with their parents. However, identifying the subtle discrepancies is essential for behavior analysts to understand when planning for ABA services. For instance, caregivers may disagree on the intensity of a screaming behavior. Nevertheless, behavior analysts should assess the commonalities and differences in stakeholders' perspectives to amend the intervention to best meet each of their needs. This process may require frequent meetings with family members to weed through these goals, values, and beliefs. Cheremshynski and colleagues (2013) highlighted the benefit of rapport building as it led to understanding potential barriers and methods to maneuver past them when implementing a function-based intervention.

Practitioners should also have a conceptual knowledge of accommodations the family routinely makes for the child with ASD and the contexts in which those accommodations are made (Lucyshyn et al., 1997; Moes & Frea, 2002). It is vital first to understand families' values to make observations and assessments of compromises they may be making during valued

routines (Lucyshyn et al., 2002). Lucyshyn and colleagues (1997) demonstrated that the family they worked with did not engage in any of the four routines denoted for intervention. In this case, the family's accommodation was simply not participating in routines they valued. Binnendyk & Lucyshyn (2009) showcased a family that only provided their child with Pediasure out of fear of provoking challenging behaviors if they offered new foods. In both cases, researchers built interventions centered on enabling families to access alignment between their stated values and the reality of their routines. Careful considerations led to a child successfully enjoying five new foods and a family engaging in the four routines they deemed valuable for them.

The stressors and demands on caregivers are typically aligned with the types of social support available to the family (Lucyshyn et al., 2002; Marchese & Weiss, 2023). Behavior analysts' understanding of families' social support can help inform their assessment of what demands and stressors face families and their children (Čolić et al., 2021). Cheremshynski and colleagues (2013) exemplified this concept by having the participant, Emi, journal their thoughts throughout the intervention. Notably, the researchers learned intimate details about Emi, such as wishing "her husband was more involved" in parenting, feeling the financial stress of living off one income, and stress about the additional costs of having a child with a disability (p. 248). Lucyshyn and colleagues (2007) highlighted caregivers experiencing depression and lower quality of life scores during the initial family ecology assessment. However, by catering the BSP to specific routines and highlighting the family strengths, each researcher utilized the principle of parsimony to consider how to lessen the demands they place on caregivers when they are a part of the intervention.

Lucyshyn and colleagues (2002) highlight the need for practitioners to understand the stage in the family life cycle that each family is within. They denoted that practitioners should

build interventions that align with the stage in the family life cycle that the family is currently in or is setting a goal to work towards. As an example, a family may be in the Preschool phase of their life cycle but have goals geared toward establishing routines for getting ready for school in the morning. Behavior analysts should align goals to fit within the selected stages identified by families, such as early childhood, adolescence, or early adulthood (Turnbull et al., 2000).

The amalgamation of this information begins to represent a family *culture* and a culture that behavior analysts can now be *responsive* towards. Carol Lee (2002) has characterized culture as the assumption that "…people participate in multiple, sometimes overlapping, sometimes complementary, and sometimes conflicting, cultural communities" and that "cultural communities may be understood by examining cultural processes or practices that are routine…cultural communities are characterized by both patterns of regularity as well as diversity and individuation…" (pg. 283). A thorough assessment of a family's ecology begins to unearth these complex and, at times, conflicting practices and variables that represent the nature of a family's culture. Research within ABA often describes the need to be responsive to cultural variables and the necessity of doing so (Čolić et al., 2021; Fong et al., 2017; Mathur & Rodriguez, 2021; Pritchett et al., 2022), but the variables that comprise a family as a cultural unit are not thoroughly explored. In the case of this study, a family is the base unit of research. It shall be defined as being comprised of various caregivers and familial support systems, such as stepfamilies, single-parent families, families headed by two unmarried partners, either of the opposite sex or the same sex; households that include one or more family members from a generation; adoptive families; foster families; and families where children are raised by their grandparents or other relatives, as well as a nuclear family. Each unit brings a diverse range of

variables that behavior analysts should account for and are representative of the eclectic family ecology and culture within the US.

Families Strengths, Skills, and Abilities

An intervention with enhanced contextual fit needs to be centered on each relevant stakeholder's strengths, skills, and abilities. ABA service delivery often focuses on remediating deficits (Council of Autism Providers, 2020) or bringing children with ASD to some sort of "normal" (Shyman, 2016). Behavior analysts are often beholden to funders who determine the need for intervention by identification of deficits within specific domains of an ASD diagnosis (Council of Autism Providers). FCP utilizes a core construct of building upon existing strengths to address these "deficits" (Epley et al., 2010; Kokorelias et al., 2019). Similarly, behavior analysts can still address these "deficits" by building upon the existing strengths of the child and the family unit. Powell and colleagues (1997) established a strengths-based approach to working with families that emphasizes acknowledging and leveraging strengths to create rapport and meaningful professional-family relationships. Several studies have used this approach to frame meaningful interventions for families in their home environment (Duda et al., 2008; Dunlap et al., 2006; Dunlap & Fox, 1999). This concept has also emerged in other fields, notably education, with a clear focus on specifically highlighting diverse families' strengths that may not be viewed as such within a white-normed educational system (Bolgatz et al., 2020; Moll et al., 1992; Yosso, 2005). In particular, Moll and colleagues argued that each family contains "ample cultural and cognitive resources with great potential utility for classroom instruction" (p. 134). Using a qualitative approach, they identified and utilized these strengths to co-create a sustainable participatory pedagogy centered on the science of making Mexican candies. By using

a family's strength to address areas in which they may struggle, behavior analysts can build upon existing strengths to address the "deficits" they must identify, often for funding purposes.

Service delivery that utilizes contextual fit should also be situated in assessing knowledge and expertise and building upon these utilities to address challenging domains for children and their families (Albin et al., 1996; Lucyshyn et al., 2002). Families and children possess expertise about themselves and their routines that behavior analysts should privilege when planning interventions (Čolić et al., 2021). For instance, a family knows what strategies have failed in the past when attempting to remedy a valued routine (Albin et al.). Behavior analysts should listen and incorporate this information when planning an impending intervention (Marchese & Weiss, 2023). This strategy involves understanding the features of the design, what aspects may have had success, and identifying the components that did not succeed (Albin et al.). Thus, privileging the family's expertise and using collaborative practices should lead to an intervention with enhanced contextual fit.

Conceptualizing a family and child's learning history helps behavior analysts adjust interventions and tailor them to each individual's needs (Sugai et al., 2012). Each individual has been reinforced and punished through experiences, producing a meaningful learning history (Skinner, 1953). A behavior analyst building upon this sub-construct may use trauma-informed care elements in ABA service delivery (Rajaraman et al., 2022). A caregiver with traumatic experiences, such as being neglected as a child, may not implement an extinction strategy due to that trauma. Neufeld and Lucyshyn (2020) utilized elements of this practice by understanding the participant's learning history concerning her anxiety disorder. The resulting plan considered the mother's learning history in attempting to teach her strategies that may benefit her child. Thus, a

behavior analyst must understand the various learning histories of all stakeholders to build interventions that facilitate congruence with those learning histories.

Behavior analysts often coach parents, teachers, and paraprofessionals in implementing behavioral interventions. It is essential also to consider these individuals' strengths, skills, and knowledge bases when constructing interventions to match their skills with the implemented intervention (Monzalve & Horner, 2021). Conversely, behavior analysts should be clear about stakeholders' knowledge concerning the intervention related to fidelity and implementation tactics (Horner et al., 2014). Empirically, Monzalve and Horner utilized a Contextual Fit Enhancement Protocol to establish teachers' baseline knowledge of a BSP and to inform their future understanding of the plan after its contextualization. March & Horner (2002) employed a similar strategy to assess teachers' knowledge of a BSP and provided coaching to increase teachers' knowledge of the plan. Clear communication about each party's understanding of the BSP can produce higher implementation fidelity levels and stronger long-term outcomes.

Resources

The resources available to families and other stakeholders are valuable tools for behavior analysts to assess and consider when providing ABA services. The time, effort, and cost for initial and sustained adoption of an intervention are essential components for consideration to enhance contextual fit (Horner et al., 2014; Lucyshyn et al., 2002). The time element is typically limited for families and other stakeholders and should be appropriately considered when beginning an intervention (Albin et al., 1996). A common criticism of ABA practice is that, at times, it can be decontextualized, particularly in clinical settings. Additionally, ABA service has been critiqued for demanding too many service hours that conflict with the family's other priorities (Angell et al., 2016). Moes and Frea (2000, 2002) intentionally built interventions into

existing routines for families to efficiently use family time. Cheremshynski and colleagues (2013) also highlighted the need to assess resources available to the family unit by utilizing a semi-structured interview technique. In looking at these studies, understanding a family's resource constraints and abundance can lead to planning service hours and interventions that support areas that are lacking.

Stakeholders' effort is also paramount when considering contextual fit (Lucyshyn et al., 2002). Effort can be defined as physical, mental, or emotional and can impede the delivery of an intervention (Horner et al., 2014). Behavior analysts should consider the effort exerted by clients and stakeholders when delivering ABA services. Neufeld & Lucyshyn (2020) demonstrated the need to learn about the effort needed by caregivers to implement a plan. The primary caregiver had an anxiety disorder, which led to some intervention techniques requiring enormous effort to engage with or complete. Thus, the lead researcher utilized a shaping procedure to slowly incorporate the mother into implementing a plan for a valued routine. Similarly, Binnendyk & Lucyshyn (2009) implemented a plan to alleviate the caregiver's initial concerns around feeding by having the lead researcher begin the intervention. Behavior analysts must also plan for caregivers working with clients who can engage in physically challenging behavior, such as biting. The effort needed to deal with these issues can tax caregivers physically, mentally, and emotionally. In these instances, behavior analysts should prioritize interventions that reflect the time and effort resources available to stakeholders and are amended to meet these contextual variables.

Lastly, behavior analysts delivering ABA services must consider the cost of planning and implementing an intervention. Typically, a healthcare funder and an organizational support, such as the ABA agency, must be involved with behavior analysts to begin conceptualizing the cost

for a family. For instance, the initial co-pay for assessment and direct service sessions may be small, e.g., $10 per session, an amount the family can afford. However, as service hours increase and daily sessions continue across months or years, those co-pays may become unsustainable for the family to continue services. Behavior analysts must consider these costs to families and align their interventions to be effective and efficient.

Efficiency and Effectiveness

Building interventions with contextual fit requires that the intervention be effective, but it must also be effective in conjunction with efficient use of available resources (Monzalve & Horner, 2021). The concept of an efficient intervention entails that the intervention is feasible, fits within the constraints of the local setting, and fits within family routines (Lucyshyn et al., 2002; Moes & Frea, 2002). Moreover, stakeholders should evaluate an intervention's effectiveness, utilizing mechanisms of quality of service (Silbaugh & El Fattal, 2022) and social validity measurements (Snodgrass et al., 2018) before, during, and after the intervention.

Several studies highlight the need for interventions to be implemented within a specific contextualized environment or routine to maximize the efficiency and effectiveness of the intervention (e.g., Benazzi et al., 2006; Cheremshynski et al., 2013; Duda et al., 2008; Dunlap et al., 2006; Lucyshyn et al., 1997, 2007; Moes & Frea, 2000, 2002; Monzalve & Horner, 2021). In each case, researchers are working with teachers or caregivers to implement interventions within routines that typically elicit challenging behavior. By implementing strategies within these routines, caregivers can more easily generalize the skills to other routines in which challenging behaviors may arise (Moes & Frea, 2002). Traditional ABA therapy, particularly therapy conducted within a clinical setting, may produce behavior change within a clinical setting but fail to support caregivers with meaningful behavior change in their home environment. This

decontextualization of ABA practice can lead to less efficient service, with families receiving services for years (Choi et al., 2022). This lack of efficiency may be related to service delivery needing to be offered and contextualized to the specific settings where families need the most support. Moreover, by planning interventions within these contexts, families and caregivers would likely perceive the service as more effective and valuable, as the intervention is directly linked with an existing valued routine.

Behavior analysts typically encounter issues when the topic of effectiveness is brought up because they must delineate between effectiveness in the eyes of their agency, insurance funder, and client/stakeholders. No empirical research currently exists that seeks to examine this subject in ABA practice due to these issues being a relatively recent phenomenon. Illustrating a personal example, I conducted an intervention that reduced self-injurious behavior for a client, and my agency and the funder perceived the intervention as successful in reducing the frequency of the challenging behavior. However, the family, who was still encountering and dealing with the self-injurious behavior on a day-to-day basis, perceived the intervention as ineffective because of still experiencing and dealing with the behavior. As a behavior analyst, I needed to prioritize the family's input to determine the intervention's effectiveness and work to amend the current plan to achieve the desired effectiveness the family found satisfactory. Therefore, behavior analysts must ensure perceived effectiveness across all stakeholders when delivering ABA services.

Organizational Support

The level of support available to behavior analysts from the organizations that employ them is essential to determine the contextual fit of an intervention (Horner et al., 2014). Moreover, the level of support from other organizations, such as agencies and healthcare funders, is crucial when delivering ABA services with contextual fit. Again, no empirical research

examines these variables that behavior analysts encounter daily. Garner and colleagues (2022) topographically address the issues that private equity and insurance funding have led to within the practice of ABA therapy across the United States. Most importantly, they address the compromises behavior analysts must engage with to appease funders, their agencies, and the families with whom they work.

Garner and colleagues (2022) also address how much training, planning, assessment, and supervision time are allotted by these organizations. For example, Medicaid funders in Washington cap the number of assessment hours behavior analysts can be funded for at seven hours across six months (Washington State Health Care Authority, 2024). ABA agencies often do not authorize more assessment hours than the healthcare funder allows. Thus, a behavior analyst is left with limited time to conduct assessments, engage in collaborative discussions with families, and do the essential work of planning contextually fit interventions that fit within the routine and ecology of the family unit. Behavior analysts with the positional privilege to push back against funders or ABA agencies who provide limited hours ought to do so, citing the need to build collaborative relationships with their consumers.

An organization also holds values and goals for itself, often contained within a company’s mission statement. Behavior analysts attempting to build contextual interventions should consider the organization's goals and values and determine whether the organization's demonstrations of support align with the goals and values they purport to hold (Garner et al., 2022). An ABA agency may profess to deliver equitable ABA services but decline to take on clients with Medicaid insurance, illustrating a misalignment within the organizational structure. Additionally, an organization may place a high value on implementing an ABA curriculum that the behavior analyst and the family do not consider valuable. This misalignment can lead to poor

implementation fidelity and other service delivery issues that ultimately affect the family receiving the service. A behavior analyst aiming for contextual fit should consider how the consumer, the organization, and values align. When there is misalignment, creating transparent communication channels and advocating for an organization to shift its values to better align with its consumers will, in turn, lead to more effective, efficient, and sustainable interventions.

Aligning Variables to Create the CFT

Each study described in these sections exemplifies the utility of evaluating family ecology and culture, skills and abilities, resources, efficiency and effectiveness, and organizational support. However, none of these studies incorporate all of the above constructs when implementing a contextually fit plan. Some tools have been developed that center on identifying some variables that impact social validity (Nicolson et al., 2020) or how to collaborate with a caregiver/family more effectively (Brown et al., 2022; Marchese & Weiss, 2023). However, focusing on the specific contextual variables within a routine and then highlighting the importance of structuring intervention around those variables to produce socially valid behavior change has not yet been explored. The following is a plan to utilize each of these constructs to create a framework to elicit contextually fit plans that behavior analysts can use in their practice to produce socially valid behavior change for families.

Positionality Statement

It is imperative to highlight how my experiences as a BCBA in an insurance-funded practice may have shaped some of my biases concerning family perceptions of ABA. My experiences are not necessarily representative of the entire field of ABA but did effectively plunge me into thinking critically about how future BCBAs can implement strategies that caregivers will use in their home and community settings. The negative experiences of

attempting to implement curricula that caregivers were clearly signally as being socially invalid left a sour taste in my mouth for prescriptive strategies. Moreover, my experiences attempting to balance an agency and funder's expectations with a family's expectations left me wondering how I could better support future BCBAs who encountered a similar situation, as I often felt that I fell short of providing responsive, contextual practice in those situations. Lastly, my experiences with neurodiverse individuals highlighting some of the negative practices centered on deficit framing prompted me to reconsider how I might instead center caregiver and child strengths to address challenges they face in their homes and communities. Collectively, these experiences drove my desire to utilize a contextual fit tool to improve each of these situations for future practitioners. Conversely, these experiences also demonstrate a bias I possess when considering ABA practice being funded by insurance and being carried out through ABA agencies. This is a service model that will continue and my only aim is to shape future service delivery in a manner that consumers can find acceptable and produces meaningful change for those receiving services.

I also would like to highlight that as a BCBA and white male, my positionality shaped my relationships with the participants in this study. As I began to meet and engage with the participants, it became clear that each family's unique characteristics required me to think critically about my own gender, race, and power and how they may impact the researcher/participant dynamic. It was also particularly important to consider the intersections of these characteristics, and how my own positionality would interact with the participants' intersections as well. This dynamic was particularly important when utilizing the CFT, but also when initially conducting the assessment and providing the prescriptive intervention plan. For instance, when I suggested the prescriptive plans for each participant, all three participants agreed with my overview of the assessment and the potential interventions that would be

implemented. My position as an expert on behavioral interventions and assessment likely led to the participants being unwilling to question my assessment and plan. Moreover, my position as a white male working with a diverse participant pool likely further highlighted the power imbalance in these researcher/participant relationships. As the study continued, I worked diligently to attempt to breakdown these barriers by continually eliciting caregivers' input and repeatedly asking that they share their knowledge, experience, and opinions with me. As a result, there was still a clear imbalance in the relationship, but I feel that by the end of the study, we had a far more collaborative approach, rather than a hierarchal one.

Chapter 3: Methods

Research Design

This study utilized a Single-Case Research Design (SCRD) to determine the effects of the Contextual Fit Tool (CFT) on caregiver fidelity to treatment implementation and the corresponding impact on child-challenging behavior. Specifically, I used a noncurrent, multiple-baseline design across participants following recently published recommendations concerning the use of SCRD in Special Education (Ledford & Zimmerman, 2023). The use of SCRD allowed for the testing of a functional relationship between the independent variable (the CFT) and the dependent variables (child-challenging behavior and parent implementation fidelity) (Ledford & Gast, 2018). Using SCRD allows each participant to serve as their own control, and dependent variables are measured repeatedly over time across conditions. This multiple-baseline approach enabled the researcher to stagger the introduction of the independent variable across participants without needing to reverse the intervention back to baseline conditions (Ledford et al., 2019). All participants were initially subjected to the baseline condition (a prescriptive intervention plan) and then the independent variable (the CFT) was introduced once baseline data demonstrated stable responding. After utilizing the CFT, data was collected Each phase was analyzed according to trend, level, and variability to ascertain when a change in conditions was warranted, e.g., moving from the baseline phase to the intervention phase.

I chose a non-concurrent multiple baseline design (NCMBL) to complete this study. NCMBLs have been criticized for their lack of rigor and inability to demonstrate change in behavior across tiers (Ledford & Gast, 2018). However, recent publications (Ledford & Zimmerman, 2023; Slocum et al., 2022) have demonstrated how NCMBLs, under specific circumstances, can be just as rigorous as concurrent designs. NCMBL models can be a rigorous

intervention strategy, particularly when different consumers of the intervention participate in different settings, e.g., within their own homes, have no knowledge of the other respective participants, and are not familiar with the other participants (Ledford & Zimmerman). The separation of contexts and consumers helps eliminate shared history effects. Only large-scale events such as the COVID-19 pandemic could reasonably impact different consumers in different contexts (Ledford & Zimmerman).

NCMBLs are also far more feasible for use when recruiting individuals and their families who need support. When recruiting for this study, the baseline condition began as soon as possible due to the families indicating a necessity to deal with challenging behaviors after demonstrating an interest in starting the study. Each family indicated wanting support as quickly as possible when we initially met. Thus, waiting to begin the study once I had found all the participants seemed unnecessary and could potentially harm those already consenting to wait for much-desired support. I used a response-guided method to analyze data, rather than pre-determining baseline and intervention sessions, to make data-based decisions, particularly when caregiver-responding or the child's challenging behavior fluctuated within a condition. Thus, each participant was introduced to the intervention condition once stable responding occurred within the baseline condition, and the study was concluded following stable responding in the intervention condition.

Participants & Recruitment

This study used a combination of convenience and purposeful sampling. ABA agencies typically have a "waitlist" of children and their families waiting to receive ABA services. I contacted numerous existing ABA, early intervention, and family agencies throughout the State of Washington to distribute the informational flyer to potentially interested families, particularly

those who wanted but were not receiving ABA services. I worked collaboratively with the heads of these agencies to find participants willing to participate in the study. Several ABA agencies declined to distribute the flyer to the families on their waitlists, indirectly insinuating that my services could take away their potential clients. Additionally, several agencies noted they could not reach their waitlist in a way that would allow them to distribute a flyer, e.g., not having their email addresses. Despite this setback, six ABA agencies in Western Washington distributed the flyer. Moreover, I worked with a local community organization to provide unrelated training, resulting in several families who worked with this organization reaching out to participate.

When an interested family contacted me, I conducted an introduction phone call in which I highlighted the length and expectations of participating in the study, compensation, the need for video recording, and the services I would be providing. During this initial interaction with the family, I also verified with the family that they met all specified inclusion criteria before proceeding to assess challenging behavior and identify a chosen routine.

Three caregiver-child dyads participated in this study. Table 1 illustrates the demographics of the three participants. The children within these dyads were a) eight years or younger, b) had a diagnosis of ASD, and c) had challenging behavior, as reported by the caregiver. These children were all on waitlists for ABA services and were not receiving ABA services in the home. The caregivers were all a) 18 years or older, b) identified as the child's caregiver, c) were able to identify an everyday routine they participated in that typically resulted in challenging behaviors from their child, d) spoke English and e) were willing to participate in this study and video-record themselves engaging in the routine. Families who participated received compensation of $15 gift cards for each intervention session and $10 for every video submitted as a lump sum payment at the end of the study. The maximum sum each family

Table 1.

Child and Caregiver Demographic Information

	Children		
	Rosie	Henry	Richard
Gender	Female	Male	Male
Race/Ethnicity	Black/African	White	Latino/Chicano
Home Language(s)	Somali, English	English	Spanish, English
Age	4	8	6
	Caregivers		
	Michael	Jasmine	Bobbi
Age	53	47	38
Race/Ethnicity	African/American	White	Native/Latino/Chicano
Gender	Male	Female	Female
Languages Spoken	Somali, French, Arabic, English, Spanish	English	Spanish, English
Education	Masters	Masters	Bachelors
Employment	Full-Time	Full-Time	Full-Time
Income	$50,000-59,999	Prefer not to Answer	$100,000-149,999

received was $255. Each family received the maximum compensation for their participation in the study.

Bobbi and Richard

Richard is a 7-year-old child who was diagnosed with ASD more than two years ago. He is the older sibling, with a younger sister who is two years old. Richard converses using short sentences and demonstrates a fondness for animals and dinosaurs. Richard attends his local elementary school and has been placed in a general education classroom. During the middle of the study, Richard and his family moved, but he continued to attend the same elementary school despite the increased commute for the family. Additionally, during the middle of the study, Richard began to receive ABA support in the classroom setting. However, I deemed this a separate service since this study focused on caregiver implementation of ABA practices with family routines in the home. Bobbi also indicated that she had not received any in-home coaching and training support from this ABA service.

Richard's mother described his challenging behaviors as related to doing tasks independently. She suggested that when she gave Richard a task to complete, he often would not begin the task or begin the task but never finish it until she came to help him. This was particularly problematic during Richard's dressing routine in the morning. Richard would be told to either take off his socks or pajamas, to put on his pants or socks, and he would often not begin the task or put his sock on halfway and wait for his mother to help him. Subsequently, this routine could take 20-30 minutes to complete unless Bobbi hovered and completed the dressing routine for Richard. The challenging behavior was defined as Richard's refusal to dress/undress after being prompted by his mother to do so.

Bobbi is an obstetrics nurse who specializes in working with pregnant women. She is married and the mother of Richard and his younger sister. Her husband works early in the morning and is rarely available to support her during this time due to his employment. Bobbi speaks Spanish with her children at home but will oscillate to using English when Richard speaks to her in English. She must prepare both children for their days and feels Richard should be more independent during this routine. Bobbi also noted that Richard had previously received ABA services in a clinical setting and thought it had been helpful despite being dropped from the program with little warning. However, she noted that all strategies were focused on promoting behaviors "in the clinic," and she never received any caregiver coaching or training in the past.

Michael and Rosie

Rosie is a 4-year-old girl who was diagnosed with ASD about one year before the beginning of this study. She lives at home with her mother, father, and baby sister, who is nine months old. Rosie recently began attending a developmental preschool, and her parents have noted that she has begun to talk more since she started school. She primarily echoes lines from TV shows and YouTube videos but understands and responds to some simple demands, such as her dad requesting a hug. Rosie loves letters, the alphabet, and numbers and routinely sings about them. Rosie also has incredibly high energy, often dancing and running around the family's apartment. However, this became difficult to corral for Rosie's caregivers as bedtime approached, particularly for Michael when he would co-sleep with her.

Michael described Rosie's most challenging behavior at bedtime as singing, which often escalated to eloping from bed. Frequently, she would echo or script songs she had heard during the day and continue singing after going to bed for two or three hours. She would begin singing, elope from bed, and dance or climb on furniture. Michael described these instances as lasting

between thirty minutes to three hours. Her singing would disrupt her sister's and her parents' sleeping schedules. Michael was adamant that Rosie begin sleeping earlier to benefit the family's sleep schedule. For coding purposes, we established each session to last 10 minutes past the instance when Michael turned out the light, with some notable exceptions.

Michael is a devout Muslim and started training for a new bus driver position during the intervention portion of the study. Moreover, much of this study took place during Ramadan. His cumbersome training schedule meant that he could only record videos on weekend nights, and he also described difficulty in video recording due to the prayer schedule for Ramadan. Michael's wife worked weekends, which meant Michael was primarily responsible for getting Rosie to bed. However, he had previously done this routine on weekdays before beginning the intensive job training. Michael mainly spoke English with Rosie but spoke a mixture of Somali, French, and Arabic with his wife. His wife also spoke Spanish, which was not commonly used at home.

Rosie had been waiting to receive ABA services and began receiving them at the study's tail end. In the third, and fourth sessions of the baseline condition, she started to receive services in a clinical setting. However, the family had great difficulty maintaining the strict attendance policy (mandatory attendance in a clinical setting four days per week) and ceased attending after two weeks. Michael and his wife received no caregiver coaching or training during this time and were never given a treatment plan for ABA services by the agency.

Jasmine and Henry

Henry is an 8-year-old boy who has a diagnosis of ASD and was diagnosed more than four years ago. He is also a foster child, whom his mother adopted when he was very young, along with his two older brothers (ages 10 and 12). All three of the boys live with Jasmine. Henry demonstrated incredible kindness and generosity to his brothers and consistently tried to

be “a part of” their discussions and play. Thus, most of their interactions were typical of a family with three male siblings with minor roughhousing, lots of verbal exchanges, and consistent play. However, at his local school, Jasmine intimated that he had considerable struggles in this setting, as he primarily participates in a general education classroom with little support. Jasmine noted that Henry’s teacher had no experience with working with an autistic child, and this led to issues in the classroom. As a result, Jasmine was actively working on finding a new school placement for Henry the following school year.

Henry’s interactions with his mother and siblings at home were generally caring and demonstrated his affinity for them. However, Henry’s mother reported that he did have struggles at home, particularly with not receiving immediate reinforcement and, at times, engaging with his brothers. When these interactions did not go well, Henry’s challenging behavior consisted of property destruction (such as breaking the microwave and molding in the home), screaming or yelling, crying, eloping from home, and negative self-talk (“My brother is right, I am a moron”). Jasmine noted that these periods of challenging behavior were sporadic and did not consistently occur during the same routine. For instance, Henry might go two weeks or more during mealtime with no challenging behaviors but then engage in these behaviors for three straight days. After reviewing their day-to-day routine, Jasmine highlighted that the time after the family gets home from school, before dinner while she is cooking, is when she noticed the most challenging behavior. Thus, this period was chosen as the routine to be addressed during the intervention.

Jasmine is the primary recipient of the intervention, a single mother of the three boys, and works as a pediatric nurse practitioner. The family only spoke English in the home. Jasmine noted that Henry had received ABA services in the past, both times in a clinical setting, but this had ceased sometime during the COVID-19 pandemic. She described having a basic knowledge

of what ABA did to support children with ASD, such as attempting to stop challenging behaviors and replace them with more appropriate behaviors. Still, she declared that she had not seen much difference between Henry's challenging behaviors when receiving or not receiving ABA services. Jasmine indicated that she had not received any training during their time in ABA and that the treatment plan for the clinical setting was rarely discussed with her.

Setting and Materials

The setting for this study was in the caregivers' homes. The caregivers selected their routines and challenging behaviors with my support, typically aiming to choose routines that most impacted their lives. Jasmine chose an after school routine while she prepared dinner, Bobbi chose a dressing routine, while Michael chose a bedtime routine. The caregivers video-recorded their routines using their cellphones and then uploaded those videos to a Dropbox Account that was only shared with me. Though the caregivers were asked to submit 15-minute videos, the length of videos varied from 3 minutes, 50 seconds to 19 minutes, 50 seconds.

Each caregiver was given a behavioral plan to address the challenging behaviors. During the prescriptive phase, this plan included links to PDFs and YouTube videos describing the implemented strategies. For reference, each caregiver could access these at any point during the study. The nature of the selected routines did not lead to materials being provided to Bobbi or Michael, as they were not a needed aspect of the behavioral plan. However, during the intervention phase, Jasmine received a laminated activity schedule and feelings chart, which were used for reference during their pre-mealtime routine. I created these materials in collaboration with Jasmine and dropped them off at their house while the family was at school/work.

Procedures

Initial Meeting and Preparing for Assessment of Challenging Behaviors

After verbal consent to participate in the study had been established, I arranged to meet with each family to review the study and to begin the first steps. During the first meeting with the family, I carefully reviewed the consent form to be signed. While reviewing the form, I described relevant steps and aspects of the study, such as the identification of the routine, the identification of challenging behaviors, and the services I would provide as a part of the study. After the caregivers had signed the consent form, we began to discuss the actual routine they would like support with and what was most impacting their lives. Two of the three families (Bobbi and Michael) immediately knew which routine they would like support with, and we arranged a time for me to conduct a Functional Behavior Assessment (FBA) to identify the function(s) of challenging behavior. Additionally, Bobbi and Michael identified 2-3 challenging behaviors associated with their selected routines, including elopement, whining, singing during bedtime, and refusal of a demand to dress. With each caregiver, I noted the challenging behaviors, and we discussed which challenging behavior was the most problematic. For Bobbi, she identified Richard's refusal to dress as being the most concerning. Michael noted that both elopement from bed and singing during bedtime were troublesome, particularly with the family's newborn sleeping in the next room. I then solicited more information related to the challenging behaviors, such as possible antecedents and consequences for the behaviors, which served as an indirect interview for the FBA. We then agreed that these would be the challenging behaviors that I would assess and scheduled a date for when I would observe the routine for the direct assessment of the challenging behaviors.

Jasmine was unsure about which routine she would like support with but was certain about the challenging behaviors that were occurring in the home. These behaviors included negative self-talk, property destruction, refusing safety instructions, crying, and yelling/screaming. We agreed for her to take a week and observe when challenging behavior was occurring most frequently. After observing for a week, she determined that pre-mealtime was the routine when most challenging behavior took place. This routine was centered around her getting food ready for everyone after they had come home from school. We briefly met again so I could ask about potential antecedents and consequences of the behaviors, and we arranged a date for when I could conduct the FBA. Before leaving each meeting, each family completed a demographic survey on paper that I used to enter demographic information into the FBSApp.

Overview of the FBSApp

The FBSApp was developed in 2020 as a mechanism for families to use positive behavior support-based interventions for children with disabilities who engage in challenging behaviors (Barton, 2022). The app starts by asking users to fill out demographic information about the child, including their name, race and ethnicity, gender, disability diagnosis, and Individualized Education Program status. It then requests information about the child regarding communication style and preferred activities/items. I input the family information that the app requires using the demographic surveys that the families had already filled out. After completing the initial demographic portion of the assessment, the App opens the first Universal Support Strategy "bubble" (Self-Love) and, after reading and completing the activity, asks for a report on the challenging behavior that was experienced during the day. This report of each challenging behavior instance is intended to provide information on events occurring before the behavior (antecedents), the actual challenging behavior, and what events occur after the challenging

behavior (consequences). Each category asks a plethora of questions, e.g., if directions were given before the challenging behavior or if attention was provided to the challenging behavior. However, you may only select up to two options within each condition. For instance, there are 24 options in the antecedent category, but I could only select the two most relevant to the challenging behavior. The app is intended for the respondent to report at least one challenging behavior per day and to review the Universal Support Strategies offered for that day, of which there are five total Support "bubbles." The respondent may enter as many instances of challenging behavior as they wish. The FBSApp was only used to generate a hypothesized function of the challenging behavior and then a prescriptive intervention.

Utilizing the FBSApp to Generate an FBA and Prescriptive Intervention

Prior to beginning the assessment of the routine, I printed the options for the categories of the antecedent, challenging behavior, and consequences on paper (See Appendix A). Using a paper form of the FBSApp assessment portion, instead of immediately inputting the information into the FBSApp, allowed me to take notes and look over the list of options provided by the FBSApp and make notes about which two options for each category might be most relevant. I then observed the routine once with each family, taking notes of when challenging behaviors occurred and writing down the antecedents and consequences of each instance. I recorded 5 instances of Bobbi asking Richard to get dressed and him refusing, but no instances of whining. During Michael's routine, I took notes on 6 instances of singing and 4 instances of elopement from bed. As for Jasmine's routine, I did not note any property destruction but recorded 5 instances of screaming/yelling, 4 instances of refusing to follow safety directions, and 2 instances of negative self-talk. Before leaving the observation, I briefly reviewed my paper notes

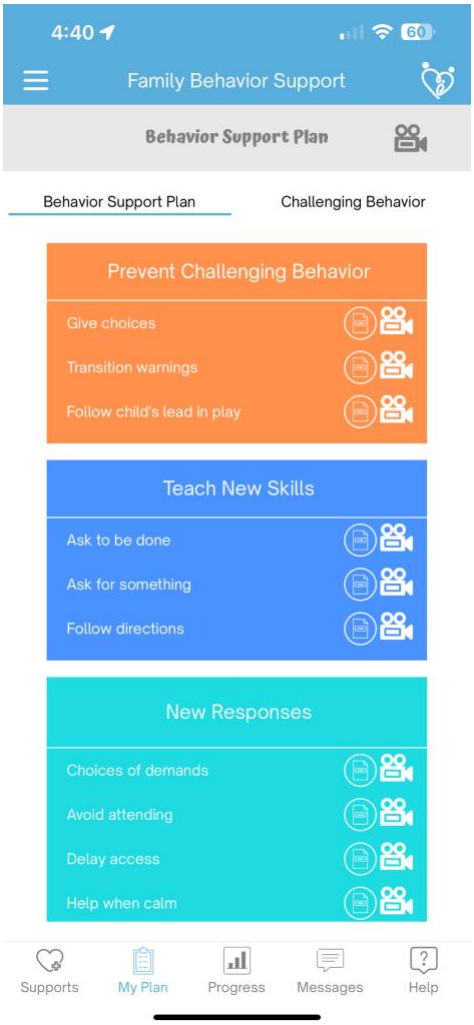
and asked caregivers about the accuracy of my observations. Each caregiver agreed with my overall assessment.

After leaving the observation, I created profiles for each of the three children in the FBSApp and began recording their challenging behavior within their profiles. I input the antecedent, challenging behavior, and consequence information into the FBSApp for each instance of challenging behavior I observed. When inputting this information, I chose the two most relevant statements for each category that aligned with my observations. After inputting all the instances of challenging behavior that had been recorded and observed for each child, the App generated a "hypothesis statement" that hypothesizes the function of the challenging behavior based on the data I inputted about the antecedents and consequences of the challenging behavior. The App also asks if the caregiver agrees or disagrees with the Hypothesis Statement. This statement was screenshotted and presented, along with an explanation, to the caregiver prior to the training meeting to determine agreement with the hypothesized function. In each instance, the caregivers agreed with the assessment concerning the function of the behavior. After I clicked "Agree," the App redirected me to a Behavior Support Plan that offered caregivers strategies to address the challenging behavior.

The BSP has three categories: a) preventing challenging behavior, b) teaching new skills, and c) new responses. Within each category, the App generated at least two, but often three, strategies for the caregiver to use to deal with the challenging behavior they had described (See Figure 1). Examples of strategies within the "Prevent Challenging Behavior" category were providing choices or utilizing transition warnings. Within the Teach New Skills category, examples included prompting the child to ask to be done, asking for something else, or following simple directions. Lastly, examples in the New Responses category included choices of

Figure 1.

Sample Behavior Support Plan from FBSApp



demands, avoiding providing attention for the challenging behavior, and helping the child when they are calm. This BSP served as the prescribed intervention plan during the baseline phase of this study.

Baseline Training Meeting

This training meeting occurred after the prescriptive BSP had been finalized and took place prior to the baseline and intervention conditions. The meetings lasted between 30 minutes to 1 hour. During this meeting, I reviewed the BSP with the caregivers and offered examples of

the implementation strategies in the BSP. I verbalized examples for the caregivers based on the routine each family was working on. For instance, with a dressing routine, I highlighted offering choices of clothes for the child to wear before challenging behavior began. I also included YouTube videos and PDFs from the FBSApp catalog in a Google document, which underscored each strategy's purpose and other examples. These resources were provided to the family but were not explicitly reviewed during either the baseline or intervention training session. These resources were only utilized when caregivers asked pointed questions about specific strategies. For instance, Jasmine requested to understand what providing simple directions would look like, so we reviewed the PDF and watched the YouTube video associated with this strategy in the FBSApp. This was the only instance where these resources were reviewed. This meeting also served as a time for caregivers to ask questions about the BSP and how to implement strategies. It was also an opportunity for me to demonstrate what the strategies looked like using basic role-playing. At the conclusion of this meeting, I provided each family with a tripod and a phone/tablet mount that they could use for video recording during the baseline and intervention conditions.

Baseline Condition

After a BSP for the selected challenging behavior had been generated by the FBSApp and caregivers completed the training meeting, each caregiver was encouraged to use all strategies outlined on the BSP generated by the FBSApp during selected routine. Caregivers uploaded videos, ranging from 3 minutes, 50 seconds to 19 minutes, 30 seconds of their selected routine to a shared Dropbox account that I managed. Caregivers received no additional instruction on engaging with the routines but were free to reference the YouTube videos and PDFs I shared with them. After each video was uploaded, I coded for the percentage of caregiver

implementation of behavioral strategies of the BSP, the frequency with which they did so and the child challenging behavior. After coding was completed, data was graphed and assessed for stability, level, and trend. The goal was for each family to record at least five baseline video sessions, but this shifted depending on the visual data analysis. When the data trend for either dependent variable was unstable, the caregivers were asked to continue data collection until a stable data trend and level were determined. Bobbi and Jasmine's cases exhibited variability in both the percentage and frequency of strategies used. Thus, they were asked to continue the baseline condition until a stable level and trend occurred. In each case, this happened after six and seven video sessions, respectively. In Michael's case, he demonstrated consistent trend, level, and variability with regard to the caregiver strategies implemented. However, there was high variability of Rosie's challenging behavior during the first three baseline sessions. Across the final four sessions of baseline, a more consistent trend, level, and stability were visually observed regarding Rosie's challenging behavior, leading to seven baseline sessions being recorded in total. At the conclusion of the baseline phase, each participant completed the Contextual Fit Tool Checklist (CFT CHECKLIST) in the CFT, which scored the level of contextual fit the intervention had with their family unit.

Intervention

The intervention phase was implemented once the respondents' baseline data exhibited a stable trend, level, and variability within this condition. This condition involved the implementation the Contextual Fit Tool followed by continued data collection, replicating the baseline condition.

Independent Variable

The independent variable in this study is the CFT (See Appendix B). This tool is derived from the contextual fit literature and is based on the relevant constructs that have routinely been outlined (e.g., Albin et al., 1996; Horner et al., 2014; Lucyshyn et al., 2002; Monzalve & Horner, 2021). The CFT is comprised of four sections: 1) a semi-structured interview portion, 2) a review of the notes taken by the interviewer with the interviewee, 3) a collaborative planning meeting to create a BSP, and 4) completion of the CFT checklist by the caregiver following several sessions of implementation. For Jasmine and Michael, these steps were completed with one 2-hour meeting in the family's home. In Bobbi's case, due to a time constraint, the interview and review of the notes occurred within a 1-hour session, and the collaborative planning and creation of the BSP was done in another 1-hour meeting.

The interview and review of notes took place in the home and lasted about 1 hour with each family. It occurred after the baseline phase of the study. Once the CFT had been implemented with caregivers, including the creation of the BSP, a training meeting was conducted again, mirroring the training meeting before the baseline phase. I began the interview portion of the CFT by describing generally what the questions were about and that I would take notes as they answered questions. The interview portion focused on five main domains, which include Family Ecology and Culture (FEC), Family Skills, Strengths and Abilities (FSSA), Resources, Efficiency and Effectiveness (E&E), and Organizational Support (OS). These core tenets emerged throughout a thorough review of the contextual fit literature as being central to implementing a contextually fit intervention in family settings.

First, questions within the FEC section are related to 1) what the routine is and what each participating person does during the routine, 2) the importance of the routine, 3) the goals the

family has for the routine, 4) current accommodations being made to complete the routine and 5) any current stressors that directly or indirectly affect the implementation of the routine. These questions are aimed explicitly at unearthing the family's cultural and family values related to their chosen routine. Secondly, the next section is focused on the family's strengths, skills, and abilities (FSSA) which is geared toward providing me with an understanding of each participant's strength so it can later be utilized to contextualize the intervention. This section includes questions about 1) what strengths caregivers have when it comes to engaging with the chosen routine, 2) the strengths of the child when engaging with this routine, and 3) other strategies and experiences that have been used since challenging behavior became a part of the given routine. The third section dives into the resources available to the family. The term resources is used broadly in this section, with questions aimed at identifying 1) the time needed to complete the routine, 2) the time eventually expected to complete the routine, 3) how much time the family can allocate to planning for this intervention outside of the given routine, 4) the effort needed to engage with the implementation of the intervention during the routine, both for the caregiver and the child and 5) the cost of the routine and the cost's burden on the family unit. Understanding the tangible resources that affect caregivers and children in completing these routines is vital. Fourthly, I need to understand what makes the routine ineffective and the aspects that make it effective or practical. This needs to be accomplished by examining and efficiently using the above-stated resources the caregiver shared. Thus, the questions in this section are centered on 1) what aspects of the routine/intervention are going well, 2) what aspects of the routine/intervention are not going well, and 3) whether the current strategies are producing effective results.

The last section aims to understand the caregiver's perceptions of the organizational support. The lone question in this section asks whether the agency's goals align with the caregiver's goals. This question is intended to highlight if the caregiver perceives a misalignment of values or goals between myself or the organization whom I represent. This section is intended for future providers to gain an understanding of a misalignment of values. When a misalignment was present, I was transparent in attempting to coach the caregiver through why they may be feeling this misalignment. I engaged with transparent communication to clearly indicate areas where the misalignment of goals may be an issue. Michael was the only caregiver who noted a misalignment. He indicated that a goal of his was to have someone else working with Rosie at least some of the time, and he was disappointed when he learned that direct outside support would not be a part of the study. I highlighted to him that direct outside support was common in ABA practice but not as a part of this study. He indicated that he had understood from the beginning of the study and was grateful for the direct support for him but did indicate that he "would have loved a break."

During the interview, I took notes and recorded the caregivers' responses. After each question, particularly questions focused on values, goals, effort, or abstract terms, I relayed my notes and thoughts about their answers back to them. This was an unofficial "member check" (Bhattacharya, 2017) to ensure that I accurately captured the information the family presented. After the interview with Bobbi, I independently reviewed the notes I had and analyzed the answers for themes that emerged. After the interview with Jasmine and Michael, I immediately reviewed the prescriptive intervention and these themes with the caregivers, and utilizing the discovered themes, we collaborated in creating an amended function-based BSP. This process

took between 30 minutes to 1 hour. The following is a breakdown of how these interviews went with each caregiver.

Using the CFT to Create the Contextualized BSPs

Bobbi. I conducted the CFT interview one week after the conclusion of the baseline condition. Due to time constraints, Bobbi and I met again 5 days later to collaborate and conclude the BSP. When conducting the CFT interview with Bobbi, three immediate themes emerged: 1) a need to be doing other activities while Richard was getting dressed, 2) a limited amount of time in the morning, and 3) a desire for Richard to independently remove, and put on, his socks and pants promptly.

Based on these themes and observing the routine through the submitted videos, I noted to Bobbi that I observed that she commonly played a game with Richard in which his preferred stuffed animals would watch him perform the routine and suggested a slight modification to the game. First, I suggested conducting a preference assessment with Richard before beginning the routine/game to determine what he would like to do after completing the routine. Bobbi understood this idea and noted that Richard had recently become fond of exploring their fenced-in backyard and that this might be a possible reinforcer for him. During the prescriptive phase, Bobbi only verbally praised Richard for completing dressing-related tasks. Second, I suggested shifting the type of frequent positive attention provided to Richard. During the prescriptive phase, Bobbi gave Richard verbal praise and encouragement during and after the dressing routine, but this did not produce socially valid effects for Bobbi. This verbal praise was not a part of the prescriptive training plan. However, based on Bobbi indicating that completing the routine quickly was important to her and because she was already utilizing verbal praise, I suggested making the game based on getting dressed as fast as possible and making it a competition to see

if Richard could undress and dress within a short amount of time. Bobbi noted that Richard loved these types of games and felt this would be an effective shift in providing attention to Richard to prompt him to get dressed in a timelier (and fun) manner. Third, Bobbi frequently prompted or finished dressing Richard due to time constraints. We discussed reducing her level of prompting and only helping Richard after he had explicitly asked for help. The explicit requesting would help increase the communication between Richard and Bobbi and signal to Richard that Bobbi would only help if he asked for it. Moreover, we discussed differentiating the quality and quantity of verbal praise for completing a dressing activity, e.g., putting on his socks. This differentiation meant that when Bobbi was in the room, she should limit her verbal praise for completing or attempting to complete a dressing action. However, if Bobbi were out of the room attending to other morning routines/activities, she would provide significant verbal praise to Richard if he had started or completed a dressing action when she was out of the room. I suggested this strategy to address Bobbi's need to perform other morning actions, such as getting breakfast ready and attending to Richard's younger sister. Lastly, I suggested implementing a token or point system for Richard, in which he would receive secondary reinforcement for completing a dressing action. However, Bobbi rejected this idea. She noted that this was not something she could implement and disagreed with the concept's premise. Thus, this strategy was deemed socially invalid and was not included in the contextualized behavior intervention plan.

Michael. I conducted the CFT semi-structured interview with Michael after the baseline phase. After conducting the CFT interview, several themes emerged based on Michael's responses. Michael was most concerned with ensuring that Rosie got to bed between 9-10 PM. He clarified that he and his family valued being asleep during this time because "it is the time, in

our culture, where we get the best sleep." Moreover, Michael indicated that many strategies during the prescriptive intervention were "incompatible" with the routine with his daughter. For instance, strategies related to providing choices and teaching replacement behaviors for the challenging singing behavior he felt did not address his or Rosie's needs. It became clear that Michael was not interested in attempting to prompt Rosie to engage in another behavior to replace the singing, particularly during bedtime when he was hoping she would begin to fall asleep rather than learn new behaviors.

Michael was also concerned with Rosie's understanding of a given direction, such as "Let's go to bed." He indicated that she did not seem to respond to these directions and was unsure if she knew what he meant when he gave her this type of instruction. Still, I agreed that she may not clearly understand when it was time to play/sing as opposed to when it was time to sleep. To remedy this, I suggested that Michael make it clear when it was playtime and bedtime with his actions *and* words. He used a countdown strategy a couple of times during the baseline condition before turning off the light, so we built this in as a strategy to highlight for Rosie the transition between play time with Dad and bedtime with Dad. We also settled on a simple, consistent routine for Michael to implement. To begin, he would play with Rosie and sing with her. They could high-five, tickle, dance, sing, or do any gross motor activity Rosie would like. After it appeared she was done, Michael would give the direction that it was time for bed and begin the countdown to the lights going off. Then, he would remain silent while either falling asleep or waiting for Rosie to fall asleep. In this last portion, Michael agreed that providing attention to Rosie after she was singing typically only made the singing increase, so he opted to place the behavior on extinction from attention. This routine was an attempt to clearly distinguish the two conditions for Rosie: playtime and sleep time.

Jasmine. The CFT interview was conducted about one week following the final baseline session. During the interview, several themes emerged that defined the essential aspects of the routine for Jasmine. First, she was concerned about the property destruction during this period, specifically items that were difficult to replace or costly. She had previously needed to replace her microwave and molding, and Henry had created several wall holes. Second, Jasmine noted that this period of after-school/pre-dinner lacked consistency and wondered if providing a more rigid schedule would benefit Henry and his brothers. However, she was conflicted with not wanting to give too many demands and allowing space for Henry to "unwind" after a challenging day. Lastly, she expressed concern about providing consequences for Henry's challenging behaviors, specifically for screaming/yelling. She stated that Henry typically felt immense remorse for his challenging behaviors and often said, "My brain made me do it." She wanted to make the routine more consistent but did not want to present anything too demanding to Henry and his brothers during this time.

I reviewed these themes with Jasmine, and she agreed that these were of the utmost importance. We then discussed and collaborated on strategies to deal with challenging behavior, provide consistency, and mediate consequences. I initially posited a group contingency for all the kids, especially Henry, in which Jasmine could provide token rewards for positive comments/behavior. Henry could then turn these tokens in for short-term and long-term rewards. However, Jasmine expressed hesitancy with a token reward system and noted that Henry and her other children did not process long-term rewards well. She stated they often got very excited about the possible long-term reward, but this excitement usually fizzled out after a couple of days. It was determined that this would not be an effective strategy.

Jasmine had previously stated that they had used a visual schedule/activity schedule when doing morning/bedtime routines and that she had some success with this strategy. She also intimated that Henry often wanted to engage in an activity after school that she could not accommodate while making dinner, such as going on a bike ride or walking with the dog. Based on this information, we created an activity schedule for when Jasmine was making dinner. Henry would choose a preferred activity to engage with after dinner, such as a bike ride, but was given less preferred activities to choose from in the home while Jasmine made dinner. This schedule included getting the necessary papers from his backpack to give to Jasmine, engaging in an independent play activity (such as Legos, playing on the trampoline, or helping Jasmine cook dinner), and performing his chore, which was typically putting the silverware from the dishwasher away or getting his plate ready for dinner. After completing the items on his schedule, Henry could do any of his highly preferred activities and was allowed to change his mind at any point. Jasmine believed that informing Henry that she was mostly unavailable while cooking dinner and utilizing the activity schedule would be effective and provide more consistency during the routine.

We discussed Henry's challenging behaviors and what consequences should result if he engaged in any of them, such as screaming, throwing items, crying, or property destruction. Jasmine expressed hesitancy in withholding reinforcement from Henry if he engaged in *any* of the challenging behaviors. She noted an example of him screaming and feeling like it would be unfair to withhold a bike ride simply because he screamed once. I suggested withholding reinforcement for property destruction and throwing might be advisable. However, she noted that Henry and his brothers often threw things at one another, and, at times, Henry appropriately threw objects, such as pillows, against the couch when he was frustrated. Thus, we determined

that the highly preferred activity would be withheld only if he engaged in property destruction and would be prompted to complete the other activities on his schedule.

We also devised a plan for what to do when Henry was becoming escalated. Jasmine stated that previously, she would offer choices to Henry during this time, which would sometimes help calm him down, but other times might escalate the challenging behaviors. I described that presenting demands during this time, even if they are choices, can sometimes feel daunting for children. She agreed with this sentiment and suggested this was likely why Henry might become more escalated, noting an instance when she offered him a choice of ice cream or a cookie when he was escalated, prompting him to begin screaming and crying. Based on this information, we decided to utilize a Feelings Temperature Chart, which she would review and discuss with him. Under this contextualized plan, she would gesture towards, or place, the Feelings Temperature Chart near him and offer a verbal reminder that he can look at the Feelings Temperature Chart if he would like.

After co-creating the plan, I sent each family a screenshot of the plan to either their email or via text (whichever method they preferred). All participants indicated that they received the plan and had access to it if they wished to review it in the future.

Intervention Condition

This phase mirrored the baseline condition. After we had co-created the contextualized plan, I conducted a 30-minute to 1-hour training for the families on how to implement the given strategies within their routines. I utilized examples that caregivers could use within the routine, such as the language or timing of giving a direction. This training allowed me better opportunities to offer more contextualized examples based on the information gathered from the CFT. Caregivers continued to record and upload videos to the Dropbox account.

Dependent Variables

Observational data was collected using video recorded by the participating families during their respective routines. The participants recorded these routines 1-3 times per week, depending on their capacity to videotape during the week. The primary dependent variable was caregivers' implementation of the strategies on the behavior support plan and the frequency with which they utilized each strategy within each session. The secondary dependent variable was the child's challenging behavior. A third dependent variable was the caregiver report of contextual fit, utilizing the CFT checklist from the Contextual Fit Tool. Each video recording was coded for occurrences of the primary and secondary dependent measures. The CFT checklist was scored as a percentage of "Yes" responses out of a possible 19 questions. The primary and secondary data were collected using video recordings (implementation strategies and challenging behavior) and the CFT checklist data was collected by permanent product recording via Qualtrics surveys.

Caregiver Implementation Strategies

The chosen observable behaviors were strategies offered by the FBSApp during the baseline condition and the collaboratively selected strategies during the contextualized intervention condition. The specificities of these strategies are indicated in Table 2.

The caregivers' implementation of strategies was coded as the percentage of distinct strategies used by caregivers using event recording and the frequency of each strategy used (Ledford & Gast, 2018). Each strategy was recorded as "Yes" if the strategy was observed at any point during the video. The number of implemented strategies was then divided by the total number of strategies contained within the BSP within that condition and multiplied by 100 to provide a percentage of strategies implemented. This yielded a percentage of the caregiver implemented strategies within each session across conditions. For instance, if a caregiver

Table 2.

Strategies on Behavior Support Plans (BSPs)

Child and Caregiver	Prescriptive BSP Strategies	Contextualized BSP Strategies
Richard and Bobbi	1. Provided Richard with choices 2. Gave a transition warning before dressing 3. Prompted Richard to ask for a break* 4. Gave Richard easy, simple directions unrelated to the dressing task 5. Prompted follow through to the dressing demands 6. Gave choice of demands* 7. Gave verbal reminders before challenging behaviors for appropriate behaviors	1. Conducts informal preference assessment 2. Provides reinforcer when complete 3. Provides choices of clothes or which items Richard would like help with* 4. Gives Verbal Praise when R attempts dressing independently 5. Prompts Richard to ask for help when he is idling* 6. Does not provide help until a request for help is made AND R has made an independent attempt
Rosie and Michael	1. Provided Choices 2. Provided Frequent Positive Attention for Appropriate Behaviors 3. Follow Child's Lead	1. Attention/Singing with her BEFORE telling her its bedtime 2. Giving her affection before bedtime - hugs, attention, kisses, etc. 3. Following the same routine a. Play/Singing

		b. Light off c. Silence
	4. Gave Rosie a prompt to be done with playtime before bedtime 5. Gave Rosie simple directions unrelated to the bedtime routine 6. Prompted Rosie to ask for more playtime before bed 7. Avoiding attending to Rosie's challenging behaviors 8. Gave a choice of demands 9. Helps Rosie when he has stopped singing and calmed down	4. Avoid attending to singing when light is off
Henry and Jasmine	1. Provided choices before challenging behavior 2. Provided frequent positive attention for appropriate behaviors* 3. Follows Henry's lead 4. Gave Henry a prompt to be done or have more time playing before mealtime 5. Gave Henry simple directions unrelated to the mealtime routine	1. Presents the Visual Schedule 2. Conducts a Preference Assessment of Post-Dinner Activity 3. Reviews Feelings Chart with Henry 4. If Henry becomes escalated, presents Feelings Chart with no demands 5. When Henry is escalated, Provides verbal reminders but no demands

6. Prompts Henry to ask for more time with Mom (Jasmine)	6. Provides reinforcement for appropriate behaviors* (verbally or tangibly)
7. Avoids attending to challenging behavior	7. Provides prompts for Henry to finish schedule
8. Gave choice of demands	8. If property destruction occurs, withholds reinforcement
9. Helps Henry once he has calmed down from challenging behavior	

Note. * indicates that the strategy was used in the prescriptive and contextualized BSPs

implemented one out of four strategies, they would be recorded as having completed 25% of the strategies for the session. The strategy only needed to be implemented once during the given routine to be counted as "yes."

The number of times each strategy was implemented was tallied and summed to determine the frequency of each strategy used for each session. For instance, when a family completed three out of the four strategies but implemented two of those strategies four times, e.g., providing four choices and offering four transition warnings, they would have a total frequency of nine implementation instances for that session. See Appendix E for a sample data sheet for the percentage and frequency of caregiver implementation.

Child Challenging Behavior

The family self-selected the challenging behavior that most frequently interfered with their routines/activities in their home or community setting. Challenging behavior was defined as any behavior pre-determined by the caregiver within a selected routine that is contextually inappropriate. I operationally defined the challenging behavior after completing an FBA and confirming with that family that the behavior I defined was in accordance with what they deemed challenging. See Table 3 for a breakdown of challenging behaviors and their operational definitions for each child.

During the videotaped routines, challenging behaviors were coded using a 10-second partial interval recording method, which commonly overestimates the prevalence of the behavior (Ledford & Gast, 2014). However, overestimation is commonly preferred when attempting to reduce challenging behavior. Each interval in which a challenging behavior occurred was marked with an "X," signaling that challenging behavior occurred. Each interval where no challenging behavior occurs was recorded by not marking the sheet. The number of intervals in

Table 3.

Target Challenging Behaviors

Child	Target Challenging Behaviors	Operational Definition	Examples	Non-Examples
Rosie	Singing	Any instance in which RA begins to use a singing voice after Dad has prompted her that it is time to go to bed.	• Dad has said it is time for bed, and Rosie begins to sing • Rosie sings a nursery rhyme or ABCs • Rosie babbles words for 2 or more seconds continuously	• RA babbles words for less than 2 seconds continuously • RA makes a request • RA makes a "mmmm" sound (stimming)
Richard	Refusal to Dress	The duration and/or instance of not complying with a direction related to dressing within 5 seconds of being asked. **Onset** is 5 seconds after a dressing-related demand has been delivered. **Offset** is when the child begins to make a clear effort to follow-through with the task. e.g. one sock comes off, pants waistband is below the knees, <u>Both</u> feet are in his pants, One	• Richard is asked to take his pajamas off and puts his hands on waistband and pulls them down a couple inches. • Richard is asked to put his pants on and he puts one leg through then stops • Richard's mother begins to dress him w/o asking for help • Richard begins to whine that he cannot do it after being given a direction	• Richard is asked to pick up his toys • Richard is given a direction to take his clothes to his room • Richard requests help with dressing and then his mother dresses him.

		shoe is on and he begins putting on the second		
Henry	Refusing Safety Directions	When Henry does not comply within 5 seconds to a specific direction that must be followed with regards to safety **Onset** is 5 seconds after the safety direction **Offset** is Complying with the safety direction, e.g. returning to the house after leaving or getting off the furniture	• Being asked to get down off the couch or other furniture • Staying away from brothers/mom personal items • Being asked to put down an object that he is threatening with • Being asked to come back into the house/eloping from the house	• Being asked to report on the battery percentage on his iPad • Any direction not listed in the examples or not clearly a safety concern
	Negative Self-Talk	When Henry repeats a negative comment from a brother OR makes a negative comment towards a brother	• "I am a moron" • "I do not appreciate (brother's name)" • "You (brother or Mom) are very stupid"	• "I dont like when you call me that" • "I am frustrated/angry/upset with (brother's name)" • "This (activity) is stupid"
	Yelling/Crying	Any instance in which Henry emits a crying, yelling or screaming sound that is above conversational volume.	• HS is crying in the background, but not on the video • HS is yelling at his brothers • HS is yelling in response to a question asked by his mother	• HS is yelling while playing a game outside with his brothers • HS is yelling with joy because he gets to eat peaches instead of bologna

which challenging behaviors occurred was then divided by the total number of 10-second intervals within the video and multiplied by 100. This produced a percentage of intervals in which challenging behavior occurred throughout the routine. If the interval was less than 10 seconds (for instance, at the end of a video), this interval was not counted towards the total. See Appendix F for a sample data sheet.

Contextual Fit Tool Checklist

This was recorded twice during the study as a part of the Contextual Fit Tool: once immediately after completing the baseline condition and again at the study's conclusion. Caregivers completed the checklist using a Qualtrics survey and submitted their results. The caregivers knew I could see the results and were explicitly told that I had to view them as they completed the survey. I also instructed families to be honest and rigorous when answering the survey questions in both conditions. The mean scores for each family were calculated by adding the total number of "yes" responses, dividing that number by the total number of questions (19), and multiplying by 100 (Ledford & Gast, 2018). "Unsure" and "No" responses did not count towards the overall percentage. This allowed each family to provide an opportunity to describe their satisfaction with each phase of the study quantitatively.

Contextual fit was measured using the CFT checklist from the independent variable, the CFT, and the checklist completed at the conclusion of the baseline and intervention conditions. The CFT checklist was completed, along with the URP-IR, after the prescriptive and contextualized intervention conditions. The CFT is comprised of 19 questions related to 5 subscales related to the routine selected by the family: 1) Family Ecology and Culture, 2) Family Skills, Strengths, and Abilities, 3) Resources, 4) Efficiency and Effectiveness, and 5) Organizational Support.

These subscales are measured using a scale of "Yes," "No," or "Unsure." See Appendix C for the CFT Checklist.

Training for Interobserver Agreement

While I served as the primary data coder, I used three research assistants to help code the interobserver agreement for challenging behaviors and caregiver implementation. These researchers were doctoral students in special education who were interested in working with families and had experience recording behavioral data in the same manner as conducted in this study. The training utilized videos from other sources demonstrating both challenging behaviors and caregivers utilizing BSP strategies. Before beginning training, I created operational definitions of challenging behaviors and caregiver strategies and coded these three additional videos. To conduct the training, I reviewed the operationally defined challenging behaviors, the basic BSP strategies in the videos, and 2 or 3 strategies that do not appear in the video. I provided training on partial interval recording and event recording, but this was a basic review since each IOA coder had previous experience coding in this manner. Afterward, the coders independently coded the sample videos, coded for challenging behavior, and then for caregiver-implemented strategies. After they had completed coding, we reviewed and discussed our results. They repeated this process until they had 90% agreement with me across two consecutive video examples. Each video was three to five minutes long so as not to overburden the assistants.

Interobserver Agreement (IOA) Data Collection

IOA data was collected on challenging behavior and the parent-implemented strategies in 34.3% of sessions (Ledford & Gast, 2014). At least four videos from each participant were coded for IOA. The research assistants were masked to the condition being videotaped and

assigned to one family to reduce the need to understand multiple challenging behaviors and strategies across multiple families. This strategy may have influenced observer drift, but I was more concerned with not overwhelming the research assistants who graciously offered to support my research without receiving financial benefits. IOA was conducted for both dependent variables using a point-to-point method tracking occurrence and nonoccurrence periods using partial interval recording (Ledford & Gast). The frequency of caregiver strategies was measured by recording the frequency of each strategy (if applicable) and comparing the cumulative frequencies of strategies implemented within each session. Since these sessions were video recorded, IOA data was recorded separately and non-concurrently. The IOA coders used the same data sheet presented in Appendices E and F.

Data Analysis

I graphed the caregiver's implementation of strategies, the frequency with which they used these strategies, and the child's challenging behavior. The caregiver implementation and challenging behavior data were analyzed using visual analysis and Percentage of Non-Overlapping Data (PND) (Ledford & Gast, 2018). Visual analysis between and within conditions relies on the independent variable being the only difference to evaluate effectively. The dependent variables were evaluated by the change in level, a shift in trend, or dramatic variability between two adjacent conditions or within conditions (Ledford & Gast, 2014). This analysis was conducted on the child's challenging behavior and the percentage of caregiver-implemented strategies. As videos were turned in, coded, and graphed, I determined if there was a functional relationship between my utilization of the independent variable (the CFT) and the dependent variables (challenging behavior and caregiver implementation of strategies). When analyzing the data, I looked for (1) changes in variability, level, and trend within and across each

condition and participant, (2) consistency of data and presence of overlap across conditions and participants, (3) projected patterns of data, and (4) variabilities within the data (Ledford & Gast, 2018). Utilizing these data analysis methods helped me confirm internal validity and a functional relationship between the independent and dependent variables.

PND was also calculated to make precise determinations about the percentage of data that does not overlap between conditions (Ledford & Gast, 2018). This was calculated by determining the range of data points in the first condition, counting the number of data points in the second condition, determining how many of those fall outside of the range in the first condition, and dividing that number by the number of data points in the second condition and multiplying by 100 (Ledford & Gast, 2014).

Social Validity

The nature of this study is focused on using contextual fit to achieve socially valid outcomes. However, I still collected social validity data of the prescriptive and contextualized BSPs at the conclusion of the baseline and intervention phases. I used portions of the Usage Rating Profile - Intervention Revised (URP-IR) to ascertain the caregiver's perspectives of the implemented intervention (See Appendix D). The URP-IR is a validated and reliable scale that measures six subscales: Acceptability, Understanding, Feasibility, Family–School Collaboration, System Climate, and System Support (Briesch et al., 2013). Questions related to Family-School Collaboration and System Climate were withheld, along with two questions concerning acceptability and feasibility pertaining to school systems. This measure assessed caregiver perceptions of three subscales: Acceptability, Understanding, and Feasibility of the intervention. The URP-IR uses a Likert scale format to assess these subscales, using a scale of 1 (Strongly Disagree) to 6 (Strongly Agree).

Procedural Fidelity

Procedural fidelity was collected for my implementation of the CFT. To determine procedural fidelity for implementation of the CFT, I created a CFT Procedural Fidelity Checklist (See Appendix G). An independent research assistant conducted procedural fidelity coding using audio-recorded sessions in which I implemented the CFT with the families. These audio-recordings were reviewed after the session took place. This data was collected in 100% of sessions. A procedural fidelity score was calculated by totaling the number of completed items, dividing them by the total number of items on the checklist, and multiplying them by 100. This yielded a percentage of checklist items I completed while implementing the CFT.

Chapter 4: Results

This study aimed to determine the effectiveness of using a CFT in increasing caregiver implementation of behavioral intervention strategies and decreasing child-challenging behavior during a typical, at-home routine. The study focused on utilizing the CFT to contextualize an intervention to better meet families' needs, values, and desires after initially receiving a prescriptive intervention during the baseline phase. The study focused on three research questions: 1) To what extent does the use of a CFT increase caregiver implementation of behavioral strategies compared to a prescriptive intervention? 2) To what extent does a CFT increase parent fidelity of implementation to decrease the challenging behavior of a child in comparison to a prescriptive intervention? 3) To what extent does using a CFT increase caregiver-reported contextual fit ratings between a prescriptive and contextualized intervention? I used a SCRD, specifically a nonconcurrent multiple baseline design to investigate these questions.

Percentage of Caregiver Strategies Implemented

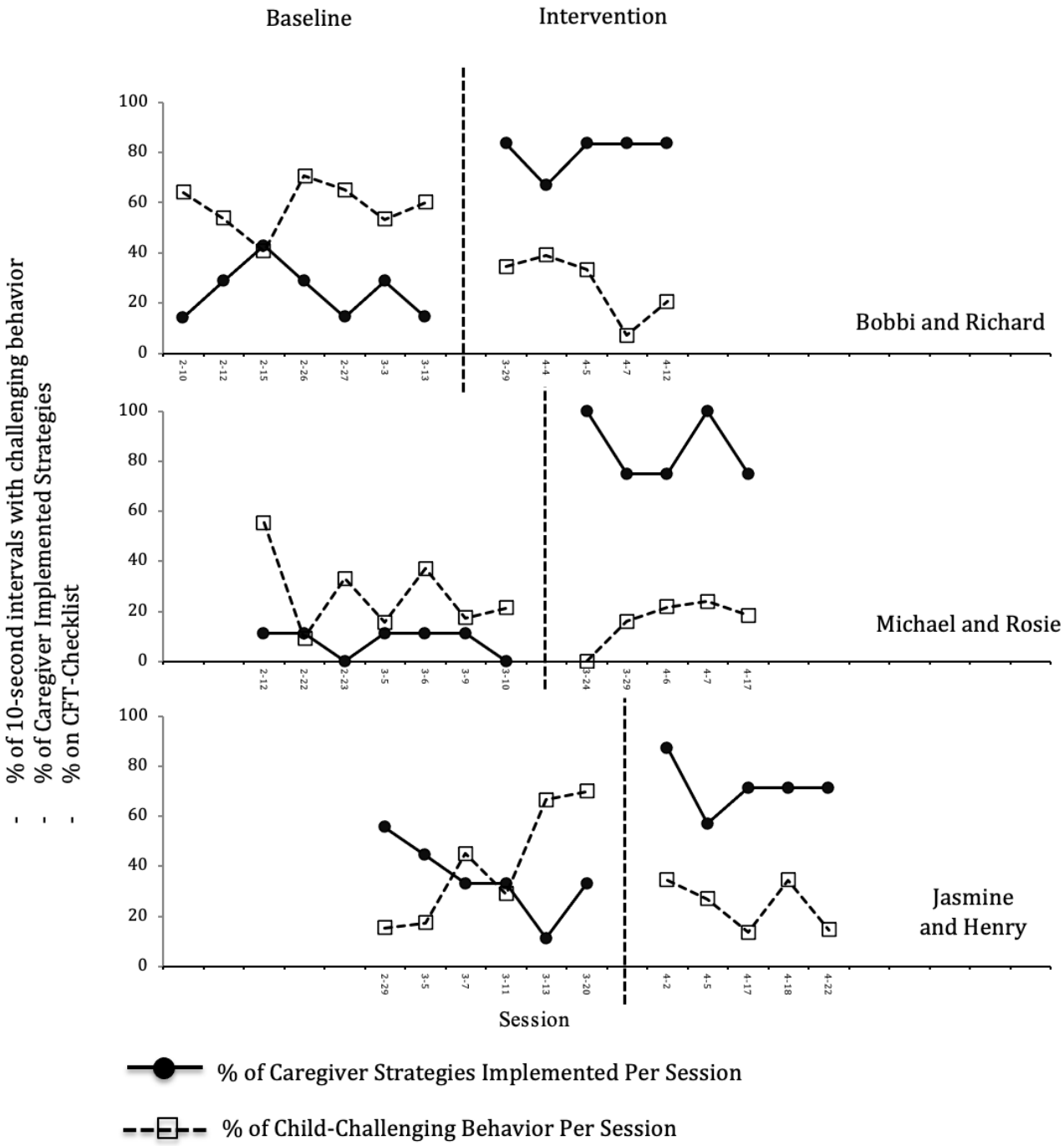
For each observation session, the percentage of strategies implemented by caregivers was divided by the number of strategies suggested to be used in the BSP was calculated. The following is a breakdown of each participant's implementation percentage. See Figure 2 for a visual representation of this data.

Bobbi (and Richard)

Throughout the baseline condition, there was significant variability in the percentage of strategies Bobbi implemented during their dressing routine. Bobbi, on average, implemented 24.2% of the strategies across seven sessions (range = 14.3 – 42.9%) in the baseline condition. Initially, Bobbi demonstrated an increasing percentage of implementation during the first three

Figure 2.

Percentage of Caregiver Strategies Implemented and Child-Challenging Behavior



sessions. During the third baseline session, she implemented 42.9% of the strategies. However, the percentage of implemented strategies decreased across the last three baseline sessions. This downward trend after an initial upward trend demonstrated a reduced usage of prescriptive behavioral intervention strategies.

During the intervention phase, Bobbi's percentage of strategies used increased and remained steady throughout the intervention condition. On average, she implemented 80% of strategies across the five sessions in the intervention phase (range = 66.7 – 83.3%). The trend remained flat during this condition, with Bobbi implementing five out of six strategies in four of the five intervention sessions with no variability. Moreover, the level remained high compared to the baseline condition.

The range percentage of Bobbi's implementation was between 14.3 and 42.9% in the baseline phase of the study. During the intervention phase, all five data points were outside the range exhibited within the baseline condition (range = 66.7 – 83.3%), resulting in 100% PND for Bobbi.

Michael (and Rosie)

Across the baseline phase, Michael demonstrated low implementation of the prescriptive caregiver strategies. On average, he completed 7.9% of the strategies (range = 0 – 11.1%) during this phase and never used more than one strategy during any of the seven baseline sessions, resulting in a stable, low trend.

During the intervention phase, Michael implemented strategies at a significantly higher percentage compared to the baseline condition. Michael was given four strategies to use during the intervention phase and routinely implemented three of the four strategies. On average, he implemented 85% of the strategies (range = 75 – 100%). In sessions one and four, he

implemented all four strategies. During this condition, Michael's implementation percentage was stable and showed slight variability, but maintained a higher level of implementation compared to the baseline phase. There was no discernible trend during this condition.

Michael's implementation of 0 – 11.1% strategies in the baseline condition and 75 – 100% of the strategies in the intervention condition yielded a PND percentage of 100%.

Jasmine (and Henry)

Across the baseline condition, there was significant variability in the percentage of strategies implemented by Jasmine during their pre-mealtime routine. On average, Jasmine implemented 35.2% (range = 11.1 – 55.6%) of the behavioral strategies from the prescriptive BSP across six sessions. During the first three sessions, Jasmine demonstrated a decreasing trend of implementation. The final three data points demonstrated a slightly variable, low trend.

During the intervention phase, Jasmine implemented a higher percentage of the strategies compared to the baseline condition. On average, she implemented 71.8% of the strategies from the contextualized BSP (range = 57.1 – 87.5%). In the first intervention session, Jasmine showed an increased percentage of implementation. However, this percentage decreased in the next session, showing a decreasing trend on the graph. Nevertheless, across the final three intervention sessions, Jasmine's percentage of implementation showed an initial increasing trend, followed by a stable, level trend with a higher percentage of implementation compared to baseline.

In the baseline phase, Jasmine's percentage of strategy implementation ranged from 11.1 – 55.6%. Within the intervention phase, all five data points were outside the range exhibited within the baseline condition (range = 57.1 – 87.5%), yielding a PND percentage of 100%.

Frequency of Caregiver Strategies Implemented

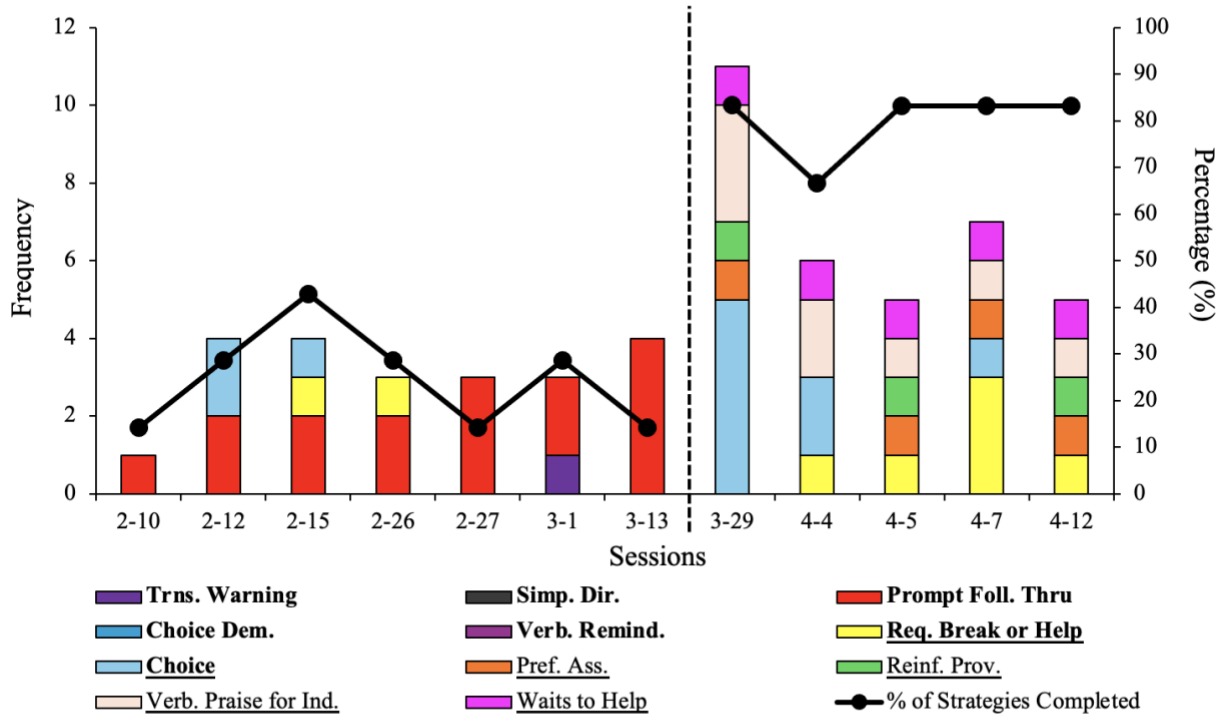
The frequency of strategies implemented was also measured. This construct was measured by how many times strategies were observed throughout a given routine. Some strategies were only observed once, such as *presenting a visual schedule.* However, others, such as *providing choices*, could be observed multiple times throughout the session, and the total frequency of all the strategies was recorded.

Bobbi (and Richard)

On average, Bobbi used the prescriptive strategies during the baseline condition 3.1 times per session (range = 1 – 4 instances). However, Bobbi typically only utilized the strategy of *delivering a prompt* for Richard to follow through with getting dressed. Of the 22 times in which she used a behavioral intervention strategy in the baseline phase, she utilized the *prompting strategy* 16 times, meaning 72.7% of the strategies she used were the prompting strategy.

In the intervention phase, Bobbi's frequency of strategy use increased to an average of 6.8 times per session (range = 5 – 11 instances). Moreover, the diversity of the strategies Bobbi utilized increased, as she used five different strategies in every session except for one. Bobbi's frequency of using these interventions demonstrated variability, particularly concerning *providing choices* and *verbal praise*. Bobbi most frequently utilized antecedent and consequence strategies, such as *preference assessment* and *verbal praise*, but also employed teaching replacement behaviors, such as having Richard *ask for help.* See Figure 3 for a visual representation of Bobbi's frequency and percentage of implemented behavioral strategies.

Figure 3.
Bobbi's Frequency Implementing Caregiver Strategies



Note. **Bolded items** are strategies that were **only** a part of the prescriptive BSP. Underlined items are strategies that were only a part of the contextualized BSP. **Bolded and underlined** items are strategies that were a part of the **prescriptive and contextualized BSPs.**

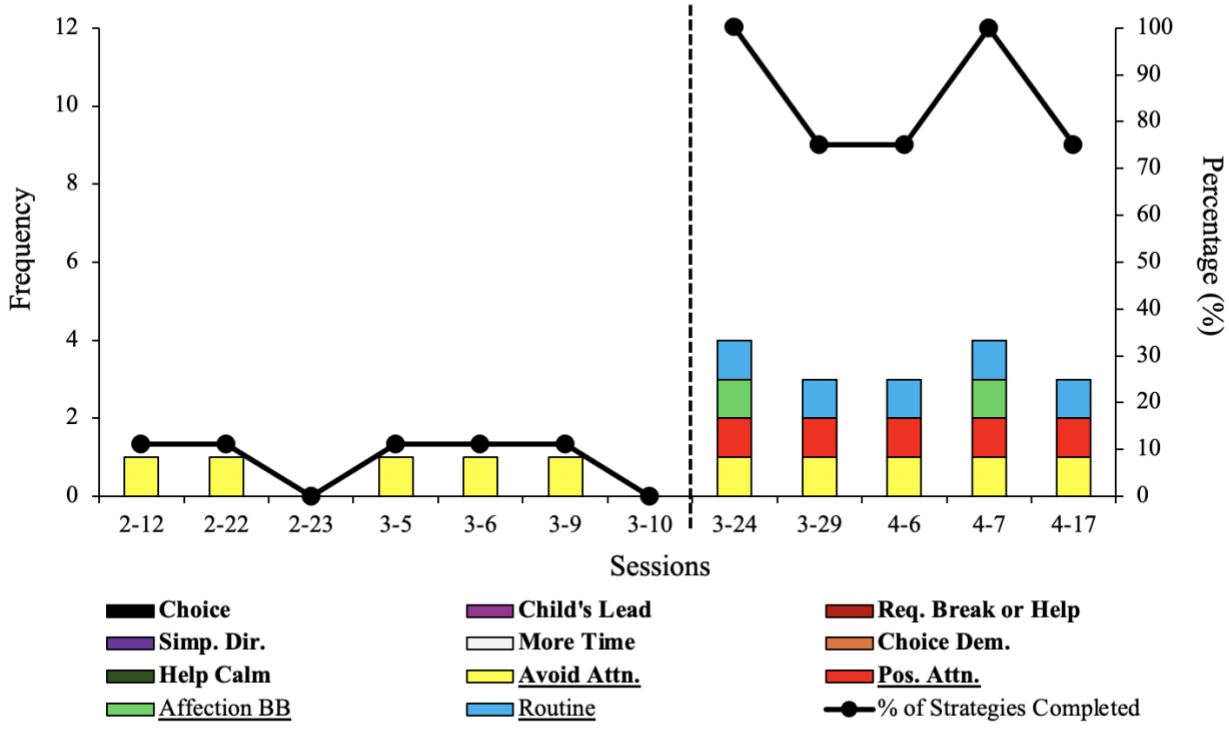
Michael (and Rosie)

During the baseline condition, Michael rarely utilized any of the given strategies and only averaged utilization of the strategies .7 times per session (range = 0 – 1 times). Of the nine strategies that were given to Michael, he only utilized the strategy pertaining to *limiting the attention* he gave to the challenging behavior. He did not use any of the other strategies during baseline.

In the intervention condition, Michael increased the average frequency with which he implemented behavioral strategies (range = 3 – 4 times per session). On average, Michael implemented strategies with a frequency of 3.4 times per session during the intervention. Given Michael's routine, Michael's strategies could only be implemented once per session, thus

lowering the frequency totals compared to the other participants. However, the diversity of strategies Michael utilized improved, as he consistently used three or four different strategies during each intervention session. Most commonly, he *followed a set routine* and *provided attention before bedtime*, in an effort to satiate the singing behavior. See Figure 4 for a visual representation of Michael's frequency and percentage of implemented behavioral strategies.

Figure 4.
Michael's Frequency Implementing Caregiver Strategies



Note. **Bolded items** are strategies that were **only** a part of the prescriptive BSP. Underlined items are strategies that were only a part of the contextualized BSP. Items that are **bolded and underlined** are strategies that were a part of the **prescriptive and contextualized BSPs.**

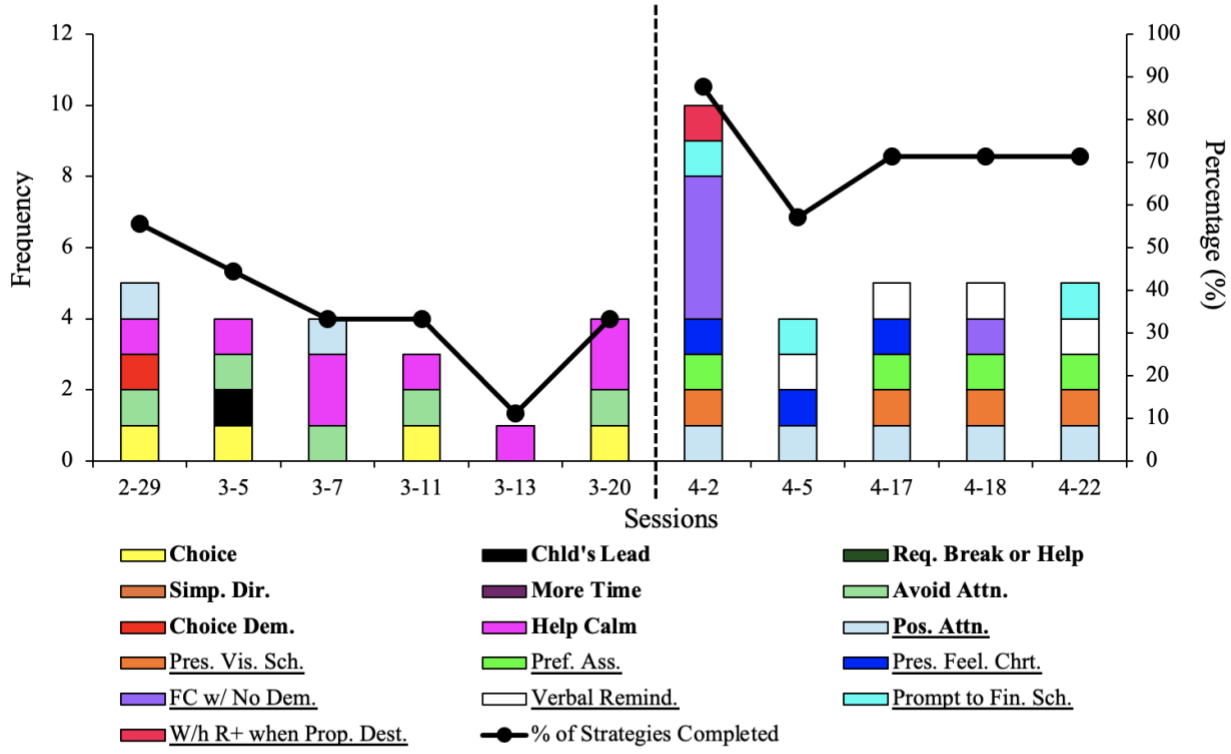
Jasmine (and Henry)

Jasmine implemented strategies during the baseline condition on average 3.5 times per session (range = 1 – 5 instances). Jasmine utilized a variety of strategies, but the most used were

avoiding attention, *providing choices*, and *supporting Henry once he had de-escalated*. However, she did not utilize any *teaching replacement behavior* strategies.

On average, Jasmine used the strategies 5.8 times during the intervention condition (range = 5-10 strategy use). During the first intervention session, Jasmine implemented the strategies 10 times. However, the frequency of strategy use was reduced to 5 across the last three intervention sessions. Jasmine was implementing a range of strategies, evidenced by her completing a large percentage of the strategies, but over the last four intervention sessions, she typically implemented each of these strategies only once during each session. See Figure 5 for a visual representation of Bobbi's frequency and percentage of implemented behavioral strategies.

Figure 5.
Jasmine's Frequency Implementing Caregiver Strategies



Note. **Bolded items** are strategies that were **only** a part of the prescriptive BSP. Underlined items are strategies that were only a part of the contextualized BSP. Items that are **bolded and underlined** are strategies that were a part of the **prescriptive and contextualized BSPs.**

Child Challenging Behavior

Child-challenging behavior was the secondary dependent variable for this study. The data within this construct was the percentage of challenging behaviors occurring within the routine using a partial interval recording system. This data is visually represented in Figure 2 above.

Richard (and Bobbi)

The baseline phase of this intervention showed considerably high levels of challenging behavior with moderate variability. On average, Richard refused to dress in 60.8% intervals across the seven baseline sessions (range = 40.7 - 78.1%). During the first three sessions, Richard had a decreasing trend of challenging behavior. Nevertheless, during the last four sessions of the baseline phase, Richard's refusal percentages increased, with the last session having the highest percentage of refusal throughout this condition. Overall, Richard's challenging behavior was variable throughout the condition.

During the intervention phase, Richard's challenging behavior markedly decreased from the baseline condition. Richard's refusal averaged 26.9% across the five sessions (range = 7 - 39%). The first three sessions of the intervention condition demonstrated stable responding with little variability and a moderate level. However, the final two sessions showed a decreasing trend, low levels, and moderate variability.

The PND for Richard was calculated, with the range percentage of challenging behavior falling between 40.7 and 78.1% during the baseline condition. During the intervention phase, all five data points were below the range exhibited in baseline, yielding a PND of 100%.

Rosie (and Michael)

Across the seven baseline sessions, Rosie's challenging singing behavior occurred on average in 27.1% of 10-second intervals during their sleep routine (range = 9.3 – 55.6%). Rosie

initially demonstrated a decreasing trend across the first two baseline sessions. However, she exhibited variable percentages of challenging behavior across the remaining five sessions. These variable levels, from low to moderate, established a consistent trend for the behavior across the last five sessions in baseline.

During the intervention phase, Rosie's challenging behavior decreased compared to the baseline condition to an average of 16.0% of intervals (range = 0 – 24%). However, across the first four sessions, Rosie's percentage of challenging behavior demonstrated an increasing trend, though this increase was still indicative of low levels. In her last session, the challenging behavior decreased to 18.4%.

The range percentage during the baseline phase was between 9.3 and 55.6% of intervals. Across the intervention condition, only one session was outside of this range. These data produced a PND of 20%.

Henry (and Jasmine)

Data within the baseline condition of this study demonstrated an overall increasing trend of Henry's challenging behavior. On average, Henry engaged in challenging behavior in 40.7% of sessions during the pre-mealtime routine across six sessions (range = 15.4 – 70%). During the first two sessions, Henry demonstrated relatively low levels of challenging behavior (15.4 and 17.4%, respectively), but an increasing trend emerged in sessions three through six. Baseline session data was initially variable with low levels of challenging behavior. However, this was followed by increasingly higher levels across the condition, resulting in an overall increasing trend.

Across the five intervention data points, Henry's challenging behavior decreased to an average of 24.8% of sessions compared to baseline (range = 13.7 – 34.5%). In the first three

sessions, Henry's challenging behavior exhibited a decreasing trend. However, in the fourth and fifth sessions, his challenging behavior became variable, with an increase and decrease. Across the condition, Henry's challenging behavior data demonstrated a variable trend but with overall low to moderate levels of challenging behavior.

The range percentage of Henry's challenging behavior was between 15.4 and 70.0% in the baseline phase of the study. Only two of the data points were outside the range exhibited within the baseline condition during intervention (range = 13.7 – 34.5%), resulting in a 40% PND for Henry's challenging behaviors.

Contextual Fit Tool Checklist

As a part of the Contextual Fit Tool, the CFT checklist was completed at the end of each condition of the study. See Figure 6 for a breakdown of each participant's responses between conditions.

Bobbi (and Richard)

For baseline phase, Bobbi scored a "yes" response on the CFT checklist in 15 out of 18 responses. This produced a CFT checklist score of 83.3%. She only answered "no" to one question. She answered "unsure" for the two remaining questions. For the intervention phase, Bobbi recorded "yes" to all eighteen questions, yielding a CFT checklist score of 100%. Thus, Bobbi changed her answers to "yes" from "no" and "unsure" from the baseline to intervention condition in relation to three questions.

Michael (and Rosie)

For baseline phase, Michael recorded a "no" in nine instances, and an "unsure" in the other nine instances. He did not respond "yes" to any of the eighteen questions. Upon completing the intervention phase, Michael recorded "yes" for thirteen questions, and "unsure"

for the remaining five. These responses demonstrated a strong shift between his responses in the baseline condition versus the intervention condition.

Jasmine (and Henry)

At the end of the baseline phase, Jasmine answered "yes" to 10 of the 18 questions, yielding a CFT checklist score of 55.6%. She answered "no" to only one question. However, she replied "unsure" to seven of the eighteen questions. After completing the intervention phase, she recorded a "yes" for 13 of the eighteen questions, generating a CFT checklist score of 72.2%. She recorded only one no response during this iteration and responded "unsure" to the remaining four questions.

Jasmine's answers remained unchanged from one condition to the next for eleven responses, nine being "yes" and the remaining being "unsure" responses. For the remaining seven questions she changed her responses across the conditions. Five of these questions were noted as improvements, moving from a "no" or "unsure" response to an "unsure, or "yes" response, respectively.

Figure 6.

Caregiver Responses to CFT CHECKLIST Across Conditions

		Jasmine		Bobbi		Michael	
Constructs	Yes/No Statements	BL	INT	BL	INT	BL	INT
Family Ecology and Culture (FEC)							
Values	Is the intervention aligned with what you feel is important?	Yes	Yes	Yes	Yes	Unsure	Yes
Goals	Is the intervention aligned with your family's stated goals for this routine?	Yes	Yes	Yes	Yes	Unsure	Yes
Accommodations	Has the behavior analyst built the intervention upon strategies I am already doing?	Yes	Yes	Yes	Yes	Unsure	Yes
Stressors/Demands	Has the behavior analyst accounted for stressors/demands that are directly or indirectly impacting our routine?	Unsure	Yes	No	Yes	Unsure	Unsure
Knowledge	Do I fully understand the intervention and everything that I should be doing during the routine?	Unsure	Yes	Yes	Yes	Unsure	Yes
Families Skills, Strengths, and Abilities (FSSA)							
Family Strengths	Has the behavior analyst incorporated my strengths into this intervention plan?	Unsure	Unsure	Yes	Yes	No	Yes
Child Strengths	Has the behavior analyst incorporated my child's strengths into this intervention plan?	No	Unsure	Yes	Yes	No	Yes

Learning History	Has the behavior analyst incorporated what we have, and have not, already tried into this new intervention plan?	Yes	Yes	Unsure	Yes	No	Yes
Resources							
Time	Has the behavior analyst considered my family's time when creating this intervention plan?	Unsure	Yes	Yes	Yes	No	Unsure
Effort	Has the behavior analyst incorporated aspects to reduce the physical, mental or emotional toll of implementing this intervention plan?	Unsure	Unsure	Yes	Yes	No	Unsure
	Has the behavior analyst incorporated aspects to reduce the physical, mental or emotional toll for my child with this intervention plan?	Yes	Yes	Yes	Yes	No	Yes
Money	Has the behavior analyst considered the cost of this intervention and its impact on my family?	Yes	Yes	Yes	Yes	No	Yes
Efficiency & Effectiveness (E&E)							
Efficiency	Is the implementation of this intervention plan easy for me to do and within my normal routine?	Yes	Yes	Yes	Yes	Unsure	Yes

Effectiveness	Has the behavior analyst removed parts of the intervention that I found objectionable or unreasonable?	Unsure	Yes	Unsure	Yes	Unsure	Unsure
	Is the intervention plan effective for me and my family?	Yes	Unsure	Yes	Yes	No	Yes
	Has this intervention plan improved my family's quality of life?	Unsure	No	Yes	Yes	Unsure	Unsure
Organizational Support (OS)							
Values	Do I perceive that the organizations values (University of Washington's) align with my own?	Yes	Yes	Yes	Yes	Unsure	Yes
	Has the behavior analyst been transparent in their communication about their agency and its values?	Yes	Yes	Yes	Yes	No	Yes
	Number of Yes Responses	10	13	15	18	0	13
	Number of No Responses	1	1	1	0	9	0
	Number of Unsure Responses	7	4	2	0	9	5
	% of "Yes" Responses	55.6	72.2	83.3	100	0	72.2

Interobserver Agreement (IOA)

Interobserver agreement was calculated for both caregiver implementation fidelity, frequency of implementation, and child challenging behavior. Mean IOA for caregiver implementation was 90.6% (range = 71.4 – 100%). Additionally, the mean IOA for frequency of strategies completed across conditions was 90.4 (range = 60 – 100%). The mean IOA for child challenging behavior was calculated as 91.0% (range = 86.3 – 96.6%). See Table 4 for a participant breakdown of IOA calculations for caregiver implementation, frequency of implementation and child challenging behavior across baseline and intervention conditions.

Procedural Fidelity

Procedural fidelity was calculated for 100% of the Contextual Fit Tool implementation. A independent research assistant reviewed the audio-recorded interviews after the study to determine procedural fidelity of the CFT. When conducting the CFT with Bobbi, it was determined that I completed 46 out of the 48 applicable steps, each time failing to review an answer that Bobbi had provided, yielding a procedural fidelity score of 95.8%. For Michael, I completed 48 out of the 49 applicable steps needed for his CFT, producing a procedural fidelity score of 97.9%. During Jasmine's interview, I completed 97.9% (48/49 steps) when conducting the CFT. Each question that was not reviewed was a time or quantity response. For instance, Michael noted that the routine he chose did not cost him any money and I did not member check his response. In sum, the procedural fidelity across all participants was 97.2%.

Social Validity

Surveys

All three families positively rated the interventions they received, in both conditions. An adapted version of the Usage Rating Profile (URP) was used to determine social validity scores,

Table 4.

Mean Occurrence of IOA Across All Dependent Variables (%)

Child and Caregivers	Caregiver Percentage of Implementation		Caregiver Frequency of Implementation		Child-Challenging Behavior	
	BL	INT	BL	INT	BL	INT
Bobbi and Richard	92.9	83.3	80	88.2	91.3	93.5
Michael and Rosie	94.4	100	94.5	100	90.7	91.9
Jasmine and Henry	88.9	80	100	86.7	92.8	87.8
Total IOA	89.4		90.6		91.1	

with a score of 6 being the highest possible score and 1 being the lowest. Four questions were inverted to create a cohesive scoring system. During the baseline condition, the families scored the social validity of the intervention as a 4.65, whereas during the intervention condition they scored the social validity as a 4.76.

Bobbi's social validity score was the highest of the three participants after baseline, averaging 5.33 across all eighteen questions. After the intervention condition, she rated the social validity as 5.67 according to the adapted URP, demonstrating a small increase from the baseline phase. After baseline, Michael scored social validity as a 3.94. After intervention, he scored social validity as a 4.11. Thus, he scored social validity of the intervention conditions as slightly higher than the baseline condition. Jasmine's social validity score on the adapted URP in the

baseline condition was 4.67. However, after the intervention condition, she rated the social validity as lower than the baseline phase, as an average score of 4.5.

Exit Interviews

Following the conclusion of the study, I interviewed each family to gain a better understanding of how they perceived the intervention, goals, and outcomes of the study. These interviews were conducted in the families' homes and after each family had completed the URP social validity survey. Examples of the questions I asked were: Are you overall satisfied with the intervention? What aspects of the outcomes are you specifically satisfied with? What aspects of the outcomes are you specifically not satisfied with? What aspects of the intervention did you find helpful? Tell me about your comfortability implementing the strategies.

Jasmine indicated that, overall, she was not satisfied with the outcomes of the contextualized intervention, but that it was "just the first try." She noted that the challenging behaviors with Henry were still occurring, including property destruction and yelling/crying, but "the unsafe (behaviors) are better because (Henry) is realizing I can't go out with him to ride his bike or pet dogs because I'm making dinner." Moreover, Jasmine stated that she felt the second intervention was much more "simple," in that she felt she knew what to do, and how to do it with more clarity than she had during the first phase of the study.

In Bobbi's interview, she noted that Richard had independently dressed himself that morning for the first time. She stated: "(This morning) he was able to dress himself, so I was telling him how…impressed I was that he was able to dress himself." Moreover, she described how she has several strengths, including seeking information and resources to support her children, and noted that I was "the piece that was missing on the castle." She affirmed that this meant she had many of the pieces already to build the castle, but was in need of one more to

really make sense of how to support Richard with, not just this routine, but other routines as well. Lastly, she described the differences between the first "collaboration" for the baseline intervention versus the collaboration when co-creating the second intervention: "The second time, I feel like I was involved. The first time I was…waiting to see how I can implement." She noted that she had initially felt involved in the first intervention building, but "when you considered my job…as really valuable (the second intervention), that was powerful to me," indicating that she was unaware what a truly collaborative building of intervention felt like until she experienced it after completing CFT and co-creating the second BSP.

In Michael's exit interview, he noted that he was "very grateful for the supporting (sic) because she has a lot of energy" and felt that the contextualized intervention did a better job of trying to support him in dealing with Rosie's energy around bedtime. He also indicated that he understood the second intervention in a way that he did not understand the initial intervention.

Results Summary

A visual analysis demonstrates that there was a functional relationship between the independent variable (the CFT) and the primary dependent variable (percentage of caregiver implementation of strategies). Each caregiver had 100% PND which reinforces the visual analysis. For the secondary dependent variable, child-challenging behavior, there was a clear functional relationship in Jasmine's case, as Richard's challenging-behavior PND was also 100%, and a clear change was observed on the graph. However, there was not a clear functional relationship that was observable on the graph for Henry and Rosie. Each child's challenging behavior had a PND of 20 and 40%, and no clear, observable behavior change was evident.

Chapter 5: Discussion

The aim of this study was to determine the effect of a Contextual Fit Tool (CFT) on caregivers' implementation of behavioral strategies when dealing with challenging behaviors within a typical routine. Conversely, I aimed to understand how caregiver implementation would impact the child's challenging behavior within the routine. After prescribing an intervention in the baseline condition for the routine using the FBSApp, I utilized the CFT to collaborate with caregivers to better understand how relevant constructs impacted their routines and their implementation of behavioral strategies within their home. We then built upon themes extracted from the CFT interview to collaborate and co-create a BSP to address their child's challenging behavior in a hopefully socially valid, contextually fit manner. The study was intended to highlight the process by which a contextually fit intervention could be used.

The study's main findings suggested the following related to the proposed research questions: 1) caregivers implemented behavioral strategies at a higher percentage and more frequently with a contextualized BSP compared to a prescriptive BSP; 2) the children's challenging behaviors, overall, decreased when implementing the contextualized BSP; and 3) caregivers rated the contextualized BSP as having a greater contextual fit compared to the prescriptive BSP. This study was the first to create and utilize a contextual fit tool to increase caregiver implementation of behavioral strategies. This study's findings demonstrate how the CFT can be used by future practitioners to better understand the family contexts in which they work. Moreover, it can be utilized as a conduit to collaborate and co-create sustainable interventions that caregivers will be willing to implement in their home and community settings. This study extends the extant literature that explores how to assess and measure social validity within ABA practice by focusing on specific constructs relevant to home and family settings.

Additionally, this study highlights an intersection between collaboration and social validity and how these concepts can impact the contextual fit of an intervention.

CFT Impact on Caregiver Implementation of Behavioral Strategies

This study produced several discussion points regarding contextual fit and its effect on caregiver implementation of behavioral strategies. The results of this study aligned well with previous research centered on the utility of contextual fit in improving interventionist implementation. It addressed a clear gap highlighting the need for behavior analysts to investigate specific domains related to contextual fit and the family unit to provide relevant, contextually fit interventions. However, the results raised pertinent questions about why caregivers responded the way they did in each condition, how building upon existing strengths led to improved implementation, and why caregivers utilized some strategies but not others.

The CFT Addressing a Literature Gap

A key finding was that using the CFT increased the percentage and frequency of caregiver implementation of behavioral strategies. This finding aligns with other studies that intentionally included caregivers in the process of collaborating and co-creating BSPs for in-home interventions carried out by caregivers (e.g., Fettig & Ostrosky, 2015; Lucyshyn et al., 1997, 2007). Additionally, the findings of this study mirror other's results when highlighting how addressing the contextual fit of an intervention can impact interventionists (e.g., teachers or caregivers) ability or willingness to implement interventions in home and school settings (Benazzi et al., 2006; Moes & Frea, 2002; Monzalve & Horner, 2021). The study I conducted built upon these previous examples by highlighting comprehensive, specific constructs related to a home routine that could impact families; then seeking to learn from caregivers how those constructs relate to their ability to implement a behavioral intervention. Previous studies had

done similar work but in school settings (Benazzi et al., 2006; Horner et al., 2003; Monzalve & Horner, 2021). Still, no prior research had outlined contextual fit constructs and then studied how specifically addressing them would impact caregiver implementation of behavioral strategies. Thus, this study addressed a gap in the literature related to practitioners' ability to understand and address key constructs to shift interventionists' implementation practices, such as caregivers. Additionally, using the CFT and direct observation of the routine led to improved caregiver utilization of these behavioral strategies without needing extensive training or coaching with caregivers.

Previous research has not adequately integrated these construct variables into *how* and *why* they chose and implemented interventions related to sociocultural variables presented by the family (e.g., Moes & Frea, 2002). Other studies (Binnendyk & Lucyshyn, 2009; Cheremshynski et al., 2013; Lucyshyn et al., 2007; Neufeld & Lucyshyn, 2020) have provided some precise information about the child and caregivers, such as information about their anxiety disorders or financial concerns, but have not provided a more comprehensive mapping of the variables that could potentially impact each family's ability to implement strategies within a chosen routine.

In this study, I highlighted a comprehensive set of relevant variables, such as caregiver and immigration status, time constraints, and values within the home. I used these contextual clues within family ecologies to produce (seemingly) contextually fit interventions. Understanding how interventions can be implemented across demographics and be generalizable to the broader population is vital. However, it is equally essential for practitioners to carry these evidenced-based strategies in their toolkit and utilize them in specific contexts that warrant their use. Only by truly understanding the family context, which entails learning from and interacting with the family, can a practitioner pull the "correct" strategy into the relevant situation or

routine. Otherwise, the strategy may still be perceived as prescriptive by the family if it is not addressing a specific need, resource, or knowledge base that they need.

Factors Influencing Improved Caregiver Implementation Results

In this study, each caregiver demonstrated higher levels of implementation in the intervention condition compared to baseline, but they still did not implement all of the strategies we reviewed following the CFT interview. However, two factors seemed to have genuine utility for supporting caregivers with improved implementation: facilitating communication through the CFT, which aided in building strategies based on caregiver strengths, and utilizing simple strategies.

Communication of Strengths Leading to Improved Implementation. Each caregiver was able to implement strategies in the intervention phase that they had demonstrated completing in the baseline phase. Building intervention strategies based on caregivers' strengths makes them more likely to implement the practices in the BSP (Epley et al., 2010; Fettig et al., 2015). However, identifying these strengths can be difficult for behavior analysts when communication is unclear (Brown et al., 2022). Utilizing the CFT interview provided a space for caregivers and me to engage in discussion about their strengths, which ultimately led to us being able to create a contextualized BSP that was centered around those strengths.

Bobbi attempted just a few of the strategies during the baseline phase but frequently used one strategy she was already attempting before beginning this study. Bobbi was utilizing a *follow-through strategy* for escape extinction, which was suggested as a prescriptive strategy, but this was also likely reinforcing Richard's refusal. By coincidence, a strength of Bobbi's was embedded within the prescriptive BSP but was also fundamentally not helping to improve their dressing routine. During the CFT interview, she clearly articulated things she did well, such as

providing positive attention. Clear and unabridged communication can lead to identifying the strengths of individuals (Brown et al., 2022). Since Bobbi was clear about what she did well, this helped to identify her areas of strength and allowed me to suggest strategies that worked well for her. This likely led to Bobbi implementing a more diverse repertoire of strategies during the intervention phase, especially *providing verbal praise, requesting help,* and *providing choices.* Bobbi's clear communication during the CFT interview, along with casual observation during baseline, facilitated a space in which we could co-create a BSP centered on her strengths, leading to improved implementation frequency and percentage during the intervention condition.

Michael was transparent and communicative that he found the prescriptive intervention "incompatible" with their routine, demonstrating a clear form of social invalidity (Pritchett et al., 2022; Schwartz & Baer, 1991). Michael seemed only willing to try strategies that made sense to him. For instance, when I initially described placing Rosie's singing on extinction by not giving her attention after she began singing, Michael responded that he felt this would be helpful for him. He did not respond similarly when I described the other prescriptive strategies. Michael's clear communication about what would work and not work was a gateway to create a contextualized intervention that he would utilize in the intervention phase. By building this extinction strategy into the intervention phase, after Michael had demonstrated using the strategy consistently, we built upon an existing strength (Epley et al., 2010) that led to greater adherence to the plan (Moore & Symons, 2011).

Facilitating communication during the CFT process proved to be more difficult with Jasmine. During the CFT interview, she paused when asked about her strengths and had trouble identifying any. When I praised her ability to provide Henry with *positive attention*, along with *helping him when he was calm*, she agreed that this was an area in which she had strengths.

During the baseline phase, she often provided attention to Henry after challenging behavior and after he had calmed down, and she was able to shift this strength to providing him attention after an expected or "positive" behavior during the intervention phase. Moreover, she performed this strategy far more frequently during the intervention phase than during baseline. In this case, I needed to facilitate this communication by prompting Jasmine regarding her strengths after asking her, and we ultimately built a strategy in the intervention phase on this strength. However, Jasmine's lack of confidence in her abilities may have influenced her implementation percentages, despite this strength being identified and utilized in the BSP.

Ease and Number of Strategies. A factor that has merit in interventionist implementation is the complexity of the intervention strategies being utilized (Carroll et al., 2007). An intervention with fewer response barriers and "simpler" to implement is more likely to be implemented by caregivers in the home setting (Sone et al., 2021). The simplicity of strategies utilized in the contextualized BSP was likely a factor in caregivers implementing more strategies in the intervention phase of the study.

Michael initially had nine strategies offered to him during the prescriptive phase, only one of which he used with any regularity (*avoiding attention)*. Many of the prescriptive strategies required understanding when/if to interrupt Rosie's singing, how to prompt a replacement behavior effectively, and when and how to provide her various choices. However, in the contextualized BSP, Michael's plan was greatly simplified to 1) providing Rosie with affection/attention before the lights went out, 2) clearly distinguishing that it was time for bed with a verbal direction, and 3) following a set routine. Additionally, he would continue placing the singing behavior on extinction. These strategies required very little interventionist expertise and were all items he could perform, which translated to him performing them with a greater

percentage in the intervention condition. Michael also had the fewest strategies in the intervention phase, which may highlight the importance of a “less is more” approach when creating contextually fit plans that behavior analysts hope caregivers will implement.

In both Jasmine and Bobbi’s cases, the strategies in the contextualized BSP involved relatively simple strategies, such as *presenting a schedule* or *providing verbal praise for independent attempts.* While the contextualized strategies were better aligned with their routine and goals in each situation, the strategies were less complex than in the baseline phase. For instance, Jasmine stated that she felt more comfortable with the contextualized intervention and thought it was “simple,” whereas the prescribed intervention had been “chaotic” in the baseline condition. Simplifying the strategies helped increase each caregiver's desire to implement "simple" strategies instead of complex ones.

Factors Influencing Reduced Caregiver Implementation Results

Some factors negatively affected caregivers’ implementation in different ways. Jasmine and Michael’s implementation was likely affected by a lack of training/coaching, but for differing reasons. Conversely, Michael and Bobbi likely benefitted from dealing with less intense challenging behaviors, whereas Jasmine dealt with intense and prolonged challenging behaviors.

Training Being Insufficient. Caregivers in this study increased their implementation of behavioral strategies after engaging with the CFT. All three caregivers implemented more strategies during intervention but were inconsistent with how or when they implemented them. These results are consistent with other studies in which training was provided following the co-creation of a BSP (e.g., Cheremshynski et al., 2013; Duda et al., 2008; Suess et al., 2014), where no caregivers implemented all the strategies within a given session. In many cases throughout

the literature, the caregiver percentage of implementation was not even evaluated (Lucyshyn et al., 2007; Moes & Frea, 2002). This begs the question of why caregivers did not utilize all the strategies throughout these sessions, even when a collaborative process was used to create the intervention.

For Jasmine, it is likely that even with clear communication and high acceptability and comfortability with the strategies, insufficient training resulted in limited confidence and competence in strategy implementation. In both conditions, Jasmine demonstrated a high frequency and percentage of implementation during the first session. Subsequently, in both conditions, her percentage and frequency dipped after an initially high usage. When the strategies did not reduce challenging behavior, she may have felt unsure about her implementation, e.g., if she was doing strategies at the correct time or with a proper tone, and her ability to implement the strategies successfully. These feelings correlate with her struggling to identify strengths that she had as a caregiver during the CFT interview.

Building in a coaching component with Jasmine would likely have helped build her confidence in implementing interventions, especially after she had experienced little reinforcement (with reduced challenging behaviors) for implementing strategies. Moreover, providing her examples of *when* and *how* to implement behavior strategies through coaching and continuing to build upon strategies she implemented consistently and were a strength, such as giving *positive attention,* could have produced an intervention that she felt was effective.

In Michael's case, despite the relative simplicity of the strategies, he routinely made a single error when implementing one of the contextualized strategies. Michael was to give a clear direction that it was "time for bed" and then turn out the lights soon after. This was designed to help Rosie differentiate that when the lights were on and no bedtime "demand" was given, they

could play, sing, and be affectionate with one another. In three of the five intervention sessions, Michael said, “Time for bed,” and then continued playing with Rosie, but otherwise implemented the routine and strategies well. Had there been a coaching component, even for one session, added to this study, Michael would likely have implemented all the strategies throughout the intervention condition.

In both of these cases, coaching sessions would likely have been more beneficial for the participants than training. Fettig and colleagues (2015) demonstrated the effects of coaching versus training with regard to caregiver fidelity. In the training condition, caregivers improved implementation, but often not to a great degree, as seen in this study. However, with coaching, caregivers were able to implement each strategy with 100% fidelity. Thus, it is possible that training in conjunction with the CFT is not enough to elicit a greater percentage and frequency of implementation, and a coaching component may have produced better overall adherence to the contextualized BSP.

Intensity of Challenging Behavior. Fawcett (1991b) identified that “dependent people” become a part of ABA research because of an inherent need they otherwise cannot find help for (p. 622). Pritchett and colleagues (2022) took this notion further, highlighting various vulnerabilities of potential research participants, including English as a second language, race, and privilege. Another factor that may have influenced implementation in this study was the degree and intensity of challenging behavior that individuals experience.

In both Michael and Bobbi’s cases, their children's challenging behavior was not very “intense.” Rosie’s singing interfered with her ability to sleep and made Michael worry about her health. Richard’s refusal to dress was occasionally conjoined by whining or throwing an object like a shoe but was overall mildly intense. However, in Jasmine’s case, she experienced what

most individuals would label as intense challenging behavior, which included destroying property like her microwave and other kitchen appliances. It also included Henry engaging in unsafe behavior, such as threatening to throw hard objects at Jasmine or his brothers. This apparent disparity in intensity likely played a role in Bobbi and Michael implementing strategies with a higher percentage, as the fallout of having to deal with the challenging behavior was less severe, i.e., the risk of implementation was less than the consequence of dealing with the challenging behavior.

Caregivers who live with a child with challenging behavior can experience much higher levels of stress (Woodman et al., 2015). It is also likely that caregivers who live with a child engaging in intense challenging behaviors experience even more stress. Jasmine had waited on ABA waitlists for the last four years for in-home support, but Henry had only received social skills training in a clinical setting during that time. Unfortunately, the clinic he attended closed shortly after the COVID-19 pandemic, and he attended only briefly. Thus, due to this long wait time, Jasmine seemed eager to implement strategies that she felt would help.

After attempting these strategies in the baseline condition, not seeing any serious change in challenging behavior, and not feeling like the strategies had much "fit" with their routine, Jasmine stopped using them regularly. For a parent, it likely made little sense to implement strategies that felt "chaotic" while Henry still engaged in intense challenging behavior. In the intervention condition, she utilized the strategies more frequently and with a higher percentage, signaling the intervention having a better "fit" and, in her words, because the strategies were "simple." Moreover, she did see evidence of progress, particularly with Henry understanding the contingency that she needed to be making dinner, could not accommodate his specific requests, and engaging in challenging behavior less frequently in these instances as a result. Thus, the

response cost of implementation was a factor, as she saw value in implementing simpler strategies with better fit, which led to what she perceived as less intense and challenging behaviors.

CFT's Impact on Child Challenging Behavior

The findings from this study indicate that when caregivers utilized behavioral strategies, it led to a decrease in child-challenging behavior. Consequently, after utilizing the CFT, caregivers increased their percentage and frequency of strategies, reducing child-challenging behavior in the intervention condition overall. This finding aligns well with previous studies in which providers utilizing strategies at a higher percentage lead to a decrease in child-challenging behavior (Duda et al., 2008; Fettig et al., 2015; Fettig & Ostrosky, 2011).

Particularly in the baseline condition, there was a clear correlation between challenging behavior increasing when caregivers reduced their percentage and frequency of strategies. Bobbi and Jasmine demonstrated a sharp decrease in usage in the baseline condition, which correlated with a sharp increase in child-challenging behaviors. During the intervention condition, this pattern continued, but with more strategies being implemented, the challenging behaviors decreased overall. This correlation pattern has been exhibited numerous times in research (e.g., Fettig et al., 2015; Gerow et al., 2021; Neufeld & Lucyshyn, 2020) and was replicated within this study. However, Michael's strategy implementation increase did not correlate with a profound shift in challenging behavior for Rosie. In Michael and Rosie's case, it is likely that the function of the behavior was not comprehensively identified; thus, Michael's shift in implementation of strategies may not have aligned with producing an effect on Rosie's challenging behavior. The misalignment of function to behavioral strategies is more thoroughly discussed in the limitations of the study.

Effects of the CFT on Contextual Fit Checklist Scores

Previous empirical research on improving the contextual fit of interventions has demonstrated improved implementation of behavioral strategies and increased acceptability, satisfaction, and enthusiasm for implementing the intervention (Benazzi et al., 2006; Moes & Frea, 2000, 2002). The results from the contextual fit checklists completed by the participants at the end of the study align with these findings. Each participant scored the contextual fit higher during intervention compared to baseline. However, some discrepancies were present, highlighting the importance of even informal qualitative interviews to accentuate the data presented in these surveys that measure either social validity or contextual fit.

Michael denoted on the CFT checklist that he felt the intervention had been effective in the intervention phase but was not effective in the baseline condition. However, an objective look at the data concerning Rosie's challenging behavior indicates just a slight decrease in the behavior from baseline to intervention. Still, Michael emphatically answered "Yes" to this question on the checklist, despite answering "Unsure" to five other questions during this survey. During our last meeting, I asked him if Rosie was singing less, and he replied that most nights the singing had reduced from 2-3 hours to "half hour-hour at most," also noting that days when she is "busy" are nights where she falls asleep easier. Thus, while the challenging behavior data that was collected across conditions did not show a significant effect, Michael's anecdotal report helped to contextualize his survey answer. The contextualization of these types of responses has been utilized in empirical research (Ogilvie & McCrudden, 2017) and has been consistently called for to validate survey responses with qualitative interviews (Leko, 2014). Even Wolf (1978) was skeptical of objective measurement of social validity and felt subjective measures, such as interviews, may be a better option.

Jasmine's response to the question about the effectiveness of the intervention on the CFT checklist also needed clarification. She responded that the contextualized intervention was not effective. During the exit interview, she stated that she felt that the screaming/crying and property destruction had not decreased. However, she acknowledged that Henry was beginning to understand the contingency that he could not leave the house while she was making dinner, and should find an alternative activity. Additionally, he was learning that there would be other opportunities to spend time with her, outside pre-mealtime, where they could leave the house, provided he did not engage in property destruction. Thus, Jasmine's interview helped to qualify her response on the CFT checklist. Her response is a valuable demonstration of social *invalidity,* but it does not tell the whole story of how she felt about the effectiveness of the intervention. This reinforces the notion of qualifying survey response answers to learn why respondents answer the way they do (Leko, 2014).

Surveys and checklists are commonly used because of their ease of implementation (Marchant et al., 2013). However, Finn & Sladeczek (2001) suggested that digging deeper beyond survey scales is necessary to understand precisely how consumers perceive the interventions goals, treatment and outcomes. In this study, asking qualifying questions to learn more about the participants' responses yielded significant information that contextualized them. The nature of the CFT checklist provides prompts for consumers to demonstrate dissatisfaction (a "no" response), to indicate they are not sure (an "unsure" response), or to say that they agree with the statement (a "yes" response). However, even in responses in which Jasmine reported "Yes," such as if I had made the plan easy to implement within their routine, that her responses were not exactly reflective of how she felt.

After I noted to her that there was an instance that I observed in which she did not present the schedule, she clarified that there were times when she would not present the schedule to Henry because he was "already escalated coming in the door, and I did not want to add to it (the escalation)." This clarification regarding the survey response would have been invaluable towards contextualizing the intervention even more to meet Jasmine and Henry's needs. Had this qualifying response not been received, and I solely relied on the quantitative survey responses, I would assume the plan was easy to implement when there were clearly times when it was not.

Jasmine reporting "Yes" on this survey scale item aligns with Skinner's (1953) notion that individuals can struggle with reporting private events accurately. However, I would argue that given the scales Jasmine was provided (yes, no and unsure), she reported accurately given the enormity of the statement. She seemed to overall find the strategies easy to implement, but there were *specific instances* when they were not. Observation of the routine prompted me to ask Jasmine to clarify her responses; the ensuing conversation also provided further clarity for Jasmine and myself, highlighting the utility of observation to serve as a concomitant with survey response (Baum, 2011).

Limitations

Throughout the study, some fundamental limitations were noted that impacted the study: 1) the assessment process of challenging behavior not being comprehensive, 2) wide ranges in IOA data, 3) caregivers' interpretation of strategies during limited training sessions, and 4) varying lengths of sessions impacting challenging behavior.

During the assessment process, I utilized the FBSApp to ascertain the function of the behavior. However, the FBSApp provides a very limited selection of possible automatically reinforcing selections when determining the function. For instance, of the twenty-four options in

the antecedent category, only two are clearly related to a sensory function. Additionally, the app requires selecting only two options of the twenty-four. Using my best clinical judgment during the assessment, I chose the options that seemed most aligned with producing the challenging behavior and potentially reinforcing it. This meant that Rosie's singing behavior was determined to have an escape/attention function. While I am confident these functions were correct, I think Rosie's singing behavior also had a sensory function. However, due to the limitations of the "prescribed" function of the FBSApp and not wanting to shift my assessment in the intervention phase, I did not provide strategies centered on treating her singing as if it had a sensory function in the intervention phase. Not accounting for a sensory function may have impacted Rosie's challenging behavior.

The assessment process for all participants was not a comprehensive, extensive process. For each participant, the assessment consisted of only one observation of the routine, due to time constraints of the study. Best practice typically has several sessions of observation of the routine. Thus, a better assessment may have produced strategies in both phases that better aligned with the true function of the challenging behavior.

Another limitation of the study was the wide range of IOA data, particularly with regard to the caregiver strategies. In one session with Jasmine, the IOA for percentage of implementation and frequency of strategies were 71.4% and 60%, respectively. During this session, the research assistant missed the lone instance of challenging behavior which resulted in a stark difference in occurrence IOA. Thus, I saw Jasmine provide Henry with verbal reminders when engaging in challenging behavior and providing him with reinforcement for his behavior when getting back on track. Since the research assistant did not observe any challenging behavior, she did not check off that these strategies were completed. This discrepancy also

explained the 60% for frequency, as she only observed three instances of strategies being used whereas I observed five. Across other videos we maintained a close to 90% agreement with regard to implementation, and 100% with regard to frequency.

This session's stark difference highlights a limitation of point-by-point IOA. During the aforementioned session, the IOA coder and myself had a point-by-point agreement of 86.3% for challenging behavior, which would be deemed acceptable by many researchers. However, we had very poor occurrence of challenging behavior IOA during this session. This poor IOA impacted the caregiver strategies IOA, since whether some strategies were used was contingent upon the challenging behavior occurring. As a result, the IOA of the challenging behavior is overestimated by using the point-by-point method, whereas the IOA of the caregiver strategies is likely underestimated by proxy. Some researchers advocate for conducting occurrence when the challenging behavior occurs in less than 75% of intervals and non-occurrence IOA when it occurs in more than 75% (Ledford & Gast, 2014). In the future, I would collect both occurrence and non-occurrence to generate a more accurate representation of IOA.

A third limitation of this study was caregivers' interpretation of the training, and this negatively affecting caregiver implementation of strategies with fidelity. With a limited training, there were instances when caregivers implemented strategies, but did so at incorrect times. For instance, Bobbi frequently would garner Richard's preference of watching TV while he was dressing, asking him if he would prefer to dress with the TV on or off. Obviously, Richard preferred the TV on, but the question was sometimes posed after he had started dressing and seemed like more of a reminder that she would turn it off than a true preference assessment. With better training or coaching, these types of errors with implementation could have been avoided and caregivers could implement with much improved fidelity. Thus, future behavior

analysts should use a coaching component, instead of a limited training, to provide clear directions in the moment for caregivers about how to use strategies within their routine appropriately.

Lastly, the routines that each caregiver chose also posed a potential limitation of this study, as these routines had great variance in duration between and across participants. Past research has demonstrated that routines with clear beginnings and ends may still be considered similar because the nature of a routine or activity is inherent in their lives, and timing these routines may undercut the intervention of the routine itself (Binnendyk & Lucyshyn, 2009; Cheremshynski et al., 2013; Lucyshyn et al., 2007). For instance, Jasmine's pre-mealtime routine sometimes lasted four minutes, with her getting cheese, fruit, and a vegetable together for Henry to eat. Other times, the routine was nearly twenty minutes when she made tacos for the whole family. Additionally, Bobbi's dressing routine with Richard varied between 4 minutes, 30 seconds to just under 11 minutes, depending on the length of Richard's refusal and if Bobbi was prompting him throughout the routine (typically because she was in a hurry to get the kids on their bus for school).

Michael's chosen bedtime routine usually involved Rosie beginning to sing after the lights had been turned off. He reported this would last two to three hours fairly consistently. Thus, since video recording for 2-3 hours was unreasonable, I asked him to stop recording after 20 minutes unless she had fallen asleep. Michael co-slept with Rosie so he could easily identify if she had fallen asleep and stop the recording. However, Michael initially had trouble with the storage on his phone (he admittedly was "not good with technology") and submitted four videos that were 7-10 minutes in length. I prompted him to increase the duration after the first video. Still, he continued to submit videos of this length, and after the fourth video, he detailed that this

was because he was concerned about the lack of storage on his phone. After troubleshooting the storage issues, he began sending 20 – 25-minute videos in both the intervention and baseline conditions.

With a routine that could not be accommodated to film until the "end," this meant that I only coded for 10 minutes after Michael had declared that it was time for bed and had turned off the lights. This was done even though several videos were longer than this 10-minute window, specifically in the intervention phase. Thus, I did not code for the entire video that was sent to me, but only 10 minutes after sleep time had commenced, and for the initial three videos, only 7-8 minutes. I had originally hoped to have 20-minute videos of the routine, as this felt like a reasonable amount of time to engage in a bedtime routine and potentially have Rosie fall asleep. In future studies related to sleep routines, this would be a reasonable amount of time without overburdening caregivers and coders. A longer period of coding may result in inflating or deflating the challenging behavior with partial interval recording. Thus, the shorter coding periods within this study may have led to Rosie's challenging behavior not being accurately represented.

Future Implications for the CFT

The CFT was an effective tool for improving caregiver implementation. The increased implementation decreased challenging child behavior and improved the contextual fit of the interventions. Applying the tool was helpful in understanding how contextual fit can be embedded into the everyday practice of behavior analysis in homes and communities and its role in creating socially valid interventions. Moreover, this study identified how the tool can be practical in future use for practitioners as they aim to produce collaborative, contextually fit, and socially valid goals, interventions, and outcomes.

Contextual Fit: Where Collaboration Meets Assessing Socially Valid Practices

The field of ABA has unintentionally siloed collaboration and social validity as separate entities that should be addressed in separate manners. Most current literature on social validity is focused on the lack of reporting in research (Ferguson et al., 2019; Huntington et al., 2023; Snodgrass et al., 2018), with some notable exceptions more focused on the utility of social validity in practical settings (Nicolson et al., 2020; Snodgrass et al., 2022). Conversely, tools are being used for collaboration (Marchese & Weiss, 2023; Rohrer et al., 2021; Taylor et al., 2019) and research examining how training can impact behavior analysts' collaboration skills (Nohelty et al., 2024). These literature bases exemplify the field's push to embed collaboration into practical settings and address social validity after utilizing collaborative skills/tools. However, these tools collectively do not address the varying constructs behavior analysts must account for to collaboratively achieve socially valid goals, interventions, and outcomes.

The CFT demonstrated utility in many domains, particularly in improving caregiver implementation of behavioral strategies for challenging behavior. Specifically, the interview portion served as an effective conduit to elicit collaboration between the caregivers and me. The process in which I presented ideas of strategies that might fit with the routine, based on the interview and observations, and the caregivers giving me feedback if these strategies would work for them was inherently collaborative. This was also inherently a process of determining the social validity *and invalidity* of goals and interventions in the moment. Moreover, the survey and interview at the end of the study measured how contextually fit the intervention was, using qualitative and quantitative mechanisms.

The contextual fit of the intervention has encapsulated multiple domains related to producing effective, socially valid, collaborative interventions. The *collaborative process* was an

essential component to informing what was and was not socially valid, but after the intervention, a measurement of these concepts was necessary to determine if they *actually* were socially valid for the caregiver and their family within their chosen routine. Schwartz & Baer (1991) highlighted how fundamental this process was to ascertain social validity but did not provide precise mechanisms by which a behavior analyst could put this process into applicable practice. The CFT is a tool that behavior analysts can use to accentuate contextual fit throughout collaboration and BSP building to achieve socially valid goals, interventions, and outcomes.

Improving CFT's Utility

The CFT could be improved in several key areas, especially for its use by future behavior analysts in home and community settings. Additional support, such as coaching, could make it more effective with regard to caregivers implementing behavior strategies in their homes.

In this study, the FBSApp was used to create a prescriptive intervention, and from these strategies, observations of the routine, and the CFT, a new, contextualized BSP was formulated. Future behavior analysts should conduct a functional analysis or a functional behavioral assessment of challenging behavior within a given routine, as they typically would. Ideally, these assessments should involve observing the routine at least three times to gain a more comprehensive sense of the function of the behavior. Behavior analysts should then utilize the CFT as it was used within this study: 1) conducting the interview portion, 2) reviewing answers/notes with the caregivers to conduct an informal "member check" of their answers, 3) co-create a BSP for the challenging behavior, and 4) have caregivers implement the BSP. Only one assessment session was conducted in this study, which was a limitation. However, utilizing the baseline videos to better understand the routine served as a further informal assessment. That is why I am advocating for at least three sessions to be observed and assessed to gain a better

understanding of what caregivers and children are actually doing within the routine. Following these steps would provide future behavior analysts with a clear process to facilitate the co-creation of contextually fit BSPs.

But what should future behavior analysts do if the above process is lacking some element of social validity? In the current iteration of the CFT, there is no clear interview portion *after* implementing the contextualized BSP. Informally, I interviewed participants after the study, which elicited qualitative social validity data to contextualize the survey data they had completed. Future iterations of the CFT could add this post-intervention component if the intervention is not meeting caregivers needs, or is not being implemented. This follow-up can support behavior analysts to amend portions of the BSP based on the relevant constructs in the CFT, such as if caregivers are finding the intervention effective. For instance, Jasmine's informal comments about the effectiveness of the intervention prompted me to consider how we could change the intervention to meet her family's needs better. Additionally, she reported that the intervention had not improved their quality of life. It would be vital for future behavior analysts to continue to amend interventions to ensure that the relevant constructs within the CFT are meeting caregivers' needs. Future research could also address the refinement of the intervention and the utility of the CFT in doing so.

The CFT itself was a useful tool for building contextual fit between myself and the caregivers I worked with. However, the CFT could be improved upon by continuing to refine the questions and constructs which are contained within it. For instance, continuing to pilot the CFT with caregivers like Jasmine, and seeking their input on the questions along with continuing to refine the intervention process, may be beneficial to sharpen the edges of the CFT. Based on the results of the study, the constructs seem to highlight vital components of family life within a

routine, but caregivers providing input on areas I may have overlooked would be extremely beneficial. Moreover, the question in the Organizational Support category did not carry much weight with this study, because I did not represent an ABA agency and I was not receiving funding from an insurance provider to implement ABA strategies. Thus, working with an ABA agency and having BCBAs use the CFT in practical settings and gathering feedback on how families respond to this question would be extremely beneficial for the future.

Conclusion

The CFT effectively increased caregivers' utilization of strategies within a home-based routine—moreover, the increased use of strategies led to decreased child-challenging behavior within these routines. Employing the CFT with caregivers also increased the contextual fit of the intervention compared to a prescriptive BSP. This study helped identify the delineations between contextual fit and social validity and produced interventions that caregivers largely found to be acceptable, useful, and effective.

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Appendix A

FBSApp Data on Challenging Behavior

Child: _____ Date: _____

Antecedent

(You may only select 2 items from this list)

Items/Activities

- ☐ The child has to wait for something (Activity or Object)
- ☐ An activity or event ends (Time to leave playground, bath is over
- ☐ An activity or event begins (Mealtime, Schoolwork)
- ☐ An unexpected activity begins (not a part of routine)
- ☐ An activity is open-ended (open playroom, unfamiliar toys without directions)
- ☐ A toy or object is taken away
- ☐ Another child is playing with a toy
- ☐ The child is offered choices and does not want any option
- ☐ The child asks for an object or to do an activity
- ☐ Other: _____

Directions

- ☐ The child is told not to do something
- ☐ The child is given a direction or asked to do something
- ☐ The child is told its time to clean up
- ☐ Child refuses to follow a direction or complete a task
- ☐ Child asks for permission to not follow a direction
- ☐ Other: _____

People

- ☐ The child is playing alone
- ☐ Someone is talking to the child
- ☐ The child is playing with other children
- ☐ An adult is leading an activity
- ☐ An adult is focused on another person or task
- ☐ An adult shifts attention away from the child
- ☐ The child expresses frustration
- ☐ The child asks for attention (asking to play, asking adult to look at something)
- ☐ The child asks for help
- ☐ Other: _____

Behavior

(Select one or two options)

- ☐ Hurting others
- ☐ Hurting self
- ☐ Throwing/damaging objects or property
- ☐ Inappropriate communication (yelling, profanity, etc.)
- ☐ Tantrums
- ☐ Refusing to follow directions
- ☐ Other: _____

Consequence

(You may only select 2 items from this list)

Items/Activities

- ☐ The child is given or gets more time with a toy or object
- ☐ Someone takes a child's toy or object
- ☐ The child is redirected to a different toy or activity
- ☐ The activity changes or is removed
- ☐ An adult threatens to take away something the child enjoys
- ☐ Other: _____

Directions

- ☐ A direction or request is removed
- ☐ A direction or request is changed
- ☐ The rules or directions are reviewed
- ☐ A direction or activity is delayed
- ☐ The child is taken to a new area or room
- ☐ An adult completes the task for the child
- ☐ Other: _____

People

- ☐ The child receives helps
- ☐ The child is punished
- ☐ A reprimand is given ("Don't do that," "Enough," or "Stop it.")
- ☐ The child is sent to time-out
- ☐ An adult comforts child (hugs or soothing words)
- ☐ Someone plays with the child
- ☐ Someone talks to the child about their behavior
- ☐ An adult gives the child space

- ☐ An adult talks to the child about how they are feeling
- ☐ An adult asks the child what they need or how they can help
- ☐ An adult talks to the child about an unrelated topic
- ☐ Other: _____

Activity

(Select one or two options)

- ☐ Social outings
- ☐ Leaving fun
- ☐ Personal care routines (bathroom, teethbrushing, bathing)
- ☐ In the car or bus
- ☐ Meals
- ☐ Appointments (doctor, dentist)
- ☐ Playtime
- ☐ Transitions between daily tasks (getting ready in morning, home from school, bedtime)
- ☐ Other: _____

Appendix B

Contextual Fit Tool (CFT) - Semi-Structured Interview Portion

The purpose of this Tool is to help determine the contextual variables that impact the challenging behavior and intervention within a given routine specified by the caregivers/family.

- Each domain should be interviewed in the context of the routine being intervened upon.
- The interviewer should take notes while the caregiver is responding to the question.
- At some point, the interviewer should affirm that their notes are accurately reflecting the information that caregivers are relaying.
    - This can be done after each question, or at the end of the interview, or at the end of each section.

Family Ecology and Culture (FEC)

1) Tell me about the routine you've chosen. If you can, tell me about what you and your child do during the routine.

2) Tell me about why you believe this routine to be important to your child and your family?

3) What goals do you have for your family and your child with regards to this routine?

4) What are you currently doing in order to finish this routine?

Probe: What do you feel you need to do in order to do this routine?

5) Can you tell me about any stressors or demands that are in the moment impacting this routine?

a) What are some other general stressors that you experience that may impact how you approach this routine?

Family Skills, Strengths, and Abilities (FSSA)

1) What skills or strengths do you have when it comes to engaging in this routine with your child? What do you do well during it?

2) What are your child's skills or strengths when performing in this routine? i.e. What do they do well during it?

3) Tell me about how this routine has evolved since you began to notice challenging behavior? What strategies have you tried up until this point?

Resources

1) How much time does it currently take for you to complete this routine?

a. Could you continue to take this amount of time when initially beginning the new intervention?

2) How much time do you have for planning/collaborating outside of the routine time with me?

3) What is the physical, mental and/or emotional toll that you feel during or after completing this routine?

4) Conversely, what is the physical, mental and/or emotional toll that your child feels during or after completing this routine?

a) (If the child is able to respond) How does doing this routine make you feel when you're doing it?

b) How does it make you feel afterwards?

5) Does the routine cost you money? Is this cost a burden on you and your family?

Efficiency and Effectiveness (E&E)

1. What's going well with the routine and the strategies you are using right now?

2. What's not going well with the routine and the strategies you are using right now?

3. Are the current strategies you are using effective for your family and your child?

Organizational Support (OS)

1. Based on what you've learned about my agency (*Name your agency here*) and myself, do you feel like your goals align with our agencies goals?

Note: (As the interviewer, decide if the caregiver's goals and your agency's goals are aligned. This is a moment to engage with transparent communication, such as notifying the caregiver that a goal cannot be worked on because of funder demands)

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1. Based on these answers, the behavior analyst should scan for "themes" that emerge from the responding caregivers. For instance, the family may continually reference "time" and "not having enough time," which would indicate "time" as being a theme and a valuable piece of information to center the contextualized plan around.
2. At some point during or after the interview, the behavior analyst should check their notes with the caregivers/family. This involves reviewing their "general" themes with the family to ensure they have accurately depicted what the family said.
3. The behavior analyst should create a BSP that is a functionally-based intervention, but aligns with the themes of the interview, particularly the items that the family has marked as being important. The behavior analyst should collaborate and discuss this BSP with the family about aspects that will work, along with aspects that will not.
4. The family will then complete the following checklist after implementation of the intervention has begun.

Appendix C

Contextual Fit Tool Checklist

Constructs	Yes/No Statements	Check if Yes	Check if No	Check if Unsure
Family Ecology and Culture (FEC)				
Values	Is the intervention aligned with what you feel is important?			
Goals	Is the intervention aligned with your family's stated goals for this routine?			
Accommodations	Has the behavior analyst built the intervention upon strategies I am already doing?			
Stressors/Demands	Has the behavior analyst accounted for stressors/demands that are directly or indirectly impacting our routine?			
Knowledge	Do I fully understand the intervention and everything that I should be doing during the routine?			
Families Skills, Strengths, and Abilities (FSSA)				
Family Strengths	Has the behavior analyst incorporated my strengths into this Contextualized Plan (CP)?			
Child Strengths	Has the behavior analyst incorporated my child's strengths into this CP?			
Learning History	Has the behavior analyst incorporated what we have and have not already tried into this new CP?			
Resources				
Time	Has the behavior analyst considered my family's time when creating this CP?			

Effort	Has the behavior analyst incorporated aspects to reduce the physical, mental or emotional toll of implementing this CP?			
	Has the behavior analyst incorporated aspects to reduce the physical, mental or emotional toll for my child with this CP?			
Money	Has the behavior analyst considered the cost of this intervention and its impact on my family?			
Efficiency & Effectiveness (E&E)				
Efficiency	Is the implementation of this CP feasible for me to do and within my normal routine?			
Effectiveness	Has the behavior analyst removed aspects of the intervention that I found objectionable?			
	Is the CP effective for me and my family?			
	Has this CP improved our quality of life?			
Organizational Support (OS)				
Values	Do I perceive that the organizations values align with my own?			
Transparency	Has the behavior analyst been transparent in their communication about their agency and its values?			
TOTALS		___/18	___/18	___/18

Appendix D

URP-IR Adapted

Directions: Consider the described intervention when answering the following statements. Circle the number that best reflects your agreement with the statement, using the scale provided below.

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	This intervention is an effective choice for addressing a variety of problems.	1	2	3	4	5	6
2	I would need additional resources to carry out this intervention.	1	2	3	4	5	6
3	I would be able to allocate my time to implement this intervention.	1	2	3	4	5	6
4	I understand how to use this intervention.	1	2	3	4	5	6
5	I am knowledgeable about the intervention procedures.	1	2	3	4	5	6
6	The intervention is a fair way to handle the child's behavior problem.	1	2	3	4	5	6
7	The total time required to implement the intervention procedures would be manageable.	1	2	3	4	5	6
8	I would not be interested in implementing this intervention.	1	2	3	4	5	6
9	I would have positive attitudes about implementing this intervention.	1	2	3	4	5	6
10	This intervention is a good way to handle the child's behavior problem.	1	2	3	4	5	6
11	Preparation of materials needed for this intervention would be minimal	1	2	3	4	5	6
12	Material resources needed for this intervention are reasonable	1	2	3	4	5	6
13	I would implement this intervention with a good deal of enthusiasm.	1	2	3	4	5	6
14	This intervention is too complex to carry out accurately.	1	2	3	4	5	6
15	I would be committed to carrying out this intervention.	1	2	3	4	5	6
16	The intervention procedures easily fit in with my current practices.	1	2	3	4	5	6
17	I would need consultative support to implement this intervention.	1	2	3	4	5	6
18	I understand the procedures of this intervention.	1	2	3	4	5	6

Appendix E

Percentage and Frequency Data Sheet Example

Child: _____ Activity: _____

Observer: _____

Strategies	Were strategies implemented?	Frequency
Provided Choices before CB (Frequency)		
Provided Frequent Positive Attention for Appropriate Behaviors, e.g. helping with dinner, talking with his brothers, playing with the dog, etc. (3 or more instances across routine)		
Follow HSs Lead, e.g. Allows him to begin the routine, does not try to change his behavior if he is doing something tangentially related to the routine of mealtime, etc. (ONLY Yes/No)		
Gave HS a Prompt to be done or have more time before mealtime (Frequency)		
Gave him simple directions unrelated to the mealtime routine, e.g. give me a high five, can you hand me a fork when he is right next to a fork, etc. (Frequency)		
Prompting for HS to ask for more time with Mom (Frequency)		
Avoiding Attending to Challenging Behavior (Does not provide attention for 80% or more of behavior)		
Gave Choice of Demands, e.g. meal now or in 5 minutes, potatoes or carrots, etc. (Frequency)		
Helps HS when he has calmed down from challenging behavior (Frequency)		

Number of Strategies: 9

Number of Strategies Completed: _____

Percentage of Strategies Completed: ____%

Frequency of Strategies: _____

Appendix F

Child-Challenging Behavior Interval Recording Sheet

Child: _____ Activity: _____

Observer: _____ Interval Length (in seconds): 10 seconds

Directions: During each interval, record an "X" if the child did engage in challenging behavior. Leave the space blank if no challenging behavior occurred.

0-10 s	11-20 s	21-30 s	31-40 s	41-50 s	51-1:00	1:01 – 1:10	1:11 – 1:20	1:21 – 1:30	1:31 – 1:40
1:41 – 1:50	1:51 – 2:00	2:01 – 2:10	2:11 – 2:20	2:21 – 2:30	2:31 – 2:40	2:41 – 2:50	2:51 – 3:00	3:01 – 3:10	3:11 – 3:20
3:21 – 3:30	3:31 – 3:40	3:41 – 3:50	3:51 – 4:00	4:01 – 4:10	4:11 – 4:20	4:21 – 4:30	4:31 – 4:40	4:41 – 4:50	4:51 – 5:00
5:01-5:10 s	5:11 – 5:20	5:21 – 5:30	5:31 – 5:40	5:41 – 5:50	5:51 – 6:00	6:01 – 6:10	6:11 – 6:20	6:21 – 6:30	6:31 – 6:40
6:41 – 6:50	6:51 – 7:00	7:01 – 7:10	7:11 – 7:20	7:21 – 7:30	7:31 – 7:40	7:41 – 7:50	7:51 – 8:00	8:01 – 8:10	8:11 – 8:20
8:21 – 8:30	8:31 – 8:40	8:41 – 8:50	8:51 – 9:00	9:01 – 9:10	9:11 – 9:20	9:21 – 9:30	9:31 – 9:40	9:41 – 9:50	9:51 – 10:00
10:01-10:10	10:11–10:20	10:21–10:30	10:31–10:40	10:41–10:50	10:51–11:00	11:01–11:10	11:11–11:20	11:21–11:30	11:31–11:40
11:41 – 11:50	11:51–12:00	12:01–12:10	12:11–12:20	12:21–12:30	12:31–12:40	12:41–12:50	12:51–13:00	13:01–13:10	13:11–13:20
13:21 – 13:30	13:31–13:40	13:41–13:50	13:51–14:00	14:01–14:10	14:11–14:20	14:21–14:30	14:31–14:40	14:41–14:50	14:51–15:00

Appendix G

Contextual Fit Procedural Fidelity Checklist

Child: _____ Date: _____

Interview (1st Meeting)

- ☐ Lead Researcher (LR) briefly describes the general procedure

Family Ecology & Culture

- ☐ Asks Question 1
- ☐ Reviews notes on Question 1 with caregiver
- ☐ Asks Question 2
- ☐ Reviews notes on Question 2 with caregiver
- ☐ Asks Question 3
- ☐ Reviews notes on Question 3 with caregiver
- ☐ Asks Question 4
- ☐ Reviews notes on Question 4 with caregiver
- ☐ Asks Question 4 Probe (if applicable)
- ☐ Reviews notes on Question 4 Probe with caregiver (if applicable)
- ☐ Asks Question 5
- ☐ Reviews notes on Question 5 with caregiver
- ☐ Asks Question 5a
- ☐ Reviews notes on Question 5a with caregiver

Family Skills Strengths and Abilities

- ☐ Asks Question 1
- ☐ Reviews notes on Question 1 with caregiver
- ☐ Asks Question 2
- ☐ Reviews notes on Question 2 with caregiver
- ☐ Asks Question 3
- ☐ Reviews notes on Question 3 with caregiver

Resources

- ☐ Asks Question 1
- ☐ Reviews notes on Question 1 with caregiver
- ☐ Asks Question 1a
- ☐ Reviews notes on Question 1a with caregiver
- ☐ Asks Question 2
- ☐ Reviews notes on Question 2 with caregiver
- ☐ Asks Question 3

- [ ] Reviews notes on Question 3 with caregiver
- [ ] Asks Question 4
- [ ] Reviews notes on Question 4 with caregiver
- [ ] Asks Question 4a (Only if Applicable)
- [ ] Reviews notes on Question 4a with caregiver
- [ ] Asks Question 4b (Only if Applicable)
- [ ] Reviews notes on Question 4b with caregiver
- [ ] Asks Question 5
- [ ] Reviews notes on Question 5 with caregiver (if applicable)

Efficiency and Effectiveness

- [ ] Asks Question 1
- [ ] Reviews notes on Question 1 with caregiver
- [ ] Asks Question 2
- [ ] Reviews notes on Question 2 with caregiver
- [ ] Asks Question 3
- [ ] Reviews notes on Question 3 with caregiver

Organizational Support

- [ ] Asks Question 1
- [ ] Reviews notes on Question 1 with caregiver
- [ ] (If applicable) Clearly reviews agency values and explains congruence/incongruence of values between family and agency

Overview

- [ ] LR reviews notes and highlights at least one major theme they notice

Collaborative BSP

- [ ] LR describes the general themes they observed after reviewing interview notes
- [ ] LR checks with family to determine if these "themes" resonant with caregiver
- [ ] LR reviews Antecedent Strategies with family
  - [ ] LR asks family for input on these strategies
- [ ] LR reviews Teaching Strategies with family
  - [ ] LR asks family for input on these strategies
- [ ] LR reviews Consequence Strategies with family
  - [ ] LR asks family for input on these strategies