



COMMENTARY

Parents Are People Too: Implementing Empirically Based Strategies During Daily Interactions

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Abstract

The outcomes of the COVID-19 pandemic have resulted in decision-making related to in-person versus remote behavior-analytic service delivery. For those service providers who shifted from delivering in-person therapy to remote consultation, parents have presumably, at least at times, assumed a role similar to a registered behavior technician (RBT). We suggest that behavior analysts recommend two empirically based strategies to parents that they could incorporate into their daily lives during service disruptions: environmental enrichment and differential reinforcement of alternative behavior. We provide examples of naturally occurring contexts during which parents could integrate these procedures: (1) self-care or daily living activities, (2) physical activity, and (3) preferred learning activities. We support selecting these strategies and their application during exemplar contexts under the premise that they do not result in additional time expenditure, afford parents opportunities to complete essential (household, work-related, or personal) tasks, and still result in therapeutic gains.

Keywords Caregivers · Caregiver training · Parent training · Service disruptions · Service interruptions

Introduction

The present times have set the occasion for behavior analysts to think about what to do during service disruptions (some have referred to these as “service interruptions”). We are currently experiencing a shift in behavior-analytic service delivery due to a pandemic. This paper discusses how research supports specific practices that could assist behavior analysts, and hence families, in these difficult times (and in other situations that may be similar). Much of the research we link to recommended practice has occurred in the past 10 years, though we also cite pertinent past and seminal research.

The coronavirus disease of 2019 (i.e., COVID-19) is an infectious respiratory disease caused by a newly discovered coronavirus (WHO, 2020). As a result of global changes due to COVID-19, behavior analysts are making decisions to safely deliver behavior-analytic services, which

are deemed as medically necessary (Colombo et al., 2020; LeBlanc et al., 2020). Through our community involvement and professional relationships, we have observed that both parents¹ and behavior analysts are struggling during these times. Parents are balancing multiple roles far beyond their typical daily demands while being appropriately concerned about maintaining or advancing their child’s progress. Likewise, behavior analysts are balancing making evidence-based recommendations while considering parental stress and their clients’ therapeutic gains. We propose that behavior analysts make sound, relatively simple, and feasible recommendations to mitigate parental stress while committing to ethical, empirically based, high-quality services.

Behavior analysts typically use an individualized approach when selecting goals and treatment options to accommodate the varying needs of children with autism spectrum disorder (ASD) (Council of Autism Service Providers (CASP), 2020). Registered behavior technicians (RBTs) generally work directly with clients to assist with implementing behavior-analytic services while being

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¹ We used the term “parents” to describe the individual(s) who provide the overall primary care for a child. We opted to use “parents” instead of “caregivers” as the latter term can sometimes refer to professional care providers. However, we acknowledge that all families are composed of different members who may assume the primary-care role.

overseen by RBT supervisors (BACB, 2020a, b). However, planned and unplanned service disruptions may occur at some point, potentially limiting or eliminating service provision by these professionals. We use the term “planned service disruptions” to describe situations for which parents and behavior analysts can plan for a decrease or cessation of services in advance. Some examples of planned service disruptions include school breaks (e.g., school closures due to legal holidays, spring break, winter break, and summer break), family vacations, and personal events. The term “unplanned service disruptions” describes situations for which parents and behavior analysts cannot plan for a decrease or cessation of services in advance. Some examples of unplanned service disruptions include illness, weather emergencies, lapses in insurance funding, and, more recently, a pandemic. Undoubtedly, behavior analysts must carefully consider unplanned service disruptions to continue services at some therapeutic level (BACB, 2020a). However, these same considerations may be relevant for planned service disruptions.

Parents of children with ASD commonly report increased levels of stress when compared to parents with typically developing children (Hayes & Watson, 2013). We suspect that these stress levels only magnify when parents must assume the primary role of service delivery due to planned or unplanned service disruptions. Of course, parent involvement and training are essential parts of service delivery (Matson et al., 2009a, b). When service disruptions arise, behavior analysts must modify existing or identify new evidence-based treatment goals that parents can feasibly implement to sustain meaningful progress in their children. They must achieve this goal while also considering the demands placed on a parent in everyday life. Creating such a balance is essential because treatment integrity affects intervention effectiveness (Fryling et al., 2012) depending on the procedures recommended for implementation.

To exemplify our point, we discuss the current state of affairs more explicitly. After the WHO categorized COVID-19 as a pandemic, various recommendations (e.g., distancing strategies) have focused on minimizing the transmission of the disease (Kissler et al., 2020). Some states implemented distancing measures by delivering education remotely or creating space between student desks and teachers (e.g., California Department of Public Health, 2020). Applied behavior analysis (ABA) therapy is considered an essential service, which means some children with ASD have continued to receive ABA therapy throughout the pandemic (Colombo et al., 2020; LeBlanc et al., 2020). Given our regular community involvement with local ABA providers, we know that these same children are likely experiencing modified service delivery. Although ABA typically involves an in-person model, some insurance providers have authorized remote services (Zoder-Martell et al., 2020). Given

the drastic change in service provision, child care, and in-person schooling, many parents are at the forefront of carrying out multiple roles. For example, parents of children with ASD are likely struggling to find ways to maintain their child’s therapeutic progress while also considering strategies to teach them new skills. Also, parents are juggling other responsibilities such as working full- or part-time from home, using remote platforms for work and homeschooling, maintaining the household, assisting with their child’s educational needs, and finding ways to keep their child active in the absence of open parks and playgrounds (degli Espinosa et al., 2020; Pollard et al., 2020). We can presume that these are common variables parents sometimes experience during other service disruptions as well. We will make the case that behavior analysts can recommend empirically based strategies while providing parents with the necessary tools to continue behavior-analytic services at a therapeutic level. Behavior analysts can achieve this goal without adding to the current levels of stress parents of children with ASD typically experience (Hayes & Watson, 2013). In short, our recommendations posit that behavior analysts may assure parents that a therapeutic environment can exist within the context of naturally occurring events. Parents need not become across-the-table, discrete-trial therapists to provide valuable learning opportunities.

We selected two empirically supported recommendations based on (1) the breadth of research that supports these practices, (2) the premise that parents can integrate them into daily activities (which minimizes any additional time expenditure), (3) maintaining therapeutic gains when children receive parent-mediated behavior-analytic services, and (4) our clinical experience and community involvement with local service providers. Throughout this commentary, we cite pertinent research that supports selecting the recommended strategies such that behavior analysts can substantiate their use. We also describe how either or both of these strategies can operate effectively across a few circumstances during which parents presumably *already* interact with their children (thus, eliminating a need to “set up” or “schedule” therapy time). We anticipate that behavior analysts can provide parents with the necessary supports to implement empirically based strategies during socially valid contexts (i.e., situations that parents likely deem important to target, rather than adding a new context under which parents must now set aside to work with their child). When typical service provision is compromised and places the brunt of service delivery on parents, we agree with researchers and clinicians alike who have called for recommending strategies that maintain skills (e.g., Colombo et al., 2020; degli Espinosa et al., 2020).

The purpose of this paper is to describe how behavior analysts can recommend that parents implement environmental enrichment (EE) and differential reinforcement of

alternative behavior (DRA) during naturally occurring events. We selected three examples of daily events during which parents can practice EE, DRA, or both: (1) self-care or daily living activities, (2) physical activity, and (3) preferred learning activities. These are daily events that (1) likely involve parents interacting with their child, (b) involve beneficial outcomes when targeted, (c) permit data collection on relevant parent and child behavior, and (d) behavior analysts can rely on empirical evidence to support parents. We present the evidence for and benefits of these strategies for both parents and children, along with evidence that supports behavior analysts providing these recommendations.

Two Empirically Based Strategies That Parents Can Implement

EE and DRA are just two empirically based strategies that parents can implement during daily activities. We describe these procedures and provide evidence supporting their use. More importantly, we outline why behavior analysts can substantiate selecting these procedures in particular. We assume that these strategies will allow parents to apply therapeutic practices in their daily lives while affording them the necessary opportunities to balance other daily demands.

Environmental Enrichment (EE)

Procedurally, EE involves providing individuals with noncontingent access to leisure items (Horner, 1980). Instructing parents to arrange EE periods at various times throughout the day, presumably, would afford them opportunities to complete other daily tasks (e.g., while the child plays, the parent can make phone calls or send emails).

Freely available leisure items can result in increased item engagement, serving as an alternative to undesirable behavior (Lindberg et al., 2003; Roscoe et al., 2013). Children can practice independent or sibling play skills, which are common goals selected for assessment and treatment (e.g., ABLLS-R; Partington, 2006). These goals are particularly relevant for individuals with ASD who display repetitive behavior, restricted interests, and social skill deficits (APA, 2013). When parents learn to present their children with leisure items during different times throughout the day, it may allow them to complete necessary tasks (e.g., remote work meetings, daily chores) or simply take a break. Suggesting EE and explaining the benefits of this procedure provides parents with an opportunity to possibly carry out other responsibilities or simply play with their child without presenting instructions continuously. Playing with their child may also serve as a rapport-building interaction (e.g., Shireman et al., 2016). Alternatively, teaching parents to present their child with leisure items and allow independent

engagement supplies a meaningful and low-effort parent training goal.

For several reasons, behavior analysts can substantiate a recommendation for including EE (especially when service disruptions limit their capacity to implement more complex interventions). First, noncontingent reinforcement is an evidence-based procedure that reduces problem behavior (Richman et al., 2015). Second, behavior analysts can advise that EE is a starting point or component of a child's treatment plan. If EE alone does not produce favorable results, additional effective strategies are available to reduce problem behavior (Gover et al., 2019). Third, brief periods of free access to toys and objects mirror the procedures used for free operant preference assessments (Roane et al., 1998). Several studies have demonstrated that free operant preference assessments assist with identifying possible reinforcers and yield low levels of problem behavior (Kang et al., 2010; Roane et al., 1998; Tung et al., 2017). Given these findings, behavior analysts can teach parents how to identify their child's preferred items while mitigating possible occurrences of problem behavior when completing stimulus preference assessments (e.g., Kang et al., 2010). Fourth, if behavior analysts can observe EE periods (either remotely or in person), they can collect data on several common measures. They can record rates of problem behavior during EE periods that occur with or without another individual (i.e., parent, sibling). They can also record the selection and duration of engagement with different leisure items for the preference assessment (e.g., Tung et al., 2017). Additionally, they can record appropriate item engagement as an alternative to problem behavior (Gover et al., 2019). These are, of course, just some of the many reasons EE is a viable treatment recommendation.

Differential Reinforcement of Alternative Behavior (DRA)

DRA involves providing greater reinforcement for one response and minimizing reinforcement for another response (Vollmer et al., 2020). Therefore, behavior analysts can recommend that parents embed DRA across the day to treat problem behavior and establish new skills. In short, it is good practice to establish differential reinforcement as a lifestyle, not something that one needs to stop, set up, and then "do." Thus, when parents learn that they can provide greater reinforcement for appropriate behavior and minimize reinforcement (along some dimension) for problem behavior during everyday activities, it might promote regular implementation throughout the day.

DRA is a well-established strategy that reduces levels of problem behavior and increases appropriate behavior (MacNaul & Neely, 2018). Varying the duration, quality, or delay to reinforcement delivered contingent on problem behavior

versus appropriate behavior has decreased problem behavior and increased mands and compliance (Athens & Vollmer, 2010; Briggs et al., 2019). Additionally, providing longer escape periods for compliance and shorter escape periods for problem behavior has produced higher rates of compliance and lower rates of problem behavior (Rogalski et al., 2020). Notice that DRA is operating without stringent adherence to withholding reinforcement for problem behavior in all the evidence provided above. Instead, the emphasis involves implementing differential reinforcement by modifying different parameters that will still favor allocating to appropriate behavior. Consider that parents might ordinarily avoid situations that evoke problem behavior or provide social positive reinforcement (i.e., attention, tangibles) to stop the problem behavior temporarily (Stocco & Thompson, 2015). However, parents may learn to provide differential consequences for less severe forms (or precursors) of problem behavior to mitigate or prevent severe occurrences of problem behavior (Fritz et al., 2013), which might promote a safer environment for parents to implement behavior intervention plans. When parents learn that they can implement DRA during everyday activities, it might allow them to contact positive reinforcement for their parenting behavior (in the form of improved child behavior).

Behavior analysts can support recommending DRA as a treatment for several reasons. First, DRA is an empirically based procedure that decreases problem behavior and promotes skill acquisition (MacNaul & Neely, 2018; Petscher et al., 2009; Vladescu & Kodak, 2010). For example, functional communication training is differential reinforcement that involves reinforcing a communication response that results in the same reinforcer that problem behavior previously produced (Tiger et al., 2008). Second, DRA is simple to the extent that it does not necessarily require excessive materials (e.g., timers) or time expenditure, which might assist with ease of implementation. Consider that the response effort of interventions might contribute to parental adherence of treatment recommendations (Allen & Warzak, 2000). Relatedly, some parents have shown a general preference for DRA over other reinforcement-based procedures (Gabor et al., 2016). Third, DRA does not necessitate perfect implementation to produce or sustain favorable outcomes (Brand et al., 2019). Errors in treatment integrity become less detrimental when DRA is initially implemented at high levels of integrity, as long as the relative rates of reinforcement favor appropriate behavior (St. Peter Pipkin et al., 2010; Vollmer et al., 1999). Also, compliance can increase relative to baseline procedures, even when implementing differential reinforcement with as low as 60% integrity for some children (Leon et al., 2014). Additionally, errors of omission (i.e., withholding reinforcement for appropriate behavior) might be less detrimental than errors of commission (i.e., reinforcing problem behavior) or committing both errors in

combination (St. Peter Pipkin et al., 2010). Thus, behavior analysts can differentially focus on the essential components of DRA while adjusting procedural integrity goals as they move through the treatment process. Fourth, behavior analysts can record parent and child behavior during observation sessions. Behavior analysts can record treatment integrity errors and identify if the relative dimensions of reinforcement are sufficient to favor appropriate behavior. They can also record the rate of appropriate behavior (e.g., compliance, mands) and problem behavior across individualized dimensions (e.g., approximations, the form of a communication response, intensity, or duration of problem behavior). More generally, and more consistent with viewing DRA as a lifestyle, parents may report when they are practicing DRA. Behavior analysts can capitalize on these situations and provide feedback for merely practicing DRA in naturally occurring contexts rather than requiring perfect execution.

Why EE and DRA?

We selected specific criteria to support the initial recommendation that parents should implement EE and DRA throughout the day when delivering parent-mediated services under the guidance of behavior analysts. However, we recognize that some behavior analysts might point to other noncontingent and differential reinforcement applications as equally valuable to teach parents. Therefore, these two interventions, EE and DRA, are selected for the sake of example, given that they can be embedded into ongoing activity. We hope that fellow behavior analysts will find similar applications for other empirically based procedures. The idea is that parents can receive recommendations that allow them to complete other responsibilities while arranging a therapeutic environment.

Another possible example of this approach involves implementing noncontingent reinforcement (NCR) in the form of time-based schedules. NCR involves relatively low effort (or few steps) and may be favored in circumstances when parents must attend to other tasks (Gabor et al., 2016). We selected EE for initial consideration because EE is efficacious in treating problem behavior maintained by both automatic reinforcement (for review, see Gover et al., 2019) and social positive reinforcement (Fischer et al., 1997; Hanley et al., 1997). To this end, behavior analysts can view implementing EE as a skill parents can learn that will not require continuous monitoring while demonstrating the value of noncontingent reinforcement (i.e., how delivering items without a response requirement produces therapeutic effects). Further, implementation of EE does not preclude the use of, say, attention-based NCR.

We selected DRA for initial consideration due to efficacy and because parents have successfully learned to implement

differential reinforcement procedures (e.g., Gabor et al., 2016; Marcus et al., 2001). Although there are multiple differential reinforcement procedures (e.g., differential reinforcement of other behavior (DRO)), DRA is the most commonly used differential reinforcement procedure (Petscher et al., 2009). Additionally, some evidence suggests parents favor implementing DRA under conditions when appropriate behavior occurs more often than problem behavior (Gabor et al., 2016). Multiple parametric analyses support that DRA continues to produce favorable effects even when implemented with varying levels of integrity (e.g., Brand et al., 2019). Conversely, the efficacy and effectiveness of other differential reinforcement procedures, such as DRO, are unknown with lower levels of integrity (Fryling et al., 2012; Weston et al., 2018). Thus, general parental adherence to arranging prescribed DRA contingencies should favor a therapeutic effect even when treatment integrity errors occur. Additionally, DRA permits flexibility as behavior analysts can vary parameters of reinforcement (e.g., delay, duration, quality; Athens & Vollmer, 2010), or include extinction or punishment components when applicable (e.g., Hanley et al., 2005; Vollmer & Iwata, 1992). On the contrary, DRO, for example, requires time schedules (Catania, 2013; Reynolds, 1961) and is sensitive to integrity failures involving inadvertent reinforcement of problem behavior (Mazaleski et al., 1993; St. Peter Pipkin et al., 2010). Additionally, behavior analysts may opt to recommend multiple variants of DRA to commit to their ethical obligation to exhaust more reinforcement-based procedures (BACB, 2020a). Based on our clinical consultative work and research, behavior analysts typically include DRA in their behavior intervention plans. Given the plethora of research that supports it, it seems reasonable to establish DRA implementation as a parent training goal.

Decision-Making Process and Parent Training

Behavior analysts should provide oversight and support when recommending EE, DRA, or a combination of these procedures. Selecting these procedures involves many factors and requires some guidance from behavior analysts for parents to implement. Below we describe, at a minimum, what behavior analysts should consider when selecting which of these procedures to recommend to parents and how to train parents to implement them.

Selecting EE, DRA, or Both

Ultimately, behavior analysts should decide when to implement EE, DRA, or a combination of these procedures. At a minimum, EE necessitates that the child has a sustained

item-engagement repertoire (i.e., the child must engage with a single or a variety of items for a meaningful duration). Behavior analysts can ask parents to arrange leisure items they have observed their child engage with previously. It is common practice for parents to nominate items included in play observations or to identify preferred stimuli (e.g., Fisher et al., 1996). Behavior analysts can record the duration of engagement with the available items during multiple brief play observations, similar to a free operant preference assessment (Roane et al., 1998). Based on these data, they can determine item preference and the average duration of item engagement. If the child can sustain play for a meaningful duration (what is defined as “meaningful” will differ across children and goals), then EE is a viable treatment option. During these same observations, behavior analysts should consider recording responses of concern to the parent (e.g., problem behavior, excessive bids for parent attention). If one or multiple responses of concern are suppressed during these EE observations, it seems efficacious to include them in a comprehensive treatment plan. Behavior analysts can, in turn, inform the parent of items to provide in these planned play periods and the responses targeted for treatment. However, if sustained item engagement is not observed in these brief play observations (e.g., item engagement only occurs for a few seconds, the child frequently leaves the play area, or allocates their responding to other activities), then the behavior analyst can recommend that the parent implement prompting and DRA to increase item engagement (e.g., Leif et al., 2020). In this way, there are goals in place to possibly add EE as a treatment component in the future. Behavior analysts would then need to collaborate with the parent to identify other stimuli (e.g., edibles, social interactions) to assess what they can use to reinforce sustained item engagement.

When selecting DRA as a treatment option, behavior analysts should collaborate with parents to select responses to increase and decrease. Behavior analysts may conduct observations during conditions that parents report to typically experience problem behavior (responses targeted for decrease) and develop operational definitions. Behavior analysts may consider coaching parents to complete a functional analysis of problem behavior to inform a function-based treatment option (e.g., Wacker et al., 2013). They may then collaborate with the parent to identify an alternative response that is already in the child’s repertoire (but is occurring at a lower rate than problem behavior) or seems feasible for the parent to teach (or prompt) and readily reinforce. Similarly, behavior analysts can conduct observations during daily interactions (exemplar conditions described below) to determine skills the child does or does not emit, to develop a plan for increasing these skills by including some sort of DRA contingency. Behavior analysts can select possible reinforcers by guiding the parents to arrange leisure

items or present other stimuli as described previously. At the very least, behavior analysts should consider the response targeted for reduction (e.g., if it is too dangerous or nearly impossible to place on extinction with sufficient fidelity, then consider varying parameters of reinforcement; Athens & Vollmer, 2010) and parents' general preferences (e.g., Gabor et al., 2016) when deciding between using DRA with or without extinction. Ultimately, we encourage behavior analysts to present parents with multiple DRA options (e.g., varying parameters such as duration, quality, and delay; Athens & Vollmer, 2010), given it is an essential component to any comprehensive treatment plan and might increase buy-in. Consider that if behavior analysts and parents pursue implementing DRA with extinction, noncontingent access to tangibles (or EE) can mitigate common side effects of extinction (e.g., Hagopian et al., 2000). Additionally, behavior analysts should observe and identify conditions during which parents can respond differentially to the responses targeted in their child's treatment plan. We describe three exemplar conditions we assume parents typically interact with their children; however, behavior analysts are encouraged to prioritize conditions that parents deem the most important or acceptable.

Teaching Parents to Implement EE, DRA, or Both

Parent training is a common component of any behavior intervention plan but becomes particularly necessary when parents are the primary implementers of behavior-change procedures. To start, we recommend that behavior analysts explain, provide the rationale for, and describe the benefits of EE and DRA. For example, behavior analysts should emphasize to parents that free access to leisure items during some parts of the day can produce therapeutic effects. Based on our clinical consultative efforts with behavior analysts and parents, it seems that some parents perceive that they must continuously present their children with instructions to support their therapeutic progress. Additionally, behavior analysts may introduce DRA by suggesting two simple rules: "maximize reinforcement when appropriate behavior occurs" and "minimize reinforcement when inappropriate behavior occurs" to achieve a therapeutic effect (Vollmer et al., 2020). Perhaps, establishing this framework (or set of rules) may facilitate buy-in and parental adherence to implementing DRA throughout the day. Of course, providing parents with instructions and the rationale for procedures merely serves as a starting point to competency-based training models.

Behavioral skills training (BST) and remote training are effective strategies to teach parents how to implement behavior-analytic procedures (Cox & Davis, 2019). BST involves instructions, modeling, rehearsal, and feedback (e.g., Parsons & Reid, 1995). BST has effectively taught

parents how to implement procedures such as noncontingent reinforcement, DRA, DRO, and set up learning opportunities in various contexts, including play (e.g., Gabor et al., 2016; Pisman & Luczynski, 2020). However, behavior analysts typically complete BST in person, which may be difficult to achieve during service disruptions. Thus, remote training such as self-paced e-learning modules (for review, see, e.g., Blackman et al., 2019) or teleconsultation coaching (for review, see, e.g., Wacker et al., 2013) may facilitate greater access to parent training.

We recommend that behavior analysts identify the critical goals or steps inherently involved with successfully implementing EE and DRA. For both procedures, behavior analysts should emphasize the importance of and guide parents to select potent reinforcers or preferred stimuli. In this way, behavior analysts can guide parents on how often and what items to provide their child across the day to maintain the effectiveness of the identified preferred stimuli. Therefore, one critical goal should involve parents learning to use effective methods when identifying preferred stimuli or providing stimuli as recommended by the behavior analyst. For example, behavior analysts may collect data on item engagement during free operant arrangements (Roane et al., 1998) or coach parents to present possible reinforcing stimuli in an array to identify momentary preferences before setting up learning opportunities. After using one or both of these methods, behavior analysts should communicate which stimuli may be particularly efficacious during that learning period. Additionally, behavior analysts may suggest the length and frequency of presenting particular preferred items, and promote varying the items provided to children to maintain the items' reinforcing value throughout the day (i.e., prevent satiation to the extent possible). Behavior analysts may suggest scheduling brief play periods when parents must attend to daily demands (that do not directly include the child or covary with elevated rates of problem behavior). For example, parents may provide their child with leisure items when they start preparing a meal and transition them away from play time when the meal is on the table. Thus, behavior analysts should support parents through strategic scheduling of EE periods throughout the day.

Among other goals, parents should learn how to use the parameters of reinforcement recommended by the behavior analyst. To this end, parents must identify the target behavior(s) and implement the corresponding consequences. In some cases, parents may learn to provide qualitatively different preferred stimuli for precursors to more severe forms of problem behavior (e.g., a high-pitched screech that often precedes aggression) and communication responses (e.g., Athens & Vollmer, 2010; Fritz et al., 2013). Therefore, one goal may involve parents learning to respond to less severe forms of problem behavior.

Behavior analysts should individualize the units by which they measure parental adherence to either or both recommendations. For example, some parents may do exceptionally well providing preferred stimuli, but do so for durations that increase the probability of satiation. In this case, it would be important to give feedback on the duration of EE periods. Thus, there are varying circumstances under which behavior analysts should prepare to address parents' nuanced EE and DRA applications.

Three Examples of When to Practice EE and DRA

Implementing EE or DRA during self-care or daily living activities, physical activity, or preferred learning activities presents just three opportunities during which parents can integrate empirically based strategies into their daily lives. These three examples are not only naturally occurring events, but also present other benefits to both the parent and child. Here we (1) outline how these events occur throughout the day, (2) review the benefits for targeting these situations, (3) embed examples of applying EE and DRA, and (4) emphasize empirical support for behavior analysts focusing on these daily events and recommending these strategies.

Self-Care and Daily Living Activities

Self-care and daily living activities occur routinely (e.g., getting dressed, preparing a meal, getting ready for bedtime), and parents already occupy a portion of their day assisting their child in completing some of these tasks. Based on our clinical experience and consideration for time expenditure, we recommend that behavior analysts ask parents to select (for acquisition) only one or two tasks they deem to be their highest priority. Focusing on teaching every self-care or daily living task and every component within each task would take substantial time or effort, affecting parental adherence to treatment recommendations (Allen & Warzak, 2000). After parents select one or two self-care or daily living activities, behavior analysts could conduct a task analysis to identify which component(s) of the skill they will target first.

Behavior analysts should consider that most self-care or daily living activities involve multiple steps to complete, which means they can be relatively time-consuming compared to teaching quick, discrete one-step responses. For example, consider toothbrushing, which researchers have previously task analyzed to include a total of 15 steps (Horner & Keilitz, 1975). If a parent used the same prompting procedures as Horner and Keilitz and the child required the repeated “physical guidance and instruction” prompt for every step, it could take up to 10 min to finish

the entire task. Alternatively, suppose a parent provided graduated guidance for the first step and completed the remaining steps for the child. In this case, the task would instead take approximately 2 min (assuming each nontarget step took 5 s and the target step took 40 s to complete). The relative time allocation of these different teaching approaches also applies to other self-care or daily living tasks (e.g., dressing, preparing a meal, making a bed).

Further, consider the complexity and duration of the teaching procedures compounded with the demands a parent experiences during service disruptions. Parents sometimes cannot and likely will not be able to teach several skills that are both time-consuming and require complex teaching procedures (Allen & Warzak, 2000). The recommendation to select a couple of skills and components of skills is not arbitrary but instead considers the feasibility of treatment recommendations. Thus, involving parents in selecting relevant daily skills, followed by identifying targets (i.e., a specific teaching strategy the parent should use and particular steps the child needs assistance with), presents several advantages.

Presenting parents with the opportunity to select a couple of daily living skills to target will most certainly require a collaborative effort from the behavior analyst. Therefore, we recommend that behavior analysts ask parents to mention at least a handful of daily activities they complete with their child and discuss different factors when selecting target skills. For example, behavior analysts might discuss the number of steps, possible prompting procedures, presence or absence of problem behavior, and time expenditure available when prioritizing skills to teach (among other considerations based on the child's needs).

Benefits

Children can gain more independence with everyday self-care or daily living skills that behavior analysts commonly assess throughout treatment (ABLLS-R; Partington, 2006; AFLS; Partington & Mueller, 2012). Some individuals with ASD and other neurodevelopmental disorders show deficits in completing adaptive living skills even into adulthood (Matson et al., 2009a, b). Parents report higher levels of personal distress when their children lack necessary hygiene skills, such as toileting (Macias et al., 2006). Thus, when children gain more independence with adaptive living skills, parents are positively affected as well. Parents can acquire strategies that might produce faster acquisition or decrease problem behavior while presenting learning opportunities to their children. More importantly, parents can progressively focus on essential teaching strategies during a task they regularly complete with their child without extending the duration.

Applying EE and DRA

Parents can use EE, DRA, or a combination of these strategies to work on self-care or daily living activities. Merely enriching the self-care experience by incorporating preferred items might produce differential effects on the child's acquisition or compliance with hygiene tasks (e.g., the child may select a toothbrush with a favorite character). For example, some children with neurodevelopmental disorders show more independence completing toothbrushing steps when preferred materials are included (Duhanyan et al., 2019). Perhaps a similar strategy, such as having underwear with preferred characters, might, in part, produce differential effects on the acquisition of urinary continence (as mentioned by Greer et al., 2016). Additionally, positive reinforcement is often a common component when teaching adaptive living skills (Matson et al., 2012). We previously mentioned that working on all the steps of a self-care task might result in additional time expenditure, which impedes a parents' ability to complete other necessary tasks. Thus, forward chaining and reinforcement procedures are just some of the components that have resulted in individuals acquiring skills such as flossing, nail brushing, and shirt folding (Donnelly & Karsten, 2017). For example, parents may provide differential attention (e.g., high-quality praise for independence, a neutral expression for steps completed by the parent) when their child places toothpaste on their toothbrush. Some parents might also reduce destructive responses during self-care tasks by differentially reinforcing compliance (Carter, 2010).

Another relevant activity that parents may consider targeting is bedtime. Establishing a bedtime routine can reduce settling difficulties, which is a prevalent sleep problem in children with varying diagnoses (Wiggs & France, 2000). A positive routine that can potentially enrich the transition to bedtime is storytelling (Christodulu & Durand, 2004). Enriching the transition to bedtime with storytelling might foster quality social interactions. Parents may also consider presenting the child with an opportunity to select a book to use at different steps during the routine (e.g., Tiger et al., 2006). We focused on hygiene and bedtime practices to illustrate when to apply EE and DRA; however, we suggest that behavior analysts focus on those daily tasks parents deem as their highest priority.

Support for Behavior Analysts

Behavior analysts can substantiate targeting naturally occurring self-care or daily living activities for several reasons. First, behavior analysts have an ethical obligation to include all service recipients (including parents) when selecting goals (BACB, 2020a). Some parents have reported that behavior analysts typically include them when setting goals

for their child and listen to their concerns, which can foster a better (or compassionate) relationship between service providers and recipients (Taylor et al., 2018). Fostering such a relationship seems particularly important when parents are the primary implementers of recommended procedures. Second, selecting a couple of daily living tasks while minimizing the response effort associated with the teaching procedures might increase parental adherence to treatment recommendations. Specifically, response effort contributes to parental adherence to treatment implementation (Allen & Warzak, 2000). Behavior analysts can use straightforward procedures such as forward chaining and manually guiding or completing nontarget steps for the child to facilitate the efficient acquisition of multistep tasks (Bancroft et al., 2011). When possible, a behavior analyst may also recommend that children stop at the target step, which would shorten the teaching opportunity and still promote acquisition (Bancroft et al., 2011). Third, as previously discussed, several evidenced-based strategies have resulted in individuals with ASD or related disabilities acquiring essential daily living skills (Matson et al., 2012). Promoting independence is a socially relevant treatment goal that might yield short- and long-term outcomes beyond those observed in the therapeutic environment. Fourth, when individuals with ASD learn to complete tasks in the natural setting, treatment gains often maintain over time (Neely et al., 2016). Fifth, behavior analysts can identify the extent to which the prescribed teaching strategies are necessary and effective. They can record the parent's procedural integrity of teaching components such as order of step presentation, the timing of reinforcer delivery, and the implementation of prompts (Donnelly & Karsten, 2017). They can also record the child's compliance, response accuracy, or problem behavior during target and nontarget steps. Additionally, they can evaluate whether including routines as part of a naturally occurring event is an essential treatment component.

Physical Activity

Engaging in physical activity, such as taking a daily stroll or riding a bicycle, is a socially valid goal (Normand et al., 2015). Thus, it is not only "okay" to go for a walk or ride; it is therapeutic. Physical activity can serve as both a behavioral target and an intervention strategy. Behavior analysts can explain to parents that engaging in physical activity will pose health benefits for their child and the parents as well. When parents and children engage in physical activity together, they can have quality social interactions and practice other skills (e.g., communication, safety skills). Behavior analysts can and do use measurement procedures to assist with general physical activity goals (e.g., Van Camp & Hayes, 2012). When behavior analysts recommend strategies that promote physical activity, both parents and

children experience positive health and behavioral outcomes (Al-Hamad & Raman, 2017; HHS, 2018; Lang et al., 2010; WHO, 2016; Zhang et al., 2017).

Benefits

Physical activity can reduce the risk of health complications in children (HHS, 2018). Children with ASD are more likely to be overweight and obese when compared to individuals without ASD (de Vinck-Baroody et al., 2015; McCoy et al., 2016). Children with ASD also engage in high levels of sedentary activity and low physical activity levels relative to typically developing peers (Jones et al., 2017). Engaging in recommended physical activity levels (i.e., 60 min per day) promotes a healthy body weight in children and youth (WHO, 2016). Additionally, physical activity reduces the risk of poor health outcomes in adults (or parents) (HHS, 2018). When adults complete at least 150 min of physical activity per week, they are at lower risk for developing coronary heart disease, type 2 diabetes, and cancer, to name a few (HHS, 2018). Moreover, exercise can reduce problem behavior, such as aggression, self-injury, and disruptive behavior (Lang et al., 2010). For example, antecedent exercise has reduced self-injury in some individuals with ASD (Morrison et al., 2011). Antecedent exercise involves individuals completing some level of physical activity before measuring the occurrence of a target response (Smith, 2011). Thus, promoting physical activity not only produces health benefits but also affects other areas of functioning.

Applying EE and DRA

Taking young children to an outdoor area with fixed equipment can increase moderate-to-vigorous physical activity relative to other strategies, such as providing them with toys or open space (Husty et al., 2012). Additionally, providing adult attention or engaging in interactive play increases physical activity levels in some typically developing children (Larson et al., 2013). For example, a parent may target their child moving their legs forward and backward on a swing. They can use differential reinforcement by pushing the child higher when the leg motion occurs independently but pushing with less force when the target motion does not occur. Alternatively, parents can practice exergaming (i.e., engaging in physical movement while playing a video game), which some children prefer over other activities (Pincus et al., 2019). These strategies exemplify how arranging an enriched environment and differentially reinforcing a target response can promote and co-occur with physical activity. Some behavioral interventions for increasing physical activity with adults have included self-monitoring, goal setting, and feedback (Normand, 2008). As mentioned previously,

completing physical activity as a family can promote quality social interactions and allow parents to create more learning opportunities (e.g., establishing and reinforcing verbal operants such as tacts and mands as they walk in the neighborhood). Additionally, children complete increased levels of physical activity levels when parents interact with and support them (Xu et al., 2015).

Support for Behavior Analysts

Behavior analysts can substantiate recommending physical activity as part of a child's treatment plan for several reasons. First, suggested physical activity levels produce health benefits for both children and their parents, meaning it is a clinically relevant goal (Normand et al., 2015). The basis of our field is that applied behavior analysts should target socially significant behavior (Baer et al., 1968). Physical activity, therefore, could be targeted with consultation from necessary health or medical professionals (BACB, 2020a). Second, behavior analysts have assessed and evaluated multiple strategies to promote varying levels of physical activity (e.g., Van Camp & Hayes, 2012). Behavior analysts can identify which strategies promote higher levels of physical activity and educate parents on the value of having their child choose between activities associated with higher levels of activities. That is, parents will learn how to consider their child's relative preferences by simply providing them with options (each choice point then becomes a parent-mediated preference assessment). Third, as stated above, physical activity can serve as an antecedent intervention to reduce problem behavior (e.g., antecedent exercise; Morrison et al., 2011). When this is the case (based on individualized data analyses), behavior analysts can view physical activity as a way to prevent problem behavior and for the child to make meaningful gains in other areas. For example, during physical activity, children can engage in gross motor skills (e.g., running) or fine motor skills (e.g., catching a ball), which are common targets for early learners (ABLLS-R; Partington, 2006). Fourth, behavior analysts can easily monitor and record physical activity without being continuously available or requiring additional effort on the part of the parent or child. Individuals can wear pedometers or accelerometers to track their daily steps or speed and distance, respectively (Van Camp & Hayes, 2012). Behavior analysts may suggest dividing physical activity into feasible units (e.g., 30-min blocks) and teach parents simple ways to monitor their child's activity levels (e.g., checking their watch at the beginning and end of a bicycle ride). Behavior analysts might also conduct remote or in-person observation sessions to record other behavior (e.g., communicative responses, safety skills, problem behavior) during and after physical activity.

Preferred Learning Activities

Instructional activity can most certainly occur under preferred rather than aversive or mundane conditions. Given that individuals with ASD show persistent deficits in social communication and interactions (APA, 2013), behavior-analytic services typically focus on goals to promote and sustain improvement in these areas. Applied behavior analysts refer to several common assessments to select goals for children with ASD (ABLLS-R; Partington, 2006; AFLS; Partington & Mueller, 2012; VB-MAPP; Sundberg, 2008). Fortunately, there are various methods available to target compliance, skill acquisition, or maintenance in these areas while minimizing the aversiveness of the learning context for both parents and children. One approach is presenting the child with a choice among preferred stimuli before or after completing a skill (Gureghian et al., 2019; Peterson et al., 2016). Another strategy involves embedding instructions during preferred or ongoing contexts (e.g., incidental teaching; Hart & Risley, 1974; embedded-discrete trial training (DTT); Sigafoos et al., 2006). For example, parents likely interact with their child during play periods, which presents an opportunity to work on mand and tact training (e.g., Pisman & Luczynski, 2020). Yet another approach that can accomplish similar goals involves embedding preferred stimuli during structured instructional contexts (e.g., Gureghian et al., 2019; Slocum & Vollmer, 2015). Given the multiple evidence-based approaches available, behavior analysts can recommend that parents embed instructions during naturally occurring, preferred contexts or include preferred stimuli when targeting academic tasks to produce several positive outcomes.

Benefits

Providing children with choices at some point during the learning context can promote skill acquisition and maintenance (Gureghian et al., 2019; Peterson et al., 2016). Of course, selecting these stimuli seems pertinent when implementing reinforcement-based procedures. Additionally, embedding instructions during leisure contexts provides parents with a simple, alternative teaching strategy. Permitting flexible teaching arrangements is an important factor to consider when teaching parents how to implement behavior-analytic procedures (Pisman & Luczynski, 2020). Moreover, including preferred tangibles during typical table work can reduce escape-maintained problem behavior (e.g., Slocum & Vollmer, 2015). To the extent that problem behavior can interfere with the acquisition of essential skills and produce higher levels of stress in parents (Baker et al., 2003; Carr et al., 1991), identifying preferred learning conditions (that are less likely to occasion problem behavior) should promote critical learning

opportunities. Teaching parents to arrange a less aversive academic learning context may be particularly useful when they need to assume the primary instructor role.

Applying EE and DRA

Presenting toys that vary across multiple dimensions (e.g., preference, developmental appropriateness, sensory stimulation) can produce differential play patterns in children with ASD (Sautter et al., 2008). Additionally, children with ASD sometimes increase peer engagement when selecting the toys used during play sessions (Sivaraman & Fahmie, 2018). Thus, simply enriching a child's play environment with different leisure items and considering their general preferences can improve their independent and social play skills.

When selecting stimuli to integrate into the learning context, providing choices can produce differential effects. Providing choices among reinforcers as a consequent strategy can lead to more efficient acquisition for some children (Gureghian et al., 2019). Providing choices among reinforcers as an antecedent strategy can sometimes result in more persistent responding while completing maintenance tasks (Peterson et al., 2016). Once preferred stimuli are selected, parents can embed learning targets (unrelated to the current leisure activity) as their child plays with toys or watches a movie to promote compliance (Haq & Aranki, 2019). On the other hand, parents may capitalize on contextually relevant skills by temporarily pausing a preferred activity such as swinging and waiting for a communication response to occur (Sigafoos et al., 2006). A parent may use differential reinforcement by pushing the child immediately when they say "push" independently and delay the onset of the push when a prompt is necessary. In these situations, both parents and children learn new skills during preferred contexts. Thus, parents can arrange learning opportunities during play without affecting their child's overall play or preference for parent involvement (Pisman & Luczynski, 2020).

Another context during which parents may find themselves assisting their child with learning new skills is in a more structured, table arrangement. Parents can implement differential reinforcement to reduce the aversiveness of the learning situation. One effective strategy involves providing edibles contingent on compliance, which in some cases has nearly eliminated escape behavior (e.g., Slocum & Vollmer, 2015). In the scenarios mentioned above, the learning environment is enriched with either noncontingent access to preferred stimuli (with only brief pauses to create learning opportunities) or involves differentially responding to the child's behavior to promote compliance, skill acquisition, or maintenance.

Support for Behavior Analysts

Behavior analysts can substantiate using embedded instruction or including preferred items during the learning process for several reasons. First, using preferred stimuli or learning contexts not only promotes skill acquisition and maintenance in children (e.g., Peterson et al., 2016; Sigafoos et al., 2006), but teaches parents to create learning opportunities based on their child's current preferences. Ideally, this skill would assist with creating learning opportunities throughout the day as the parent deems feasible. Second, growing evidence supports delivering positive reinforcers either contingent on compliance or noncontingently to reduce escape-maintained problem behavior (Payne & Dozier, 2013). Including positive reinforcers might reduce the aversiveness of the learning context while providing children with more opportunities to learn new skills. Third, behavior analysts should consider client preferences whenever possible (BACB, 2020a). Some children with ASD may prefer embedded DTT over traditional DTT (Geiger et al., 2012). Additionally, some children may prefer choosing among reinforcers before completing maintenance tasks (Peterson et al., 2016). Fourth, behavior analysts can record the rate of learning opportunities parents present to their child during preferred contexts. Additionally, they can record compliance (e.g., percentage correct), task performance (e.g., independent vs. prompted), and problem behavior (e.g., rate) under different learning contexts. Obtaining this type of information might yield the information required to promote a specific approach that meets the family's overall needs.

Concluding Remarks

Many professionals regard ABA as a medically necessary treatment for children with ASD (CASP, 2020). Planned or unplanned service disruptions will inevitably arise throughout the treatment process. Behavior analysts must act swiftly during service disruptions to continue providing effective and socially valid behavior-analytic services (BACB, 2020a). During service disruptions, parents will balance multiple roles, behavior analysts must continue making empirically based recommendations, and both of these parties should work collaboratively to maintain the child's therapeutic progress.

When selecting some treatment recommendations for parents to implement, we considered multiple criteria: (1) the breadth of research supporting the recommended practices, (2) the availability to practice these procedures during naturally occurring conditions (i.e., the extent to which they can occur without additional time expenditure), (3) the viability of these procedures producing or maintaining children's therapeutic gains, and (4) our clinical experience

and continued community involvement with ABA providers. In all, we emphasized the need to identify empirically supported strategies that are feasible for parents to implement during typical interactions with their children. We described how behavior analysts could recommend and coach parents on how to use EE and DRA during three contexts in which they are likely to interact with their child on a routine basis: (1) self-care or daily living activities, (2) physical activity, and (3) preferred learning activities. Behavior analysts have plenty of empirical support to support parents using EE and DRA during these contexts that yield several benefits. Because we only selected two procedures and applied them to three exemplar contexts, behavior analysts should adapt them to formulate an individualized treatment for each case (CASP, 2020). We also outlined parent training goals (e.g., identifying preferred stimuli, adherence to frequency and duration of EE periods) and common training procedures behavior analysts may use to support parents (e.g., telehealth coaching; Wacker et al., 2013). Behavior analysts should consider these goals and training methods when selecting EE, DRA, or both strategies for parents. More generally, behavior analysts should ensure the procedural simplicity and feasibility of the recommendations remain a primary focus as they support parents implementing services.

We mentioned how our recommendations might be applicable during either planned or unplanned service disruptions. Most of our examples focused on day-to-day life (as those seem particularly relevant during present times given the restrictions imposed by the pandemic). However, consider a child who receives 25 h of weekly early intervention services, and then the parent takes them on a 2-week vacation to a theme park. It is an abrupt transition for both the parent and child to go from 25 to zero hours of service provision. Undoubtedly, during this trip, the parent can still work on a self-care or daily living activity, engage in physical activity, and maximize learning during preferred conditions. Behavior analysts can adapt and individualize the implementation of EE and DRA while taking the environmental arrangement into account. For example, parents can practice EE by providing their children with continuous access to leisure items while waiting in line for rides. They can also differentially reinforce communicative responses for items on the lunch menu. When their child needs to use the bathroom, they can allow an independent opportunity for at least one step during hand washing and differentially reinforce the completion of that step. Additionally, parents can walk with their child while holding hands and work on tacting when the child sees some of their favorite characters. These are, of course, just some of the ways behavior analysts can modify the recommendations while posing benefits for both the child and parents.

Behavior analysts in clinical settings often need to support continued service delivery. We mentioned earlier that

a lapse in insurance coverage is just one example of an unplanned service disruption. Often, behavior analysts must submit child and parent behavior data to insurance providers to support the medical necessity of ABA services (e.g., TRICARE, 2019). Thus, we purposely suggested that behavior analysts collect data on child behavior and parent behavior for every listed recommendation. Having access to these data is helpful for clinical decision-making (BACB, 2020a), and valuable if behavior analysts observe a clinically significant change in client gains, especially during service disruptions. Presumably, these data will support the intensity of services necessary for each case.

In sum, service disruptions place parents in compromising positions, necessitating a corresponding plan of action from behavior analysts. When parents must assume the primary role of service delivery, behavior analysts should consider a careful balance between selecting empirically based treatment recommendations and other variables that will contribute to intervention effectiveness. We propose that behavior analysts be sensitive to these circumstances while promoting high-quality, empirically based, and (therefore) ethical services.

Declarations

Conflict of interest None of the authors have any conflicts of interests to report.

Ethical approval This commentary does not include any human or nonhuman subjects.

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