

**Stakeholders in Dance: An Intrinsic Case Study Examining Facilitator Perspectives of  
Dance with a B-E-A-T**

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**Abstract**

Recreational dance programs with specific behavioral adaptations for individuals with neurodevelopmental disabilities can provide an opportunity for the enjoyment of dance, and potential improvements in motor skills, social skills, or behaviors related to self-efficacy. This intrinsic case study builds on a pilot study of a recreational dance program, Dance with a B-E-A-T (behavior analysis and therapy), with behavioral adaptations for individuals with neurodevelopmental disorders. Facilitators of the program included three graduate students working as behavior therapists. We aimed to discover, through semi-structured interviews, what components facilitators perceived to be effective, components that they perceived to be challenging, successes or challenges with implementation, as well as their overall perceptions of this blended program. A thematic analysis, with a deductive approach, of interview data previously collected from parents of participants in the program was conducted to inform interview questions for facilitators, and to provide the framework for coding facilitator data. A similar thematic analysis was carried out for facilitator interview transcripts. The key themes identified during this analysis included: (1) Blending Recreational Dance and Behavior Therapy as Novel, (2) Benefits of the Program, and (3) Refinements and Recommendations. Facilitators and parents perceived this novel program to have effective components such as individualized behavioral adaptations, and an enjoyable environment with positive social interactions. Recommendations for future programs include refining behavioral components such as thinning the schedule of reinforcement, increasing training for facilitators to address existing barriers to implementation, and extending the length of the program to be consistent with motor development research. This study will add to limited research on recreational dance programs for this population.

*Keywords:* recreational dance, behavior therapy, blended, facilitators, thematic analysis

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### **Stakeholders in Dance: A Case Study Examining Facilitator Perspectives of Dance with a B-E-A-T**

#### **Format**

This thesis includes an extended introduction with a thorough literature review, as well as a manuscript to be submitted for publication. As such, there is repetition between the extended introduction and the introduction within the manuscript.

#### **Purpose**

The purpose of this study was to gather and synthesize information from the experience of facilitators of Dance with a B-E-A-T (behavior analysis and therapy; Staite et al., *in progress*) to inform future programs blending recreational dance and behavior therapy. We were specifically interested in determining the components of the program that were effective or challenging for participants and for facilitators in their implementation of this blended program. Further, we looked to evaluate how the experience of facilitators compared to information given by parents in a qualitative interview completed after conclusion of the pilot study. Last, we aimed to find recommendations for future iterations of the program.

#### **Extended Introduction**

Dance programs with behavioral components could offer a modality for children and youth with neurodevelopmental disorders (NDDs) to participate in a previously difficult to access or inaccessible activity for this population. Components of behavior therapy, including components of applied behavior analysis (ABA) and cognitive behavior therapy (CBT) could help individuals to access the both the therapeutic benefits of specific behavioral components while taking part in a fun activity that allows for improvements in motor and social skills. ABA has specifically been used to improve skills across sports such as football, figure skating, and

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weightlifting (Ming & Martin, 1996; Moore & Quintero, 2019; Stokes et al., 2010). CBT has also been combined with exercise programs for added mental health benefits, such as improving symptoms of obsessive-compulsive disorder or increasing an individual's social support (McArdle et al., 2012; Rector et al., 2015). To expand on existing literature, and to determine how using behavioral components could make programs more accessible, more empirical evidence is needed.

In order to best inform programs with behavioral adaptations, it is important to consider the thoughts and opinions of stakeholders in dance. Specifically, children, parents, and facilitators can offer suggestions and recommendations for future programs, based on their past and current experiences. This study explored facilitator feedback from a pilot study of Dance with a B-E-A-T, with a comparison to parent data from interviews conducted as part of the initial phase. We were interested in exploring the similarities and differences between both parent and facilitator perspectives, as well as strengthening the results of the primary analysis.

Dance as physical activity can be an enjoyable experience that combines the benefits of both exercise and artistic expression. When participation is possible, recreational dance programs allow individuals opportunities to access health benefits, as well as a supportive social environment fostering collaboration and cooperation (Murcia & Kreutz, 2012). As a popular activity for young children, dance can help address issues of physical inactivity and emotional well-being simultaneously (Murcia et al., 2010). The growing popularity of dance may in part be attributed to an increased use of social media by young artists who take to platforms like YouTube or Tik Tok to share both old and new styles of dance (Warburton, 2011). To match this demand for learning dance, a wealth of programs for children of all ages exist in community settings such as dance studios, schools, or local centres.



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Despite the multitude of benefits and the many programs that exist, children with disabilities often have trouble accessing or succeeding in recreational dance programs (Reinders, Fletcher, & Bryden, 2015). Children with disabilities participate less in formal recreational and leisure activities compared to their typically developing peers (Law et al., 2006). Individuals with disabilities such as NDDs often experience challenges across physical, social, and academic domains (*Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013), making participation in extra-curricular activities such as dance programs difficult. They may struggle to keep up with the class in terms of progress with skills (Whatley, 2007), and experience a lack of support from parents, peers, and teachers who may not have the training needed to meet their needs (Aujla & Redding, 2013). A lack of participation in these groups not only limits the opportunity for a child with a disability to engage in physical activity, but also the opportunity for social benefits such as inclusion and positive social experiences (Sport Canada, 2006). This is also a missed experience for learning social and coping skills in a natural environment, where socialization and developing a positive mindset is inherent to the program (Murcia & Kreutz, 2012). Further, if dancers wish to progress to a competitive class or pursue dance as a career there is no clear pathway for them to so (Aujla & Redding, 2014). Subsequently, there is a need for research to inform behavioral adaptations that can be made and validated to help facilitate participation in dance for this population. Currently, there is limited research to suggest if behavioral adaptations are necessary, and if so, how they can be effectively implemented (Reinders, Bryden, & Fletcher, 2015).

### **Neurodevelopmental Disorders**

Neurodevelopmental disorders (NDDs) include diagnoses such as autism spectrum disorder (ASD), intellectual disabilities (ID), learning disabilities, and attention-deficit

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hyperactivity disorder (ADHD; DSM-5, APA, 2013). Individuals with NDDs may experience deficits across physical, social, and academic domains, highlighting the importance of programs that can help bridge the gap between this population and their typically developing peers. While there are differences in the level of deficits experienced, there are commonalities across diagnoses. An important piece that is shared between several NDDs is often a delay in the development of gross motor skills, or difficulty with coordination. For example, individuals with IDs can struggle with the acquisition of recreational skills, such as dance (DSM-5, APA, 2013). Individuals with ADHD may also experience difficulty in this area, as a mild delay in motor skills can co-occur with this diagnosis (DSM-5, APA, 2013). As a result of this shared deficit across disorders, gross motor skills are an important target that could be improved in an environment such as a dance class.

In addition to gross motor delays, NDDs are also associated with difficulties in social skills and executive functioning. Social skills include behaviors such as joining in a conversation, or asking for help when necessary (Dogan et al., 2017). A child with ASD, for example, can experience social deficits such as difficulty with making and retaining friendships (DSM-5, APA, 2013). Engaging in positive social behavior, such as smiling at others or making eye contact, is often difficult for this population (Walton & Ingersoll, 2013). In a dance class with peers, this could pose a problem as the individual may not know when or how to interact with others and could have difficulty forming positive relationships. Diagnoses such as ASD and ADHD also share deficits in executive functioning, which includes functions like working memory and response inhibition (Corbett et al., 2009). Typically, these functions develop gradually throughout the lifespan, but can be delayed or challenging for this population (Neely et al., 2016). This is important in the context of recreational dance, as the ability to regulate

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behavior, such as staying in one spot and listening to the instructor, and remember the skills taught are both necessary skills for this setting. A deficit in these and other areas could impact the success of participation in a class with similar-aged peers. A deficit in these and other areas could impact the success of participation in a class with similar-aged peers.

Comorbid disorders such as anxiety are common in individuals with NDDs, and this includes symptoms such as increased or excessive worry, difficulty concentrating, and significant distress in specific situations (DSM-5, APA, 2013). This anxiety can manifest as an overestimation of fear or danger of a situation, leading to avoidance of experiences that evoke behaviors related to anxiety. Common physical symptoms include increased heart rate, nausea, or headaches (DSM-5, APA, 2013). Anxiety can make it difficult for a child to attend a dance program for fear of the unknown, or a lack of control over how the class will unfold. In addition, individuals may have had a negative experience with dance in the past, leading to anxiety around returning to a class setting. Embedding coping strategies such as positive self-talk and antecedent strategies such as teaching deep breathing could help ease this transition and make dance class a more comfortable environment for the child (Martin & Pear, 2019).

### **Recreational Dance Studies**

A systematic literature review was conducted to determine the extent of literature related to dance programs for individuals with NDDs, and the role of behavior analysis in these programs (Pontone et al., 2020, *in press*). Inclusion criteria included: (a) a recreational dance intervention or recreational dance as a component of a comprehensive arts program, (b) at least one participant of any age with an NDD, and (c) reported outcomes of the intervention. Results suggest that a limited group of researchers have explored the use of adapted recreational dance programs for this population. Programs range across dance styles such as aerobic dance (Cluphf

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& O'Connor 2001), a traditional or creative dance program (Reinders, Bryden, & Fletcher, 2015), and unique styles such as Capoeira, an Afro-Brazilian martial arts dance form (Levin, 2016). These studies included participants across the lifespan, with diagnoses such as IDs, ASD, ADHD, and comorbid disorders such as cerebral palsy, unspecified behavior disorders, and unspecified developmental delay. These programs demonstrated positive results across domains of physical improvements, such as improved balance (Boswell, 1991), cognitive and social impairments, increased quality of life (Becker & Dusing, 2010), and behavioral improvements, such as a decrease in inappropriate vocalizations (Bachman et al., 1988). However, despite positive outcomes, there have been a limited number of studies focused on children and youth, and a commonality to these studies includes a lack of measurable outcomes, often using self-report measures. A large amount of literature exists for dance programs for typically developing individuals, but research is lacking for this population (Reinders, Bryden, & Fletcher, 2015).

### ***Recreational Dance and Behavior Therapy***

Components of behavior therapy have been incorporated into a limited number of dance interventions, with the inclusion of components such as modelling and prompting to help improve dance skills (O'Connor & Cuvo 2001). Additional embedded components of behavior therapy included positive reinforcement such as praise and a token economy (Cluphf & O'Connor, 2001). Lagomarcino et al. (1984) designed a program which targeted generalization by alternating settings and trainers while teaching dance skills to participants. Nelson et al. (2017) utilized priming, where instructors modelled how to use preferred toys during a dance activity, and then placed these items around a classroom for use during free play. In addition to using behavioral components, there are also studies that have evaluated a recreational dance package through the use of a single case experimental designs (Edwards-Duke et al., 2002).

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More recently, Carrion et al. (2019) explored the use of auditory feedback to improve dance movements in children with disabilities, using the TAGteach (Teaching with Acoustical Guidance) procedure. Generally, these studies demonstrated positive results such as increases in correct performance, and time spent engaged in classroom tasks following dance sessions. These behavior analytic studies demonstrated greater experimental control and include components such as interobserver agreement and treatment fidelity (Nelson et al., 2017). Despite this, there were still methodological concerns with several of these studies, such as a lack of replicable results across participants and limited generalization of skills. This demonstrates the need for additional research to explore the combination of behavior analysis and recreational dance.

### **Why Dance?**

#### *Physical Benefits*

Physical and social well-being across populations can be facilitated through participating in regular physical activity. Given the gross motor deficits experienced by those with NDDs, recreational dance programs can be a modality to access the benefits of physical activity, along with additional outcomes such as psychological benefits. The World Health Organization (2010) has established recommendations across the lifespan, where the suggested amount of daily exercise for children and youth is 60 minutes of aerobic activity. Ensuring that children reach this requirement may help improve speed, strength, flexibility, coordination and muscle control, and heart and lung functioning. Previous studies have demonstrated improvements in balance skills (Boswell, 1991), calorie use (Ito et al., 2017), and walking speed (Cluphf & O'Connor, 2001) after participation in dance programs exclusively for individuals with NDDs, or an integrated program. Results are positive but studies are lacking in methodological rigor and the demonstration of experimental control needed to definitively attribute these benefits to dance.

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Previous designs include controlled trials without randomization, and case studies. Dance programs may help to contribute to the 60 minutes of exercise children need in a way that is fun and comes with added benefits of social interaction and increased self-confidence, resulting in increased access to positive social reinforcement.

### *Psychological Benefits*

In addition to physical benefits such as improved balance skills and muscle control, the positive outcomes of participation extend beyond increases in gross motor skills. Research demonstrates the potential for participants in recreational dance programs to engage in behaviors associated with relatedness to others, including reciprocal conversation, as well as overall positive well-being and lowered psychological stress (Goulimaris, et al., 2014). Participating in recreational dance in a group setting also allows for simultaneous social interaction with peers of a similar age. This allows dancers the opportunity to feel as though they are a part of a larger community, and increases feelings of acceptance by others (Cook, 2005). In classes with a recital, dancers cooperate with one another to choose a song, learn group formations, and can help each other learn the skills required for the routine, furthering the opportunity to feel part of a group. Dance can help children gain specific social skills such as initiating social interactions, increasing verbalizations, and increasing cooperation with others (Lee et al., 2002).

### *Belonging*

Feelings of belonging can be an added benefit for participants of recreational dance programs (Kreutzmann et al., 2018). Belonging can be conceptualized as feeling valued and respected in relationships, as a result of shared experiences and understanding (Mahar et al., 2012). As individuals participate in dance synchronously and have the opportunity to interact and dance alongside similar-aged peers, this can result in feeling recognized and included in a group

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(Zitomer, 2016). Feelings of belonging can also be attributed to a safe environment created during dance classes (Ritchie & Gaulter, 2020). Feeling safe and relaxed in a space could enable dancers to try new skills and expressive movements in front of their peers, resulting in trust and a feeling of comfort in each other's presence. Behaviorally, belonging could result in behaviors such as participating in all components of the session, seeking out the company of peers, and an increased likelihood that the individual will attend future sessions or classes of the program. An individual may also need to describe private events in order for a researcher to further understand what they are experiencing.

### *Popularity*

In addition to all the key benefits it can offer, dance is a culturally shared activity that is used both as a recreational activity and as entertainment, such as on popular reality tv shows (Cardinal, 2013). It is a shared experience in that it is often one of the first activities, for parents who are able to, enroll their young children in (Aujla & Redding, 2013) and can even participate in through parent/child classes. In addition, dance is often built into physical education curriculums in schools. Unlike sports that require padding, a ball, a stick, or a specific location, dance can be performed almost anywhere and at any time, with minimal to no equipment (Dow, 2010). This allows children to practice dance skills across multiple environments. In addition, dance is an art form that offers participants the benefit of self-expression, which may be more important for older children, along with increases in speed, strength, and flexibility (Bloomfield, 2007). While it includes specific skills and targets that are important to meet, there is also room for imperfection, as dancers add their own style or interpretation to choreography. Importantly, dance is one of the only forms of physical activity to advertise as both a sport and an art form, offering the benefits of both, and allowing for individuality within a structured activity.

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### **Why Behavior Therapy?**

Despite the benefits of dance across physical and psychological domains, individuals with NDDs struggle to access programs due to their individual deficits and specific needs (Reinders, Bryden, & Fletcher, 2015). Subsequently, there is potential for behavior therapy to be used in programs for this population. Behavior therapy, as a common component of treatment for NDDs, could contribute to key areas of improvement through dance (Roane et al., 2016). Importantly, behavior therapy, specifically ABA, allows for measurable outcomes and the use of research designs that demonstrate experimental control of intervention packages. The combination of behavior therapy and dance, evaluated with controlled designs, could ensure individuals access therapeutic benefits as well as participation in an enjoyable activity that improves physical, cognitive and social skills. ABA can also be used to effectively teach dance skills using components such as least-to-most prompting, chaining, and differential reinforcement. In addition, generalization is an important dimension of behavior therapy, specifically ABA, as it could help with transferring skill improvement to environments such as typical community dance programs if using adaptations such as token economies or prompt-fading, which are typical procedures used for skill development. This is important as behaviorally adapted programs should serve as an environment to develop pre-requisite skills and to prepare a child to enter a community dance class that is easily accessible. This demonstrates the potential for a blending of these evidence-based behavioral procedures with recreational dance, and the need for further research in this area to demonstrate efficacy.

As a blended program, there is also room to combine components of behavior therapy with recreational dance. Key components, such as relaxation and positive self-talk, could help with anxiety or dysfunctional thinking experienced by participants (Martin & Pear, 2019). The



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setting of a dance class allows for therapeutic components, such as deep breathing or most to least prompting, to be embedded into the program, but also to be delivered on an individual basis, as needed. Behavioral adaptations to dance programs could help children to learn effective coping mechanisms to further skills in emotional regulation. Examples of cognitive strategies that can be embedded into dance classes include deep breathing or positive self-talk. Deep breathing could be incorporated into a warm-up, which typically includes relaxing stretches and activities to work participants' muscles. Positive self-talk could be used to help children reframe their statements around their own performance and their success in the class. Utilizing these skills could help children during the class by giving them strategies to use when they feel overwhelmed by a skill or the class environment.

### *Individualized Approach*

As all dancers and all children with NDDs have their own individual needs and individual challenges, a one size fits all approach for behavioral adaptations may not be the best approach. While standardized components of behavior therapy can be included in dance programs, facilitators of programs could also be prepared to implement specific components as needed. Behavior therapy allows for individualization, in that goals and program plans are tailored to the client (Cooper et al., 2020). Data can also be taken for each participant individually, and the components used can be re-evaluated as needed. Adopting this method in a recreational dance setting could allow for a more individualized and therapeutic experience, while still keeping the structure of a typical class.

### **Facilitation**

In order to provide dance instruction with behavioral adaptations, the instructors of a program must be able to implement these adaptations effectively and feel comfortable doing so.

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In a typical dance class, the focus is often on teaching the dancer proper technique and ensuring they are performing the steps in the correct way (Barr, 2009). This focus can work well for otherwise typically developing individuals but may not be effective for individuals with NDDs who may struggle to keep up with the class physically or have difficulty with the way instruction is given (e.g., instructor focusing on errors in technique, moving quickly through movements, etc.). Dance teachers might need to adjust their class format and instruction in order to better address the needs of this population and to give dancers a greater chance for success. One way this can be done is by identifying and addressing the barriers to facilitation that currently exist.

Aujla and Redding (2013) identified two key barriers for dance instructors: (1) attitudinal barriers, and (2) training barriers. Attitude of facilitators, and parents as well, can often be a barrier to participation as they may hold misconceptions that individuals with disabilities cannot sign up for or excel in a dance class. Additionally, if the child does attend a class the instructor may not believe that they can complete the same skills as the rest of the class, or assume they are not able to dance. Training of facilitators is also a key barrier, as many individuals may not have any knowledge or experience with the challenges of their dancers. They may have no previous experience with this population or with specific behavioral components that can aid with skill development. Further, adaptations that need to be made may not always be obvious, as not all disabilities are visible just from looking at a child (e.g., ADHD; Sherlock-Shangraw, 2013). Individuals may also require diverse instruction that the dance teacher is unable to provide without further training. It is important to explore ways that teachers can be educated on the individuals in their class and their unique needs, and ways to adjust their attitude towards them, in order to provide a welcoming and positive environment that sets a child up for success.

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In addressing barriers to facilitation, as well as additional ways to improve programs with behavioral adaptations, the perspective of parents or guardians is important. Parents are an excellent resource for information about the dancer, as they typically know their child best (Reinders, Fletcher, & Bryden, 2015). Additionally, the parent can help with data collection, for example, by filling out a questionnaire that may be above the child's cognitive level or providing context for their behavior through interviews (Reinders, Bryden, & Fletcher, 2015). While it is ideal to include the child's perspective, parents and guardians can also provide useful information for researchers. Parents can also be instrumental in helping encourage and coach children with NDs through a therapeutic program, as well as equipping them with coping strategies to manage stress or anxiety, or help with social interactions (Vause et al., 2020). There is also evidence to suggest that parents can work with coaches of the sport their child participates in, to help provide the necessary emotional and informational support the child needs to succeed (Knight & Holt, 2013). Parents can be a valuable part of a therapeutic, sport, or blended program, and can be active participants alongside their child.

### ***RE-AIM Framework***

One framework that can be used in reflecting on a novel program is RE-AIM. This framework contains five dimensions: (1) Reach, which includes the representativeness of the participants who were willing to attend the program of the greater population; (2) Effectiveness, which looks at the intervention's outcome and potential consequences; (3) Adoption, the number of settings willing to participate and their representation of the population; (4) Implementation, the degree to which the program is implemented as planned; and (5) Maintenance, which refers to long-term changes (Glasgow et al., 2019). Used frequently in public health research, the RE-AIM framework can help identify and systematically document adaptations that occur before,

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during, or after a program is executed, as well as identify both micro and macro level outcomes. These dimensions can be explored through Bronfenbrenner's (1977; 1999) ecological systems theory, which explores the interactions between one's microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Lemonius & Strachan, 2019). The current study explores two key dimensions of the RE-AIM framework: reach and efficacy. As the program evaluated has not yet been implemented in more than one setting, we could not assess adoption, implementation, and maintenance of the program. This study looked to explore the perspectives of facilitators and parents who participated, and the perceived efficacy of the program outcomes for child participants. I identified with this framework as I felt it enabled us to look at specific elements of the program and to reflect on our goals for future iterations. Further, there is the option to re-evaluate the program using all of the RE-AIM dimensions once it is implemented by others.

### **Dance with a B-E-A-T**

Dance with a B-E-A-T (behavior analysis and therapy) is a blended program combining recreational dance and components of behavior therapy (Staite et al., *in progress*). This program was developed as an 8-week program for individuals aged 7 to 13 years with a diagnosis of a neurodevelopmental disorder. Dance with a B-E-A-T took the format of a typical dance class, with skills taught at the front of the class as well as across the floor, and a mix of skills typical to beginner jazz and ballet classes (e.g., ballet positions, pivot turns, kicks, jumps, etc.). Three participants took part in the pilot implementation of this program from May-June 2020 (Davis et al., *in progress*). In order to inform future iterations of this program, it is important that we evaluate this program using information gathered from multiple stakeholders (parents and facilitators), with a focus on how to improve facilitation. Looking critically at the pilot program

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will enable us to identify areas for improvement as well as components that worked well.

Further, the perspective of facilitators is crucial, as they are essential for implementation of the program and ensuring that added behavioral components are utilized effectively with this population.

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### **Stakeholders in Dance: A Case Study Examining Facilitator Perspectives of Dance with a B-E-A-T**

Dance as physical activity can be an enjoyable experience that combines the benefits of both exercise and artistic expression. It is a shared experience in that it is often one of the first activities that parents enroll their young children in and can even participate in through parent/child classes. Dance is an activity that is enjoyed within and across cultures and is seen both as a recreational activity and as entertainment, such as on popular reality tv shows (e.g. “So You Think You Can Dance”; Cardinal, 2013). When participation is possible, recreational dance programs allow individuals opportunities to access health benefits, as well as a supportive social environment fostering collaboration and cooperation (Murcia & Kreutz, 2012). Despite the multitude of benefits and the many programs that exist, children and youth with disabilities often have difficulty accessing or participating in recreational dance programs (Reinders, Fletcher, & Bryden, 2015). This is a missed experience for physical activity, but also for learning social and coping skills in a natural environment, where socialization and developing a positive mindset is inherent to the program (Murcia & Kreutz, 2012). Subsequently, there is a need for empirical evidence as to what behavioral adaptations can be made and validated to help facilitate participation in dance for this population. Currently, there is limited research evaluating behavioral adaptations that are beneficial for recreational dance programs and how they can be effectively implemented (Pontone et al., 2020, *in press*).

#### **Neurodevelopmental Disorders**

Neurodevelopmental disorders (NDDs) include diagnoses such as autism spectrum disorder (ASD), intellectual disabilities (ID), learning disabilities, and attention-deficit hyperactivity disorder (ADHD; DSM-5, APA, 2013). Individuals with NDDs may experience

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deficits across physical, social, and academic domains. While there are differences in the level of deficits experienced, there are commonalities across diagnoses. An important piece that is often shared between several NDDs is a delay in the development of gross motor skills, or difficulty with coordination. For example, individuals with IDs can struggle with the acquisition of recreational skills (DSM-5, APA, 2013), such as dance, often needing support from others or additional practice opportunities.

In addition to gross motor delays, NDDs are also associated with difficulties in social skills and executive functioning. Social skills include behaviors such as joining in a conversation, or asking for help when necessary (Dogan et al., 2017). A child with ASD, for example, can experience difficulty with making and retaining friendships. Diagnoses such as ASD and ADHD also share deficits in executive functioning, which includes functions like working memory and response inhibition (Corbett et al., 2009). Typically, these functions develop gradually throughout the lifespan, but can be delayed or challenging for this population (Neely et al., 2016). Comorbid disorders such as anxiety are also common in individuals with NDDs, and this includes symptoms such as increased or excessive worry, difficulty concentrating, and significant distress in specific situations (DSM-5, APA, 2013).

### **Why Dance?**

Physical and social well-being across populations can be facilitated through participating in regular physical activity. Given the gross motor deficits experienced by those with NDDs, recreational dance programs can be a modality to access the benefits of physical activity. Ensuring that children participate in physical activity, such as a dance class, may help improve speed, strength, flexibility, coordination and muscle control, and heart and lung functioning. Previous studies have demonstrated improvements in balance skills (Boswell, 1991), calorie use



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(Ito et al., 2017), and walking speed (Cluphf & O'Connor, 2001) after participation in dance for individuals with NDDs. In addition to physical benefits such as improved balance skills and muscle control, the positive outcomes of participation extend beyond increases in gross motor skills. Research demonstrates the potential for participants in recreational dance programs to engage in behaviors associated with relatedness to others, including reciprocal conversation, as well as overall positive well-being and lowered psychological stress (Goulimaris, et al., 2014). Participating in recreational dance in a group setting also allows for simultaneous social interaction with peers of a similar age. This enables dancers to feel as though they are a part of a larger community and are accepted by others (Cook, 2005). Dance programs can also help facilitate feelings of belonging for those who participate (Kreutzmann et al., 2018). Belonging can be conceptualized as feeling valued and respected in relationships, as a result of shared experiences and understanding (Mahar et al., 2012). As individuals participate in dance synchronously and have the opportunity to interact and dance alongside similar-aged peers, this can result in feeling recognized and included in a group (Zitomer, 2016). Feelings of belonging can also be attributed to a safe environment created during dance classes (Ritchie & Gaulter, 2020).

### **Recreational Dance and Behavior Therapy**

Dance offers a multitude of benefits across physical and psychological domains, yet individuals with NDDs often struggle to access programs due to their individual challenges and specific needs (Reinders, Bryden, & Fletcher, 2015). Subsequently, there is potential for behavior therapy to be used in programs for this population. Behavior therapy, as a common component of treatment for NDDs, could contribute to key areas of improvement through dance (Roane et al., 2016). Importantly, behavior therapy, specifically ABA, allows for measurable

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outcomes and the use of research designs that demonstrate experimental control of intervention packages. Experimental control is important in evaluating the efficacy of adding behavioral components to recreational dance programs. The combination of behavior therapy and dance could ensure individuals access therapeutic benefits as well as participation in an enjoyable activity that improves physical, cognitive, and social skills. ABA could also be used to effectively teach dance skills using components such as least-to-most prompting, chaining, and differential reinforcement. In addition, generalization is an important piece of behavior therapy, as treatment effects can be transferred across settings or behaviors (Cooper et al., 2020).

Components of CBT could also be combined with recreational dance in creating a blended program. Components such as deep breathing and relaxation, as well as positive self-talk, could help with anxiety or dysfunctional thinking experienced by participants (Martin & Pear, 2019). The setting of a dance class allows for therapeutic components to be embedded into the program, but also to be delivered on an individual basis, as needed. Behavioral adaptations to dance programs could help children to learn effective coping mechanisms to further skills in emotional regulation. Examples of cognitive strategies that can be embedded into dance classes include deep breathing or positive self-talk. Utilizing these skills could help children during the class by giving them strategies to use when they feel overwhelmed by a skill or the class environment.

Behavior analysis has been incorporated into a limited number of dance interventions in the literature, with the inclusion of components such as modelling and prompting to help improve dance skills (Pontone et al., 2020, *in press*). Additional embedded components of behavior analysis included positive reinforcement such as praise and a token economy (Cluphf & O'Connor, 2001). More recently, Carrion et al. (2019) explored the use of auditory feedback to

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improve dance movements in children with disabilities, using the TAGteach (Teaching with Acoustical Guidance) procedure. Generally, these studies demonstrate positive results such as increases in correct performance, and time spent engaged in classroom tasks following dance sessions. These behavior analytic studies demonstrate greater experimental control and include components such as interobserver agreement and treatment fidelity (Nelson et al., 2017). Despite this, there are still methodological concerns with several of these studies, such as a lack of replicable results across participants and limited generalization of skills. Additional research is needed to strengthen the results of these studies.

### **Facilitation**

In order to provide dance instruction with behavioral adaptations for this population, the instructors of a program must be able to implement these adaptations effectively and feel comfortable doing so. Aujla and Redding (2013) identified two key barriers for dance instructors: (1) attitudinal barriers, and (2) training barriers. Attitude of facilitators, and parents as well, can often be a barrier to participation as they may unknowingly avoid encouraging individuals with disabilities from signing up for dance classes, or from participating in classes they feel are above their skill level. Additionally, if the child does attend a class the instructor may not believe that they can complete the same skills as the rest of the class, or assume they are not able to dance based on their perception of the child's motor and social skills. Training of facilitators is also a key barrier, as many individuals may not have any knowledge or experience with the challenges, or strengths, of their dancers. They may have limited previous experience with this population or with specific behavioral components that can aid with skill development. Further, adaptations that need to be made may not always be obvious, as not all disabilities are visible just from looking at a child (e.g., ADHD; Sherlock-Shangraw, 2013).

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### **Parents**

In addressing barriers to facilitation, as well as additional ways to improve programs with behavioral adaptation, the perspective of parents or guardians is also important. Parents are an excellent resource for information about the dancer, as they typically know their child best (Reinders, Fletcher, & Bryden, 2015). Parents could also help with data collection, for example, by filling out a questionnaire that may be above the child's cognitive level or providing context for their behavior through interviews (Reinders, Bryden, & Fletcher, 2015). While it is ideal to include the child's perspective, parents and guardians can also provide useful information for researchers. Parents can also be instrumental in helping encourage and coach children with NDs through a therapeutic program, as well as equipping them with coping strategies to manage stress or anxiety, or help with social interactions (Vause et al., 2020). There is also evidence to suggest that parents can work with coaches of the sport their child participates in, to help provide the necessary emotional and informational support the child needs to succeed (Knight & Holt, 2013). Parents can be a valuable part of a therapeutic, sport, or blended program, and can be active participants alongside their child.

### ***RE-AIM Framework***

One framework that can be used in conducting a program evaluation is RE-AIM. This framework contains five dimensions: (1) Reach, which includes the representativeness of the participants who were willing to attend the program of the greater population; (2) Effectiveness, which looks at the intervention's outcome and potential consequences; (3) Adoption, the number of settings willing to participate and their representation of the population; (4) Implementation, the degree to which the program is implemented as planned; and (5) Maintenance, which refers to long-term changes (Glasgow et al., 2019). Used frequently in public health research, the RE-

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AIM framework can help identify and systematically document adaptations that occur before, during, or after a program is executed, as well as identify both micro and macro level outcomes. These dimensions can be explored through Bronfenbrenner's (1977; 1999) ecological systems theory, which explores the interactions between one's microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Lemonius & Strachan, 2019). The current study explores two key dimensions of the RE-AIM framework: reach and efficacy. As the program evaluated has not yet been implemented in more than one setting, we could not assess adoption, implementation, and maintenance of the program. This evaluation looked to explore the perspectives of facilitators and parents who participated, and the perceived efficacy of the program outcomes for child participants. I identified with this framework as I felt it enabled us to look at specific elements of the program and to reflect on our goals for future iterations. Further, there is the option to re-evaluate the program using all of the RE-AIM dimensions once it is implemented by others.

### **Dance with a B-E-A-T**

Dance with a B-E-A-T (behavior analysis and therapy) is a blended program combining recreational dance and components behavior therapy (Staite et al., *in progress*). This program was developed as an 8-week program for individuals aged 7 to 13 years with a diagnosis of a neurodevelopmental disorder (Davis et al., *in progress*). Dance with a B-E-A-T took the format of a typical dance class, with skills taught at the front of the class as well as across the floor, and a mix of skills typical to beginner jazz and ballet classes (e.g., ballet positions, pivot turns, kicks, jumps, etc.). Components of behavior therapy, such as most to least prompting, positive reinforcement, and positive self-talk, were incorporated into different components of the program. Four participants took part in the pilot implementation of this program, and three

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completed both pre and post data collection sessions. General results showed a significant improvement in the motor skills for two out of three participants as measured by probes of specific dance skills. Additionally, two out of three parents reported an increase in self-efficacy scores from pre to post program. Both parents and children were extremely satisfied with their experience and enjoyment of the program, as reported on a consumer satisfaction questionnaire. In order to inform future iterations of this program, it is important that we evaluate this program using information gathered from multiple stakeholders (parents and facilitators), with a focus on how to improve facilitation. Looking critically at the pilot program will enable us to identify areas for improvement as well as elements that worked well.

### **Purpose**

Therefore, the purpose of this study was to gather and synthesize information from the experience of facilitators of Dance with a B-E-A-T to inform future programs blending recreational dance and behavior therapy. We were specifically interested in determining the components of the programs that facilitators found to be effective or challenging both for the participants and for implementation of this blended program. Further, we looked to evaluate how their experience compared to information given by parents in a qualitative interview completed after conclusion of the pilot study. Last, we aimed to identify areas of improvement for future iterations of the programs, as well as current areas of strength.

## **Methodology**

### **Pilot Program**

This study was a follow-up to the pilot program Dance with a B-E-A-T (Staite et al., *in progress*) and as such, it is important to contextualize our methodology with a description of the previous project. Dance with a B-E-A-T! was piloted using three case studies with pre and post

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assessments (Davis et al., *in progress*). As mentioned, this was an 8-week program, where four participants attended the dance class at the same time, allowing for a group setting. All participants were diagnosed with or exhibited symptoms of an NDD (ASD, ID, ADHD) and one participant was diagnosed with a comorbid anxiety disorder. The program had a 1:1 ratio of instructor to participant as four facilitators were present for most sessions. While this program shared a structure with a typical recreational dance program, it also included the addition of behavioral components which were implemented on an individualized basis. Examples of these components include a token economy where reinforcement was contingent on correct performance, pro-social behavior, and displaying a positive attitude; a most to least prompting hierarchy; extra-stimulus prompts of stickers for spotting and pool noodle lanes for practicing skills; as well as such as deep breathing and positive self-talk.

Pre and post-data collection included a demographic questionnaire for parents, a self-efficacy questionnaire for parents and children, a consumer satisfaction questionnaire for parents and children, as well as probes of 10 motor and balance skills, which were broken down into task analyses (Davis et al., *in progress*). Examples of the ballet, jazz, and balance skills assessed for proficiency included a chassé step ball-change, piqué turn, pivot turn, and tree pose. Pre and posttest probes were conducted, and results were reported as percentage of correct performance for the participants. A self-efficacy scale (see Appendix E) was developed by the research team, given the lack of a standardized scale in the literature, which was confirmed by experts in the field of dance. This scale was based on one developed by Bandura (2006), and questions were designed to target perceived self-efficacy related to dance skills, social skills, and emotional and behavioral regulation. Consumer satisfaction (see Appendix F) was measured using a questionnaire. The questionnaire consisted of a 7-point Likert Scale, which asked parents and

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children, who both completed the questionnaire, how satisfied they were with various components of the dance intervention program. Three out of four participants attended both the pre and post data collection sessions.

### **Results**

Overall, participants demonstrated improvement across motor probes (Davis et al, *in progress*). Across the three participants who completed both pre and post-test probes scored using task analyses for each skill, there was a mean improvement in correct performance from 34% (29%, 35%, and 37% respectively) to 67% (45%, 72%, and 80%, respectively). A t-test was used to compare pre and post-test means for all three participants. For two of three participants, a two-tailed t-test demonstrated a significant increase from pre to post ( $p < 0.05$ ). Neither a significant increase nor decrease was found for the third participant ( $p > 0.05$ ). Using the self-efficacy scale designed by the team, two of three parents reported slightly increased self-efficacy scores for their child after participation in the program (overall score of 200 increased to 234; 155 increased to 190; maximum score = 374). One parent reported a decreased score (160 decreased to 141). The mean score for all participants increased slightly from 58% (175/374;  $SD = 20.14$ ) to 64% (194/374;  $SD = 38$ ) from pre to posttest. Categories for the scale included Dance/Motor/Balance skills, Social Skills/Sense of Belonging, Worry and Coping Skills, and Emotional Regulation Skills. Consumer satisfaction questionnaires revealed overall satisfaction from all parents with the program and its facilitation, with scores ranging from 46-49 ( $M = 48$ ,  $SD = 1.41$ ), out of a possible 49 points. Comments from parents and children included positive feedback on their experience with the program, reports of enjoyment of the program, and feelings of success and accomplishment for themselves or their child.

### **Rationale and Objectives for the Current Study**



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As Dance with a B-E-A-T has only been explored in a pilot study, it is important that future iterations include refined behavioral and program components to potentially increase efficacy. The perspective of the program stakeholders is valuable in this process, as children, parents, and facilitators can provide suggestions that draw from their personal experience. This study has the potential for long term benefits to programs like Dance with a B-E-A-T, and broadly to expand the fields of behavior therapy and sport.

The objectives for this study were:

- 1) To identify which aspects of the program the facilitators perceived as being the most successful/beneficial for participants.
- 2) To identify which aspects of the program that facilitators perceived as being the most challenging for participants.
- 3) To identify how facilitators would describe the role of behavior therapy in the perceived successes and challenges with the program.
- 4) To identify what facilitators found to be successful or challenging in implementing a blended (recreational dance and behavior therapy) program.
- 5) To compare the experience of facilitators to the experience of parents collected after completion of the pilot.
- 6) To develop recommendations that are informed by the experiences of the facilitators and parents.

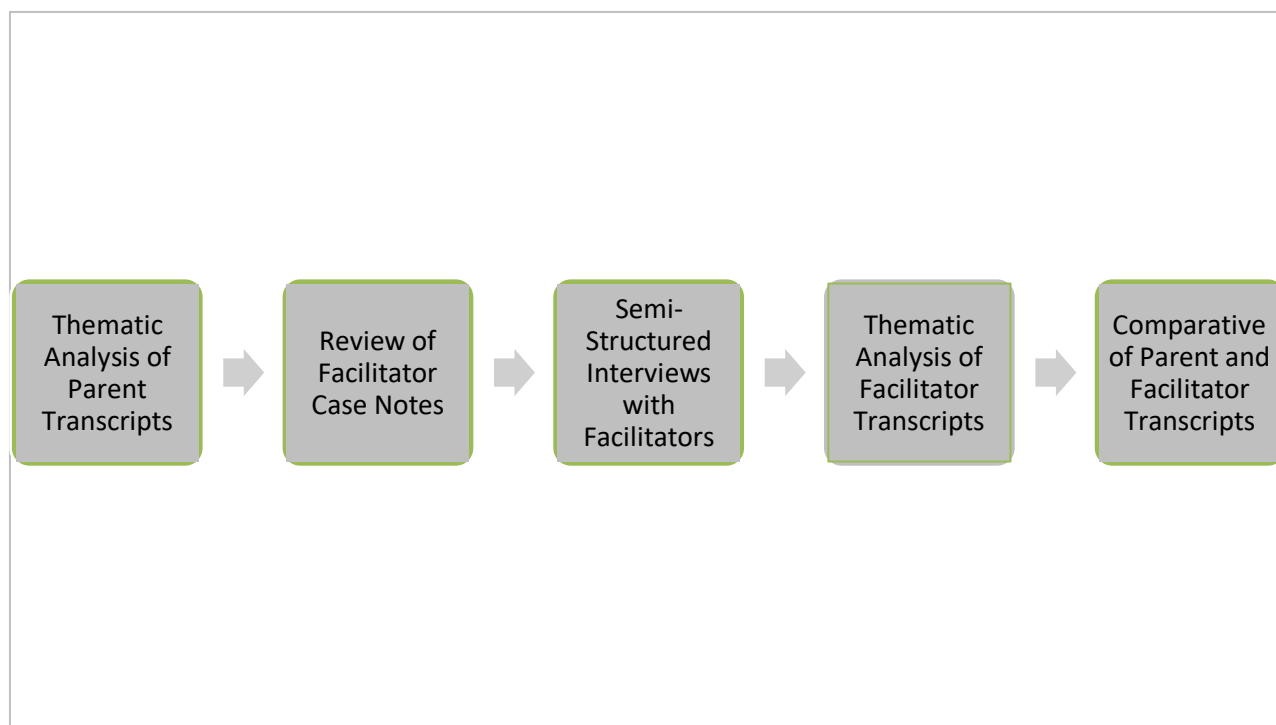
### **Research Design**

The order of methods used in this study informed components of the research design, and as such are identified in Figure 1.

### **Figure 1**

*Overview of Methods*

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*Note.* This figure displays the different elements of the methods section, and the order in which they were completed.

An intrinsic case study design was used to evaluate the components of program Dance with a B-E-A-T that were perceived to be effective or challenging, as well as to explore recommendations for future programs (Creswell & Poth, 2017). A case study allows for an in-depth analysis of a real-life bounded system (a case) and can include multiple sources of information. With an intrinsic case study, the case itself is of primary interest, and involves a detailed description of the case within its context. We felt that this design was the best fit as we were interested in evaluating this specific program, Dance with a B-E-A-T, in its first phase. Dance with a B-E-A-T is a unique program that has been experienced only by the specific group of stakeholders involved in the pilot. An intrinsic case study allowed us to focus on the experience of facilitators, with supporting data from parents, in implementing this blended

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program. While similar programs may exist, the literature suggests that Dance with a B-E-A-T as a blended program is a novel approach to recreational dance for this population.

### **Comparative Elements**

Throughout this study, and particularly as parent data were evaluated, elements of a comparative case study were included in the design. A comparative case study looks at multiple cases or sites and looks for similarities, differences, or patterns between them (Bartlett & Vavrus, 2017). Initially we looked to solely explore the perspective of facilitators, but as a thematic analysis of parent transcripts was being conducted to inform interview questions it became clear that a rich amount of data was present. The research questions for this study (see Table 1) were also used to inform the coding of parent transcripts, where we attempted to pull out information related to the questions. In an effort to include this information, the codes established during the initial analysis became the basis of the thematic analysis of facilitator transcripts. Facilitator data was also compared to parent data at the conclusion of both analyses. While this study does focus on facilitators and is identified as an intrinsic case study, it is also important to note the comparative elements that were included.

### **Table 1**

#### *Research Questions*

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Research Questions
1. How would the facilitators of Dance with a BEAT describe the program's success?
2. How would the facilitators of Dance with a BEAT describe the program's challenges?
3. How would facilitators describe the role of behavior therapy on the successes and/or challenges to participant outcomes?
4. How would facilitators describe their experience implementing a blended program?
5. How does the experience of the facilitators compare to the experience of parents?

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6. What, if any, recommendations would the facilitators or parents make to improve the Dance with a B-E-A-T program?
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### **Sample**

Critical case sampling was used to identify the sample for this study, meaning cases were selected for their importance to the overall study, as well as opportunities for generalization of the findings to other cases with a similar sample (Quinn Patton, 2014). Facilitators of the pilot program Dance with a B-E-A-T were identified as key participants, as we were interested in learning about their experiences and thoughts on implementation, as well as their perspectives on the experience of the child participants. Facilitators of this program included three graduate students, aged 22-31 ( $M = 25$ ). All students were part of the same lab and assisted with the development of the program curriculum.

One student created and facilitated the program as partial fulfillment of her master's thesis. Participants had varying degrees of education in dance and behavior therapy. Facilitator one, pseudonym Amy, was a competitive dancer completing a Master of Arts in Child and Youth Studies, where Dance with a B-E-A-T was the subject of her thesis. Her experience predominantly included implementing components of cognitive behavior therapy and she had taken classes in behavior analysis. Facilitator two, pseudonym Katie, was also a competitive dancer and a Board-Certified Behavior Analyst (BCBA). She completed a Master of Arts in Applied Disability Studies, with a specialization in applied behavior analysis, and had extensive experience implementing ABA. Facilitator three, pseudonym Emma, was completing a Master of Arts in Applied Disability Studies, with a specialization in ABA. She had previously taken undergraduate classes in ABA and was involved in a research project that used components of cognitive behavioral therapy (CBT) for children with ASD and obsessive-compulsive behavior.

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She had limited dance experience but was certified as a gymnastics teacher at the time of the program.

In addition to three other graduate students, I was involved in Dance with a B-E-A-T as a facilitator. As such, my analysis and interpretation of the data is informed by my own experience. In addition, I am a student in applied behavior analysis, who has completed master's level coursework, with experience in recreational dance, and a Bachelor of Arts in Child and Youth Studies. My framework is drawn from a combination of my experiences and impacted the conclusions drawn. This informed the choice of design selected, as I was interested in exploring the perspectives of stakeholders for Dance with a B-E-A-T. This subsequently shaped my research questions, as I have a passion for working with individuals with disabilities and improving the programs that are available to this population. I sought to discover what the existing barriers were to the program, and to highlight the successes. Further, I was interested in looking for common themes across the data and allowing this to be shaped by pre-determined categories based on my research questions.

This study was first approved by the university research ethics board at Brock University (addendum to REB# 18-121). Facilitators were then contacted via email and sent a letter of invitation (see Appendix A) to participate in this follow-up study as a result of their participation in the pilot. Due to COVID-19, data collected for this study took place online instead of in person. Once facilitators identified their interest in participation, they were provided with a calendar link with instructions on how to access the virtual meeting room. Facilitators were provided with a consent form prior to the interview, and this was reviewed at the beginning of the session (see Appendix B). Interviews were conducted over a secure video platform, where facilitators had the choice to have their video camera turned on or off. In order to complete the

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session facilitators needed access to a microphone in order for audio to be received. As the researcher conducting the interviews, I ensured my video and audio remained on for the duration of the session. All interviews were recorded and stored on the video platform. Facilitators completed the interviews using their personal computers with a secure internet connection.

### **Methods**

#### ***Ontology and Philosophy***

My ontology is that of a positivist, in that I seek to discover relationships between constructs, and believe that the truth is discoverable (Berryman, 2019). This typically includes approaching research with a theory or hypothesis, or explanation to be tested. The philosophical approach I took to this research was post-positivist, as I hold the belief that patterns exist in the social world, and that we can uncover and test these relationships using attested strategies (Hesse-Biber, 2016). Further, theories, background knowledge, and hypotheses can influence the observations made in a study. While this study does not explicitly test relationships or a hypothesis, deductive analysis was used to uncover themes in the data based on some pre-determined codes and categories. While semi-structured interview questions typically fall under the domain of an interpretivist, in this case open-ended questions allowed us to uncover the information we were looking to gather. As the interviewer, I approached the sessions with a desire to uncover relationships and patterns in the shared and unique experiences of facilitators.

#### ***Thematic Analysis***

Thematic analysis, as described by Braun and Clark (2012), includes systematically organizing the dataset such that you can highlight patterns of meaning. In other words, analyzing the data such that you are able to pull themes across a dataset. This can also be done across different experiences, such as across facilitators and parents. Braun and Clarke highlight the

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phases of a thematic analysis, including (1) “Familiarizing Yourself with the Data”, (2) “Generating Initial Codes”, (3) “Searching for Themes”, (4) “Reviewing Potential Themes”, (5) “Defining and Naming Themes”, and (6) Producing the Report (2012, pp 60-69). The steps may need to be completed multiple times, as you continue to interact with the data. The software NVivo was used in this study to complete the analysis. This was utilized to help organize the dataset and for comparison of data across participants.

**Deductive Approach.** Utilizing a deductive approach to complete a thematic analysis includes looking at the data through the lens of theory or interest in a specific area (Braun & Clarke, 2006). This results in a more detailed analysis around the specific questions asked during the study, as opposed to allowing questions and foci to evolve throughout the coding process. A deductive approach also involves having some pre-determined categories, or codes, to start the analysis (Azungah, 2018). This was the primary approach I took to coding.

**Inductive Approach.** Using an inductive approach includes themes that are linked to the data and are not necessarily linked to the research questions or the theoretical orientation of the researcher (Braun & Clarke, 2006). This kind of analysis is data-driven and does not attempt to fit within specific categories or frameworks. While coding, I had my research questions with me, and had a number of pre-determined codes, but I also reviewed all of the information in the transcripts for anything that did not fit within my preconceived notions. I allowed new patterns or themes to be discovered along with the specific information I was looking for. In this way, I took a mixed approach to coding, using aspects of both a deductive and inductive approach. The majority of findings in the parent comparison sections, as well as the sub-theme of belonging, stem from the inductive approach.

### *Parent Interview Transcripts*

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Following the pilot study, parents of participants were invited to participate in a semi-structured interview related to their child's experience with the program, to help inform future iterations of this program. The aim of the interviews was to discuss the general successes and challenges of the participants in their everyday lives, as well as the feelings of the parents towards their child's involvement in Dance with a B-E-A-T. The questions also centred around the components of the program that parents thought worked well, and recommendations for future research. Questions were developed based on consumer satisfaction data and were created in consultation with an experienced qualitative researcher. Two parents of the participant (one mother and one father, respectively) participated in the interviews, where their opinions and experiences with observing their child in the program were explored (see Appendix C for interview questions). The transcripts from these interviews were used as a source of data in this study to help inform interview questions for facilitators. I first reviewed these transcripts to determine the sections that were relevant for the current study. For example, if a parent discussed an event that occurred at a different program or in school, this was not included. This helped me to focus on information related to the research questions. I then conducted a thematic analysis of parent interview data, using a deductive approach. My research questions helped to inform the analysis, where I coded both within and across the two transcripts. Throughout the coding process I looked for salient themes that were informed and supported by quotes from the parents. Although I began with a deductive approach, I also used an inductive approach while coding as I was open to new themes and looked through the transcripts for any interesting patterns or information outside of my research questions.

The information gathered from this process helped determine the specific questions asked to facilitators, as this identified areas of focus and areas where gaps in information still existed.



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Further, the codes developed during this process were used as the starting point for the thematic analysis of facilitator transcripts.

### *Case Notes*

Case notes were taken by each facilitator following all eight sessions of the pilot study. We felt the case notes were important to include as they are a cultural artifact (gives information about the cultural creator) that identifies how the facilitators were feeling and what they were thinking at the time of each session (Savin-Baden & Howell Major, 2013). This offered unique insight into their experiences as they occurred. At the time case notes were written, prompts were provided for the facilitator which informed their description of the sessions. The notes included information on the accomplishments and challenges of child participants, as well as components of behavior analysis and therapy utilized. Facilitators described specific behavioral components used for the participant they were paired with, and the impact of these components on their performance in the class. Additionally, case notes contained information on the skills targeted for each session, and any social interactions between participants. The case notes were especially important in capturing the feelings and thoughts of the facilitators when they were in the process of running the program. Case notes can be helpful in preserving observations that a participant may not remember in detail or feel the same way about at a later time.

After the interview questions had been drafted, and prior to beginning the interviews with facilitators, I reviewed the case notes written by facilitators. All case notes across facilitators and across sessions were explored as preparation for the interviews. The information in the case notes was used to provide context to each interview and enabled me to prompt the facilitators on specific topics if they were not initially discussed.

### *Triangulation*

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Both case notes and parent interview transcripts were included as a form of data triangulation. This includes using more than one source of data in the study to explore the research questions (Quinn Patton, 2002). We felt this would strengthen the validity of this study through convergence of the data and provide a fuller picture of the case analyzed. The case notes provided insight into the experience of the facilitators at the time the program was running, which were important to review given the interviews took place 16 months after the program concluded. Parent transcripts offered an additional source of information to draw from and helped support the themes drawn from the primary dataset.

### *Semi-structured Interviews with Facilitators*

Semi-structured interviews involve the use of an interview guide, where open-ended questions are drafted prior to the session (Adams, 2015). A semi-structured interview guide was developed for this study (see Appendix D). Researchers typically decide on the order of questions, but this can be adapted during the interview to fit with the flow of discussion. During the interview, researchers should begin with the simplest questions, gradually working towards the most personal, in order to maintain the comfort level of participants. Researchers should also listen for information that could be probed further and explored through additional discussion. The conversation should be steered towards the participant and the topics they chose to speak about.

After consent was obtained, the interview opened with the first question. From here, I followed the lead of the participants in asking either the subsequent question on the list, a follow-up question to their answer, or skipped ahead to a more relevant question. Regardless of order, all questions were asked during each interview. Facilitators were encouraged to ask questions if they had any, and to share any information they felt was relevant to the question. Interviews

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lasted approximately 1-1.5 hr. Although the ideal interview time is an hour at maximum, facilitators did not display any signs of fatigue, and were eager to continue sharing their experiences.

### *Analysis of Facilitator Transcripts*

Following the interviews, the audio files were inserted into the web app Descript, and manually edited by listening to the recording. The transcripts were then uploaded into the software NVivo, to assist with coding. I conducted a thematic analysis, where themes were developed both within and across facilitators, using the software to help organize and sort the data. Several rounds of coding were conducted to ensure information was not missed, and to explore the data from a fresh perspective. The steps of this analysis identified by Braun and Clarke are expanded on below (2012, pp 60-69).

**(1) “Familiarizing Yourself with the Data”.** This step included reading the transcripts multiple times to become familiar with the content. This ensured that I was able to navigate through the transcript with ease, which made the coding process more efficient.

**(2) “Generating Initial Codes”.** After reading through the documents, I returned to them with the intention of pulling out words and phrases that appeared to be significant. As I was using a deductive approach to the coding process, I had my research questions available while reading and looked for information that helped to provide answers. I also utilized the codes developed during the analysis of the parent transcripts, as there was data from the facilitators that fit under these pre-existing categories. I began coding within transcripts, going through each facilitator transcript separately. After I had identified codes for each transcript, I then looked across facilitators to explore codes that were similar or different, or any information that stuck out when examining all three transcripts together.

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(3) **“Searching for Themes”**. In looking at the three transcripts together, I also aimed to merge codes together to form themes, by identifying any overarching categories that emerged from the existing data. Through this process I was able to identify key themes to focus on, and to refine the codes I had previously come up with.

(4) **“Reviewing Potential Themes”**. After coming up with themes I reviewed them multiple times and rearranged the codes that fell beneath them. I went back to this step several time to ensure the themes were related to the research questions and were an accurate representation of the experience of the facilitators. I also considered if they fit the data gathered from parent interviews, given the comparison that would take place after the analysis was complete.

(5) **“Defining and Naming Themes”**. During this step, I made decisions about the names and operational definitions for my themes and ensured that they captured all of the information necessary to address the research questions. This included reviewing all subcategories under each theme and evaluating the quotes listed for each.

6) **“Producing the Report”**. To conclude the coding process I used my themes to write the results section and included pertinent information and quotes where necessary to support the conclusions reported.

### *Comparison Between Data Sources*

As a final step, facilitator data was compared to parent data to determine similarities and differences between the two datasets. We felt it was important to include this step as the parents and facilitators brought up similar information and stories during their interviews. As the codes used for the parent transcripts were utilized in the analysis of the facilitator transcripts, there were a number of similarities to report between the two sources of data. I also reviewed the

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codes for both sets to identify where the differences lay, and why they existed. Comparing these two sources of data helped to strengthen the support for common themes and to provide a fuller picture of their experiences with the program.

### Results

In conducting a thematic analysis of both facilitator and parent interview transcripts, we identified three key themes: (1) Blending Recreational Dance and Behavior Therapy as a Novel Approach, (2) Benefits of the Program, and (3) Refinements and Recommendations. These codes were initially created while analysing the parent data and were intended to address the research questions for this study. As these themes were used as a guide in coding the facilitator data, information was coded into the existing sub-categories developed during the initial analysis, and additional sub-categories were added. Please see Table 2 for the themes and sub-themes. In reporting the results, facilitator data will be presented independently, followed by a comparison to parent data which includes information from the first analysis.

**Table 2**

*Themes and Sub-Themes*

	Theme	Sub-Themes
1	Blending Recreational Dance and Behaviour Therapy as Novel	<ul style="list-style-type: none"> <li>• Individualization</li> <li>• Therapy in Dance</li> <li>⇒ Use of Behavioral Components</li> </ul>
2	Benefits of the Program	<ul style="list-style-type: none"> <li>• Belonging</li> <li>⇒ Self-Esteem</li> <li>• Enjoyment of the Program</li> </ul>
3	Refinements and Recommendations	<ul style="list-style-type: none"> <li>• Individual Needs</li> <li>• Facilitators</li> <li>⇒ Attitude</li> <li>⇒ Training</li> <li>⇒ Diverse Team</li> </ul>

- Refining Components
- 

### **Theme 1: Blending Recreational Dance and Behavior Therapy as Novel**

The first theme relates to the novel approach taken when creating a blended program using recreational dance and therapy. As there are a lack of similar programs in the literature, it is important to consider what makes this program unique, and how this benefits the individuals who participate. Facilitators spoke to the individualized approach taken for this program, and the use of specific behavioral components.

#### ***Individualization***

As a limited number of participants attended this pilot program, there was an opportunity to offer individualized support for each child. Every participant was paired with a facilitator who primarily worked with them for the duration of the program. This enabled the facilitators to provide additional instruction, modelling, prompts, and general support to the participant throughout the hour-long class. Each child received a different combination of the behavioral components that facilitators were trained to implement, and this was based on their individual needs. Katie commented on this, saying:

I think some of the components that were maybe individualized [...] I think we were really good at kind of meeting the needs of each of the participants and making adjustments that needed to be made for them specifically. Um, so I think that's something that worked well.

This is a key difference between a typical community class and a dance program with behavioral adaptations. In a traditional setting, there is one teacher for a large group of students, and they likely do not have the time, or training, to provide this support to each child. Amy commented, “Yeah. Like not something you would see in a community dance program at all [...] not that I've

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ever experienced or seen anyway”. She also discussed the need to build rapport with the participants, and that this one-to-one approach allowed for this.

The ability to individualize the support given to each participant also worked well with their differing skill levels. As each child was a different age and had individual challenges, they moved through the skills at different paces, with some requiring more instruction and practice than others. Speaking about a participant who often needed extra support to learn the skills being taught, Emma said:

So that's why I was feeling like I needed more time to, to, to put any prompting procedure in place or any reinforcement procedure in place because. She (sic) took her longer to process understand show (sic) that she understood what I was saying. That's what I was trying to explain there. Yeah. So it was just interesting to, it's hard to encompass everyone's abilities and capacity to learn.

This demonstrates the unique needs of the participants in this group, and the benefit of having the behavioral adaptations tailored for them. This extra support and attention helped everyone to flourish in the setting, and to make improvements regardless of their abilities relative to the rest of the class.

### *Therapy in Dance*

In addition to an individualized approach, arguably the most novel aspect of Dance with a B-E-A-T is the embedded behavioral components. These components have the potential to provide participants with both the therapeutic benefits accessed in a typical ABA or CBT session, while enjoying their experience with dance. Further, these behavioral adaptations can help make dance more accessible as they can enhance skill development and provide tools for facilitators to use in teaching and managing the class. Facilitators identified that the setting of

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this program was ideal for implementing these components, as it was a fun and welcoming space, where the focus was on the positive. Emma commented:

So it's a really nice non-judgemental way to do therapy. So the kids feel like they just, they're just showing up to do this fun activity [...] and it helps build rapport with the instructors, which helps introduce the therapy, the treatment gains.

Typical therapy sessions do not involve movement or music, and often focus on identifying and addressing deficits. In this setting, the participants accessed some of the benefits of ABA and CBT while using their energy in a fun and positive way. Katie further discussed the use of dance to access the benefits of therapy:

It's, it's Dance with a B-E-A-T is the emphasis as a whole. So dance is really just the vehicle that we, you know, provided an opportunity for the kids to experience some of these therapeutic elements and not necessarily that, you know, we provided them dance and then we provided them behavior analysis. You provided them with Dance with a Beat, which is both. Um, so it's very intertwined. So that's, that's my overall general experience with it, you know.

The program was not introduced to the participants as therapy, and most viewed their Monday night sessions as, simply, dance class. They enjoyed their experience, but also took away some of the benefits of the embedded therapy.

**Use of behavioral components.** Facilitators discussed the specific behavioral components that they felt were beneficial to the participants, and that they perceived to be helpful in implementing the program. All three of the facilitators talked about the token economy that was used during the class. The token board included all of the names of the children as well as a spot for them to tally their points. If a participant received ten points during the session for



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correct performance of a skill, a positive attitude, or pro-social behavior, they were able to take home pick and take home a wrapped prize. Katie spoke to the potential efficacy of positive feedback in terms of increasing responding for the targeted behaviors, such as giving a compliment to a peer on their dance moves, or following instructions given by the facilitators. This was a key component as it provided a goal for participants and held them accountable to obtaining ten points to receive a prize.

Facilitators also discussed the use of modelling and prompting to help teach skills. While each participant benefitted from different levels of prompts, and some needed a model while others did not, these components were utilized by each facilitator at one point during the program. An extra-stimulus prompt that was used during the program was pool noodle lanes that were set up across the floor to create individual spaces for practicing skills. Amy discussed this as a positive addition to the program, in that it helped teach the participants how to use the surrounding space:

The pool noodles specifically I think were amazing. Um, I think that [...] prompt really helped us. First of all, it was like, like spatial awareness as a challenge that we know for a lot of neurodevelopmental disorders. So this was something that it was kind of two-fold because it helped our organization as facilitators, especially being one-on-one. I don't know how you would do it without having like guidelines for your own space.

Similarly, Katie spoke about the use of stickers on the wall as extra-stimulus prompts while teaching the participants how to spot their turns. These added components were helpful to the participants as they helped them to learn new skills and provided support that they would not typically be able to access in a community dance class. For example, they would have to determine for themselves the amount of space used while working across the floor, which may

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be challenging for this population. Further, Dance with a B-E-A-T utilized task analyses to teach the target skills. This breakdown of the skills into smaller steps enable us to teach each one as a chain, which is not how skills are always taught within a typical class.

Additional components of behavior therapy were also identified by facilitators as effective for participants. For one specific participant, who had an anxiety disorder, breathing and self-talk were important to her success and comfort in the class. Amy stated:

Um, and so yeah, we built in those breathing exercises every week we built in like mindful stretching and moving and, I'm sorry, those components of mindfulness [not a specified component of the program], but with her, there was a lot of on-the-spot implementation more so than the others, I would say so with her, it was unreal. Like, her learning how to breathe and have positive self-talk. I think that it generalized from like the general component that we put in every week, but also prompting her to do these things and use them from the beginning of the class intermittently throughout when she was, she would like, like, literally be like, I can't do this. This is too hard. I suck at this. So to be able to like, hands-on with my own eyes see her cognitively restructure these thoughts out loud. And eventually again, the prompts fading like a few weeks later, I literally would catch her almost in like the, almost strange, because she's still talking out loud [referring to the participant employing positive self-talk without prompting].

Using these components allowed her to stay in the class environment without feeling too overwhelmed or anxious, and she also learned how to implement the skills on her own, which would be key if she were to eventually transition to a community dance class. Positive self-talk was an important skill for all of the participants to learn, as they often displayed discouraged expressions or stated that they could not complete a skill. Ultimately, the use of behavior therapy

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appeared to help each participant access the support they needed, and to help them develop their skills as a dancer.

### *Parent Comparison*

Congruent with the experience of the facilitators, parents identified the importance of therapy embedded in dance, and the benefits this held for their child. One parent discussed the benefit of having their child with ADHD be able to move during therapy, saying, “I think the fact that it was like movement and hands on. [...] Like he, and it was something for him to focus on [...]. And it's really tough to get him to talk about how he feels.” For his child, being able to dance while accessing the benefits of specific behavioral components was effective. This was especially important to this parent as they had negative experiences with therapy programs in the past and did not feel that their child was able to take enough out of their sessions. The second parent described the importance of this novel approach to therapy for their child:

Exactly, and that's why I actually, you know it had caught my eye, and I was like, like I said earlier, I was like, hmmm dance, I'll, I don't know why, but it sounds great, right.

Because it is it's unique as opposed to all of the other kind of classic ABA approaches of, okay so this is your challenge now we're going to work on this challenge. We'll set forward this goal for you.

They specifically identified the difference between Dance with a B-E-A-T and other programs they had participated in, and the appeal of the enjoyment of dance combined with therapeutic components. They also discussed their feelings towards the individualized approach and the behavioral components utilized:

Now you're not going to get that in a traditional dance class, obviously. Um, but it was just beautiful to see how keen each instructor was to be working with the kids. How, um,

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encouraging, how affirming they were. And they used all of the strategies that you would normally use with kids on the spectrum with, you know, setting goals and rewards and [Abby, child participant] just thrived on that, just thrived. I loved it.

It is promising to see that parents found the blended approach to be useful for their child, and the importance of this unique approach for children who have had negative experiences with programs in the past. Parents did not identify specific behavioral components of the program, likely because their experience with their child did not include training on the jargon used in ABA or CBT.

### **Theme 2: Benefits of the Program**

In describing their experience with the program, facilitators identified several benefits that the program offered to participants, across multiple areas. This suggests that facilitators found aspects of the program to be beneficial and meaningful to the participants, and that elements of their experience with facilitation were positive. In addition to the behavioral components outlined in theme 1, as these could be considered benefits to our approach, the benefits identified by facilitators can be broken down further in two sub-categories: (1) Belonging, with an additional sub-category of Self-Esteem, and (2) Enjoyment of the Program.

#### ***Belonging***

Facilitators spoke at length about the feelings of belonging facilitated by the program, where they felt participants were comfortable in their environment, shared experiences with peers, and were part of a group. Social interactions within the class were a large part of this, which were in part facilitated by the instructors during the program. A specific element of the program identified by Amy as helping to promote these interactions included snack time, which was added to the program for the last two sessions:

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But by that week, when we implemented snack [week 7], it was like such a collaborative thing. Like we were having just as much fun as they were, first of all, because like grouping together and facilitating what would be funny that we did [working together to pick dance moves for the facilitators to show off], which was just cool to see, because these are things that I didn't think were possible.

From Amy's perspective, this was a critical moment for the participants as they shared an experience of having snack, which also included a game where they collaboratively identified dance skills for the facilitators to demonstrate. Conversely, Katie suggested that the program was effective at facilitating belonging simply because the participants attended the same class and had the chance to join the group. Her experience suggested that there was no specific element of Dance with a B-E-A-T that led to a sense of belonging, but rather the opportunity itself was enough.

Facilitators also spoke more generally about belonging, identifying friendships made by the participants, as well as shared statements of encouragement and praise. These relationships between participants, and positive conversations, were identified by Emma as benefits that emerged as the program progressed. She stated, "Yeah. I still like thinking back, like I can't believe, I just can't believe they wanted to show their skills to each other and [...] sat on the floor and in a line and want to". This appeared to be an unexpected benefit, as she expressed disbelief in the desire of the participants to show off their skills to one another. Amy also commented on an increase in social interactions observed over the eight weeks, including participants beginning to initiate conversations and laugh with one another.

**Self-Esteem.** In their discussions on belonging, facilitators also commented specifically on self-esteem, or confidence in their abilities and a sense of self-worth. Facilitators felt that

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participants had increased feelings of confidence in themselves and in their abilities in the class.

Emma discussed an experience with one participant whose confidence appeared to improve as the sessions went on and described the ease at which she came through the door by session eight.

She commented:

I remember when she would come in and she'd show us her outfits. I think she liked showing up and like, getting attention, positive reinforcement for what she did. So maybe the sense, like I did good things, even if I don't think she ever wanted to demonstrate she was a little shy but knowing that she could go somewhere and be accepted, I think that she didn't say a lot, but her body language. That's what I could tell.

In their dialogue, facilitators appear to hold the perception that feelings of belonging in the class may have helped to facilitate increases in self-esteem, as participants felt more comfortable in the environment, and with their peers. Amy spoke to the interrelatedness of belonging and self-esteem, and how these worked together:

So I think the social piece really emphasized a growth in self-confidence and self-efficacy and the belonging, like those things really came full circle together. And without one of those components, I'm not sure if you would feel that you had adaptive social skills without confidence, would you feel self-efficacy or vice versa? I mean, sometimes interrelated term, but like. I think it was just heartwarming to see that so many of the students that we worked with in any capacity, like you want them to have social skills and you want them to have a sense of belonging. You want them to feel good about themselves. Right. So this was important.

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Increases in self-esteem and feelings of belonging were discussed across all three facilitators, and emerged as a clear benefit of this program, whether this was facilitated by opportunities for social interaction, or the simple opportunity to participate in a group activity.

### *Enjoyment of the Program*

A second key benefit of the program identified by the facilitators was the enjoyment of the program, or the amount of fun the participants had while attending the program. This is an important element of any program that hopes to have its participants return each week. One component that added to this enjoyment was the way in which the facilitators met the participants at their level. Each child that came into the program had unique challenges and needs and responded to a different approach. Emma described an experience with a participant who flourished when given a leadership role in the class, as she enjoyed feeling in control of the situation and assisting her peers:

And we kind of let them take whatever role they wanted. Like we let [Mia, child participant] take more leadership roles. We let [Abby, child participant] get into harder skills and [Mia], like we let. We, I guess we, I don't know, like we, we changed, we accommodated their needs based on how they express them and show them.

Working with the participants and providing them with different roles in the class based on their needs and wants helped them to enjoy the class, as often they would choose not to participate if they did not feel comfortable. Interestingly, facilitators did not comment on the dance skills or techniques learned when speaking about participant enjoyment of the program. They instead focused on the social interactions between participants, and the welcoming environment of the class created by the facilitators, which included flexibility with demands. Ultimately, the

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facilitators strove to create a fun environment regardless of the skills taught during the session, and participants responded to this approach.

### *Parent Comparison*

Importantly, parents also commented on their children, and themselves, experiencing feelings of belonging and increased self-esteem as a result of attending Dance with a B-E-A-T. One parent discussed their feelings on having their child accepted and appreciated by the facilitators of the program, saying, “But uh she [Amy, facilitator] was, she was absolutely incredible and she just [...] adored [Evan, child participant], and you can tell. Everybody just loved [Evan] and that like, that was, that was awesome.” A second parent talked about the increased self-esteem they witnessed in their child after returning from the program. She stated,

Well, her state of mind and her, her state of emotion, um, because she would come out of the dance class, animated and happy, so her affect told me she was feeling good about herself. [B]ut the other thing that tells me about how did it, how did I know it affected her self-esteem? She was also practicing those moves during the week. Just spontaneously on her own. We never asked her anything. Right. She was, we'd be out in the driveway, what have you and her younger sister would be doing a cartwheel and then [Abby, child participant] would do the moves just for fun. So, that tells me it was having a positive impact on her because it was fun for her. And she was feeling accomplished because she remembered the moves.

Both parents also discussed the positive experience their child had while participating in the program, and their excitement to return each week. Parents describe how their children would ask their parents throughout the week if it was time for dance class, and how long it would be



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until they could return. The second parent commented on how much fun their child had during the sessions, and the enjoyment they got from getting to help choose the music each week.

### **Theme 3: Refinements and Recommendations**

As facilitators described the positives of the program, included the benefits it provided for participants, and the novelty of the approach used, recommendations for future iterations of the program were also discussed. There are a number of components of Dance with a B-E-A-T that can be refined, as well as elements that can be added. This is broken down into individual needs, facilitators, and refining components.

#### ***Individual Needs***

Facilitators identified that future programs should further take into account the individual needs of the participants. While our facilitators implemented behavioral components on the spot using their clinical judgement, they also felt that they would have liked to know more about the participants before beginning the program to better anticipate their needs. For example, a few of the participants had experienced trauma in their past, and facilitators expressed that they would have liked more training or resources available for them in order to best support the child. While all the participants were currently in additional therapy programs, addressing their feelings as they came up in the class could have been an added benefit to attending Dance with a B-E-A-T. In terms of skill development, knowing more about the participant's motor abilities could have helped us to tailor the curriculum to our specific group. Emma identified this, stating:

Um, yeah, I just, I think, I just, with a larger intake session knowing more about their needs. Maybe like, Oh, like maybe setting individualized goals, which I think we did with them, but maybe I would do that a little bit differently now, like with more information about each kid I would do that motor skills and maybe about social skills.

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Teaching pre-determined skills to a diverse group of dancers proved to be difficult, and more information in advance could have helped to mitigate some of the challenges. As each child was a different age, facilitators also suggested creating different age groups that align better with motor development literature.

### *Facilitators*

A specific set of recommendations also emerged for the facilitators of future programs, based on the facilitators' experience with implementation of the pilot program. Overall, facilitators described implementing the program as a positive activity, and stated that they enjoyed working with the participants. They had, however, a set of suggestions for the next dance teacher or therapist to take on a similar program.

**Attitude.** The literature shows that attitude of facilitators can be a barrier to participation in dance for individuals with neurodevelopmental disorders (Aujla & Redding, 2013). Subsequently, it is important for facilitators to focus on the positives (e.g. skills the child can do well, appropriate social interaction with peers) while leading a dance class, rather than criticizing or drawing attention to the challenges of the child. This also speaks to the importance of using positive reinforcement, as this can help to increase target behaviors such as active participation or successfully following the model given to the class. Additionally, the attitude of facilitators implementing a blended program will likely differ from that of a dance teacher in a community setting. Amy identified the typical goals of a teacher during a class, which include teaching a large number of children to perform a skill, and to put together a choreographed piece for the end of the year. She said, "It's not always the teacher's job to help you, um, or individualize things. So I think that's a huge thing that we, we gave our kids that other teachers in typical community dance programs do not." In a blended program such as Dance with a B-E-A-T, the attitude of the

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facilitators should be encouraging and positive and focused on the individual needs of the child rather than the end product of a perfect dance skill or performance.

**Training.** In order to identify these individual needs and to provide support when needed, it is essential that facilitators are adequately trained to implement behavioral components and to respond to a variety of challenges for their dancers. The facilitators of Dance with a B-E-A-T spoke to their personal training and how this assisted them with implementing the program. Katie, as a Board-Certified Behavior Analyst, felt her experience and training had prepared her to effectively implement behavior analytic components, but felt she may have needed further training in CBT. Amy, who had more experience in CBT but limited training in ABA expressed that she would have liked further training in using behavior analytic principles and procedures. Ultimately, facilitators should be prepared to use all of the behavioral components that are identified as part of the blended program.

**Diverse Team.** Despite having training in different areas, working together as a diverse team ultimately worked to benefit the program. With individuals trained in ABA, CBT, and varying degrees of dance and gymnastics experience, our skills combined allowed us to bounce ideas and tips off one another, and to work collaboratively during sessions. Amy identified the benefits of this approach:

Um, but like having diversity within your team, I think was also a huge strength of ours because we had some social background, we had some transdisciplinary background with the CHYS [Child and Youth Studies], then we did have the behavioral brain. So like, I think it, that was really cool for us.

As such, a multidisciplinary team could be used in future iterations of this program or similar programs, to ensure different areas of expertise are included.

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### *Refining Components*

The facilitators also identified several components of the program that they felt could be refined for future versions of Dance with a B-E-A-T. First, the skills chosen for the program need to be at the appropriate level of the learner, as previously mentioned. Over the course of this program, specific skills such as a ball change kick proved to be too easy for most participants, while others like pique turns were not attainable within the limited 8-week time frame. Amy offered her perspective of the selection of skills for future programs:

So it might be helpful I mean, we think that we all know beginner dance, but what is beginner dance now? Like, should we try to sit in on a couple, like, beginner classes, really what they're doing, but then there's always that piece of, well, a lot of beginner dance programs are age like three. And so what look like versus how old is our oldest. It can be difficult to identify what skills will be effective for different age groups and the different challenges that occur within this population of individuals with neurodevelopmental disorders. In considering which skills to include, facilitators also commented on the use of pre and post probes as data collection, as this gives a limited picture of the improvements made from week to week, and how best to measure the performance of the participants. Given the ambiguity involved in dance, and the subjective nature of dance movements, it is difficult to know how best to take data for research studies looking at blended programs. There are also drawbacks to increasing the amount of data taken, as described by Emma: "It's is time consuming and might cost money. So it's not always possible."

In addition to refining the skills and data collection methods, the facilitators discussed fading both the one-to-one support given to participants, as well as the rewards given using the token economy. Katie commented specifically on the longevity of this level of support, and the

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contrast to community dance classes. If a child was looking to transition to a traditional setting to further their dance training, they would not receive one to one attention. Additionally, peer interaction is also important in developing social skills and developing feelings of belonging, and so having the support of an adult remain in place could limit the opportunities for this. Her suggestion was to fade the level of support as the program progresses, perhaps by switching up the facilitator who is working with the child, or by adding another child to the ratio, and eventually having one instructor for the group. Facilitators also commented on the importance of thinning the schedule of reinforcement used for the token economy. This could involve raising the number of points required to get a prize, increasing the demands needed to receive a point, or gradually taking out the prizes all together. This would also assist with generalization of the skills gained to other environments, if the child chooses to continue with dance.

The final recommendations made by facilitators related to the length of the program. Eight weeks was a limited amount of time to improve motor skills, as well as self-efficacy. Katie said, "I think nine weeks is far too short. Um, motor development literature says 12 weeks at a minimum", which suggests that the length of the program should be extended by a minimum of four weeks. Having more time would also enable the facilitators to gradually fade their support and thin the schedule of reinforcement, without having this be a drastic change for the child. Amy also suggested that increasing the length of the program could allow for improvement of skills to the point where parents could be invited to watch a performance by the group.

### *Parent Comparison*

Parents also felt that the program length should be longer, as their child enjoyed their experience and wanted to continue with dance. One parent commented, "If you're going to do it again. By all means, I'll volunteer him now", indicating that they would have liked Dance with a

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B-E-A-T to continue, and that their child would have liked to keep attending. An additional recommendation raised by parents that was not explored by facilitators was the location of the program. Parents felt that the location was far from their homes and difficult to drive to between school and home. This is an important consideration for future programs, especially as families may rely on transit or other means of transportation to get to the location.

Both parents were asked about the inclusion of a parent piece, such as having parents observe the class or help their child practice at home, and both agreed that they would have liked to have a larger role in the program. One parent was able to sit in on the sessions as their child had a new service dog who needed to be monitored, and so they commented on their enjoyment of watching the participants and facilitators for all of the sessions. Their suggestion was to offer this to all parents of participants, if they wanted to observe their child in the program. The second parent did not sit on the classes but expressed that they would have liked to see their child practicing the skills in the class, and to watch them enjoy the program. Conversely, they also discussed how this might be a distraction for some children, and that this approach might not work for all families. Parents did not discuss recommendations for facilitators, except to say that they loved the approach taken by the facilitators of Dance with a B-E-A-T.

### **Discussion**

Dance with a B-E-A-T was an enjoyable program for its participants and provided participants with perceived feelings of belongings and increased self-esteem or self-efficacy, along with improvements in motor skills noted in the results of the pilot. Both facilitators and parents felt that the novelty of a blended program of recreational dance and behavior therapy was effective for the participants and provided them with the individualized support they required. Facilitators provided several recommendations for future programs, including further

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consideration of individual needs, facilitator training, and refining specific elements like the total number of sessions. Parents echoed these recommendations by discussing logistical concerns with the length and location. Dance with a B-E-A-T demonstrated that a recreational dance program with behavioral adaptations can potentially help children with neurodevelopmental disorders to access the benefits of dance.

The specific behavioral components of the program utilized in the program that appeared to be effective include the use of a token economy, as well as modelling and prompting strategies. The token economy was perceived to increase responding for correct performance, prosocial behavior, and a positive attitude during the class. The prizes were potential reinforcers for all of the participants, as they continually worked towards earning the reward each session. This is consistent with the principle of positive reinforcement in ABA, where the presentation of the reward immediately following the behavior increases the frequency of that behavior in the future (Cooper et al., 2020). Modelling appeared to be beneficial effective in demonstrating the skill to participants, while prompting was used for further teacher. Facilitators used a most to least prompting strategy and implemented the specific level of prompt needed for each participant. The extra-stimulus prompts of pool noodles as lanes, and stickers on the wall for spotting terms were also identified as potentially effective in teaching skills to participants. Prompting is also a key part of skill development when using ABA, as it helps the learner gain independence without erroring multiple times (Cooper et al., 2020). Further, task analyses helped to break down the skills to be taught to participants and assisted the facilitators with teaching skills using chaining. Components of CBT were helpful for participants, especially the one participant who experienced anxiety during the program. Using deep breathing and practicing positive self-talk was perceived to be effective in reducing anxiety and helping her to feel calm

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and comfortable in the class setting. Deep breathing and positive self-talk can be helpful to reduce the stress level of individuals with anxiety and used as coping skills in future situations (Martin & Pear, 2019).

Further, dance could help individuals in this population to access the benefits of therapy in an enjoyable way. Alternative models of therapy, such as play therapy, can contribute to the child's level of comfort and safety in the setting and can help individuals with NDDs feel secure in their relationship with their therapist (Schottelkorb et al., 2020). Access to blended programs could also help this population to participate in increased physical activity by learning new skills and could help facilitate feelings of belonging and increased self-esteem. This is important, as individuals with neurodevelopmental disorders often struggle with both motor and social skills (DSM-5; APA, 2013). Parents and facilitators identified this program as facilitating feelings of belonging, and increased self-esteem, for the participants. This is echoed in the self-efficacy scores for two of the three parents from the pilot project, which saw a slight increase from pre to post program. Parents specifically spoke about their children feeling confident and comfortable during and after the program, which aligns with the questionnaire items, "My child feels confident in his/her relationships, or "My child feels confident in general". Belonging is a key benefit, as this is often something that individuals with NDDs are missing when they are unable to access community programs (Reinders, Bryden, & Fletcher, 2015). Facilitators also commented on their perceptions of belonging for the participants, stating that they felt the participants were able to engage with their peers and participate in a shared activity. Feelings of belonging that appear to have been facilitated by our program suggest that we were able to create a space where participants felt comfortable and safe enough to engage with their peers (Ritcher & Gaulter, 2020).



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The overall positive feedback from facilitators and parents suggests that similar programs could continue to be implemented to assist with the development of new skills and to access the benefits of dance. The feedback provided in the interviews is congruent with the parent consumer satisfaction data collected in the pilot, as parents scored the program very highly, with scores ranging from 46-49 ( $M = 48, SD = 1.41$ ), out of a possible 49 points. The enjoyment of the program by children, parents and facilitators is also a key finding, as investment from stakeholders in the program is essential to the success of any future iterations. Looking back to the RE-AIM framework, this program was perceived to be effective by both facilitators and parents, which suggests the specific components that were identified can be kept as part of the program, with adaptations where necessary. The perspective of parents and facilitators enabled us to look critically at the efficacy of our program and assess the design and outcomes to inform future iterations. Looking at the reach of this program, we were able to include multiple NDDs in our program, including ASD and ADHD, we feel that our participants were a good representation of this population, with their differing ages also contributing to this. Despite this, there are still other diagnoses under the umbrella term of NDDs that can be included in future research. Inclusion criteria could also be extended to involve younger or older age groups.

### **Limitations**

In addition to the positive results and encouraging feedback from facilitators and parents, there are limitations to the current study. First, the perspective of the children who participated in the pilot program would have been invaluable, as they could have provided a first-hand perspective of their experience. Future programs should prioritize the inclusion of this population and look to collect this data through interviews or other methods upon completion of the program. Second, my involvement as a facilitator in Dance with a B-E-A-T has informed my

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analysis of the data, and my perspective likely differs from an objective observer who did not witness all of the sessions. While my involvement offers a unique perspective, there could be additional data that an alternate observer would have deemed important to include. An additional limitation includes the lack of literature available on blended programs, on which this analysis is based. As this is a novel research project, there is a small pool of research from which we can compare our program to. It is the hope that this program will result in future iterations or similar programs carried out by other researchers who can contribute to the literature.

### **Delimitations**

This study is limited to the three facilitators, four participants, and two parents from the pilot study. As this program has only been implemented once, the population involved was small, and included a limited number of diagnoses. This study also looked to explore the perspective of facilitators and so we chose to focus on specific areas of the parent transcripts related to our study. In doing so we narrowed down the information from the transcripts that was relevant to the current study and did not include unrelated topics discussed during the interviews. Additionally, we sought to use semi-structured interviews, and did not pursue further data collection from facilitators, such as focus groups, or questionnaires.

### **Future Directions**

Future programs could include a more extensive assessment for participants prior to attending the program, where the child participates in additional cognitive or executive functioning tests, or a functional behavior assessment in order to gain more extensive information on their needs and current skill level. This process could help to identify the specific behavioral adaptations that could be most helpful for them. Researchers could also include additional data collection methods, in order to capture the improvements made each week. This

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could involve taking additional probes of dance skills in each session or collecting continuous data on each attempt at the skill. Additionally, evaluations of future iterations should incorporate the remaining dimensions of RE-AIM, adoption, implementation, and maintenance, to examine how this program is being used by others, and the longevity of the outcomes.

Researchers conducting similar studies should also look to incorporate training for facilitators on NDDs, as well as the behavioral components utilized. Aujla and Redding (2013) suggest that this training is important in improving the confidence of teachers interacting with this population and effectively addressing their needs. This could include a training package for facilitators who are looking to implement a blended program. This training could include a focus on the needs of the child, rather than an end product such as a recital or mastery of a specific skill. While it is a strength to have a multidisciplinary team with behavior analysts and other professionals running the program, as our program did, it is also important to consider how a program such as Dance with a B-E-A-T could be used by any dance teacher at any studio. Subsequently, dance classes in typical settings could become more accessible to this population.

Based on recommendations from parents and facilitators, it is important that facilitators consider a fading procedure for the individualized support provided in a blended program, as well as thinning the schedule of reinforcement. This could include removing prompts over time, increasing the demands required to earn points for a prize, or providing less one to one attention during the class. These are important considerations for generalization of the skills gained during the program to other environments. Despite attempts to fade support over time, it may be possible that some children will always need this additional assistance to thrive in the setting of a dance class.

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As logistical barriers are also an important factor in designing programs (Aujla & Redding, 2013), facilitators should also look to extend the length of their program, and to consult with parents on the location of the program to ensure it is accessible. Motor development literature suggests that programs should be at least 12 weeks in length, which should be the minimum amount of time the program is held for. Additionally, participants could be placed into smaller age groups where most children would be at a similar skill level and developmental stage, which could help standardize the level of support given during the class. Parents also discussed their desire to play a larger role in the program. This could include sitting in on a few, or all, classes, or potentially watching a final performance, depending on the comfort level of the child. Additionally, for parents who are interested, there could be information or instructions sent home on how to implement both dance and therapy skills outside of the class.

### **Practical Implications**

If facilitators consider the recommendations made by the stakeholders of Dance with a B-E-A-T and utilize the behavioral components perceived to be effective, there is potential to increase accessibility to future programs and improve results. If similar programs can be implemented by dance studies as a result of facilitator training, this could greatly expand the number of opportunities available to children and their families. Making dance more accessible for this population could allow them to participate in a popular activity that is a shared experience among many of their peers. Including behavioral components also has the potential to provide therapeutic benefits in an enjoyable way. Children who enjoy movement and music could consider a blended dance and behavior therapy program as an addition to their existing therapies.

### **Conclusion**

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Overall, the feedback from facilitators and parents of Dance with a B-E-A-T will inform future iterations of the program, as well as similar programs implemented by other researchers. Including the perspective of stakeholders is important in ensuring the program is effective and enjoyable for the individuals who benefit directly. By incorporating the components found to be effective, as well as the recommendations suggested, future programs have the potential to benefit children and youth with neurodevelopmental disorders, and to simply provide them with the chance to dance.

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## Appendix A

**Letter of Invitation: Dance With a B-E-A-T!**

Thursday, October 15, 2020

**Title of Study: Dance with a B-E-A-T! Recreational Dance with Behavior Analysis and Therapy for Children and Youth with Exceptionalities**

**Principal Investigator:** Tricia Vause, Ph.D., BCBA-D, C-Psych., Associate Professor, Department of Child and Youth Studies, Brock University

**Student Principal Investigator:** Madeline Pontone, MA Student, Department of Applied Disability Studies, Brock University

We, Tricia Vause, Ph.D., BCBA-D, C-Psych., Associate Professor, from the department of Child and Youth Studies, Brock University, and Madeline Pontone, MA student, from the Department of Applied Disability Studies, Brock University, invite you to participate in a research project entitled **Dance with a B-E-A-T! Recreational Dance with Behavior Analysis and Therapy for Children and Youth with Exceptionalities.**

The purpose of this study is to gather and synthesize information from your experience as a facilitator of Dance with a B-E-A-T (Behavior Analysis and Therapy) to inform future programs blending recreational dance and behavior therapy. We are specifically interested in determining what types of behavioral components facilitators found to be helpful, and how these can be further refined for future programs. In assuming the role of a behavior therapist for Dance with a B-E-A-T we feel that you will be able to provide a unique perspective on your hands-on experience and valuable insight on the program.

Should you choose to participate, you will be asked to participate in a 1-hour virtual interview (approximate), where you will be asked semi-structured questions related to your experience as a behavior therapist for Dance with a B-E-A-T! You may also be contacted after the interview for confirmation of information, or to answer follow-up questions.

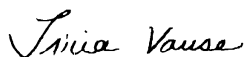
Possible benefits of participation include sharing valuable information to help inform and adapt future recreational dance programs for children with disabilities. This study has the potential for long term benefits to programs like Dance with a B-E-A-T, and broadly to expand the field of behavior analysis and sport. Benefits include contributions made to the field, informing changes made to future iterations of this program, and positive discussions around the topics of behavior therapy and dance.

Dance with a B-E-A-T! was run in collaboration with Pathstone Mental Health and Brock University. This project is supported by a graduate fellowship and scholarships from Brock University.

If you have any pertinent questions about your rights as a research participant, please contact the Brock University Research Ethics Officer (905 688-5550 ext 3035, [reb@brocku.ca](mailto:reb@brocku.ca))

If you have any questions, please feel free to contact us (see below for contact information).

Thank you,



**Tricia Vause**  
Ph.D., BCBA-D, C-Psych., Associate Professor  
905-688-5550 ext 3559



**Madeline Pontone**  
MA Student  
647-404-1745

## STAKEHOLDERS IN DANCE

[tvause@brocku.ca](mailto:tvause@brocku.ca)

[mp13qc@brocku.ca](mailto:mp13qc@brocku.ca)

This study has been reviewed and received ethics clearance through Brock University's Research Ethics Board **REB #18-121 VAUSE**.

## Appendix B




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*Project Description and Consent to Participation Form*


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**Project Title: Dance with a B-E-A-T!: Individualized Dance Programming with Behavior Analysis and Therapy for Children and Youth with Exceptionalities**

Principal Investigator (PI): Dr. Tricia Vause, Ph.D., BCBA-D, C. Psych. (Supervised Practice)  
 Department of Child and Youth Studies  
 Brock University  
 905 688 5550 x3559, tvause@brocku.ca

Student Principal Investigator (SPI): Madeline Pontone, MA Student  
 Department of Applied Disability Studies  
 Brock University

### **INVITATION**

You are invited to participate in a research study. The purpose of this study is to gather and synthesize information from your experience as a facilitator of Dance with a B-E-A-T (Behavior Analysis and Therapy) to inform future programs blending recreational dance and behavior therapy. We are specifically interested in determining what types of behavioral components facilitators found to be helpful, and how these can be further refined for future programs. In assuming the role of a behavior therapist for Dance with a B-E-A-T we feel that you will be able to provide a unique perspective on your hands-on experience and valuable insight on the program.

### **WHAT'S INVOLVED?**

As a participant, you will be asked to:

Participate in a one to one interview with the student principal investigator (SPI), via a secure online platform:

- After signing this consent form, you will be asked to log onto a Lifesize call with the SPI
- You will be asked semi-structured questions related to your experience as a behavior therapist for Dance with a B-E-A-T!
- You will be asked to provide answers to these questions, as well as offer additional information you feel would be valuable
- You may be contacted after the interview for confirmation of information given, or to answer follow-up questions

Your participation will take approximately 1-3 hours of your time, depending on the length of the interview (roughly 1 hour), and any follow-up communications, if needed. We will work with your schedule to determine the best time for participation.

### **POTENTIAL BENEFITS AND RISK**

Possible benefits of participation include sharing valuable information to help inform and adapt future recreational dance programs for children with disabilities. This study has the potential for long term benefits to programs like Dance with a B-E-A-T, and broadly to expand the field of behavior analysis and sport. Benefits include contributions made to the field, informing changes made to future iterations of this program, and positive discussions around the topics of behavior therapy and dance.

Given your familiarity associated with the participants, we do not foresee any risks to your participation in this study. If there are sensitive topics discussed and a facilitator would like to debrief, you will be able to do so with the PI, who is certified as a Clinical Psychologist.

### **CONFIDENTIALITY**

All information you provide will be considered confidential and grouped with responses from other participants. Your name will not appear in any thesis or report resulting from this study; however, with your permission, anonymous quotations may be used. Shortly after the interview has been completed, we will send you a copy of the transcripts to give you an opportunity to confirm the accuracy of our conversation and to add or clarify any points that you wish.

In rare cases, it will not be possible to ensure confidentiality because of mandatory reporting laws (e.g. suspected child abuse) or the possibility of third-party access to data (e.g., court subpoena of records). If you disclose

## STAKEHOLDERS IN DANCE

information about a child participant that falls under this clause, we will not be able to keep this information confidential.

Original copies of data collected during this study will be stored exclusively a password protected computer. Any documents will be encrypted with a password and will be kept in an encrypted folder. Video recordings from the interview and copies of documents will be kept on a secure online platform, which is also encrypted with a password. The only individuals with access to this data will be the PSI, SPI and research assistants. Data will be kept for seven years after which time it will be digitally erased.

### **VOLUNTARY PARTICIPATION**

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time.

### **PUBLICATION OF RESULTS**

Results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available upon request after approximately 3 months. For results please contact Dr. Tricia Vause, [tvause@brocku.ca](mailto:tvause@brocku.ca).

### **CONTACT INFORMATION AND ETHICS CLEARANCE**

If you have any questions about this study or require further information, please contact Dr. Tricia Vause or Madeline Pontone using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University **18-121** If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, [reb@brocku.ca](mailto:reb@brocku.ca).

Thank you for your assistance in this project. Please keep a copy of this form for your records.

### **CONSENT FORM**

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## Appendix C

Interview Questions for Dance with a B-E-A-T (Parents):

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Thinking about your child today:

1. What have been some of your child's biggest accomplishments?
  - a. What contributed to these accomplishments?
2. What have been some of your child's greatest barriers?
  - a. What has contributed to these barriers?

Thinking back to the start of the study:

1. How did you feel about your child's involvement?

Upon the conclusion of the study:

2. What was your overall feeling of the study, once it was complete?
3. How would you describe their successes or their challenges with the program?
4. What contributed to these successes and/or challenges?
5. What aspects of the program did you find most effective/beneficial for your child and why?
6. What aspects of the program were the most challenging for your child and why?
7. How did your child change following the study (e.g., self-confidence in dance, social & coping skills)?
8. Were there any unexpected benefits or additional challenges, as a result of the program (outside of focus of the program)?
9. If you could keep any part of the program, what part would you keep and why?
10. If you could change any part of the program, what part would you change and why?

## Appendix D

## Questions for Facilitators

1. How did you feel about your involvement in Dance with a B-E-A-T initially?
2. How do you feel your experience level with behavior analysis and therapy impacted your facilitation of the program?
3. What aspects of the program did you find most effective/beneficial and why?
4. What, if any, behavioral components did you feel worked particularly well?  
e.g. prompting, reinforcement, etc.
5. What aspects of the program were the most challenging and why?
6. What were the biggest accomplishments you observed for the participants?
7. What were some of the biggest challenges/barriers you observed for participants?
  - a. What kinds of challenges would you anticipate for participants if they were to join a typical community dance program?
8. How do you feel the program promoted a sense of belonging?
9. How would you describe your overall experience with implementing this blended program?
10. What recommendations would you make for future iterations of this program?

## Appendix E

**Parent's Non-Standardized Self Report Measure of Self-Efficacy for  
Dance with a B-E-A-T!**

This questionnaire is intended to assist us in understanding your child's level of perceived confidence towards their dance, movement and balance abilities, as well as your perceived level of confidence that they can interact socially and feel like they belong in a group. Using the number scale, please rate how certain you are that your child can do each of the things described below.

*Using the below scale, please rate your degree of perceived confidence by recording the appropriate number next to each question.*

	0	1	2	3	4	5	6	7	8	9	10	
	Not at all confident					Somewhat confident						Extremely confident
												<b>Confidence</b>
												<b>(0-10)</b>
<b>1. Dance/Motor/Balance Skills</b>												
1. My child can watch a movement and copy it												_____
2. My child is 'coordinated'												_____
3. My child has good balance skills												_____
4. My child is a 'good dancer'											_____	_____
5. My child would consider him/herself a 'good dancer'											_____	_____
6. My child likes to dance												_____
7. My child likes to be active											_____	_____
8. My child quickly learns new dance skills												_____
<b>2. Social Skills/Sense of Belonging</b>												
1. My child can make and maintain friendships												_____
2. My child can initiate and maintain conversation with others												_____
3. My child works well in a group of other kids												_____
4. My child feels like he/she belongs in a group of friends												_____
5. My child feels like he/she belongs in a group activity/extracurricular or sport program												_____
6. My child feels confident in his/her relationships												_____
7. My child feels confident in general												_____
8. My child wishes they could be more like 'the other kids'											_____	_____
9. My child often feels 'socially excluded'												_____
<b>3. Worry and Coping Skills</b>												

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- 1. My child readily tries new things \_\_\_\_\_
- 2. My child is not worried about 'being perfect' \_\_\_\_\_
- 3. My child is not worried about failing \_\_\_\_\_
- 4. My child does not get anxious before social interactions \_\_\_\_\_
- 5. My child does not get anxious during social interactions \_\_\_\_\_
- 6. My child does not worry about being judged by other kids \_\_\_\_\_
- 7. My child has coping skills to use when experiencing anxiety \_\_\_\_\_
- 8. My child uses coping skills when he/she is anxious \_\_\_\_\_

**4. Emotion Regulation Skills**

- 1. My child can resist copying other peer's inappropriate behaviors \_\_\_\_\_
- 2. My child can manage his/her temper \_\_\_\_\_
- 3. My child can manage his/her frustration \_\_\_\_\_
- 4. My child is able resist hitting, shoving, throwing, or yelling  
when a peer is annoying him/her \_\_\_\_\_
- 5. My child can recognize and label when he/she is upset or frustrated \_\_\_\_\_
- 6. My child can use strategies to calm him/herself down when he/she  
is hurt/upset/frustrated \_\_\_\_\_
- 7. My child can regulate his/her emotions without the help of an adult \_\_\_\_\_

**5. Other**

- 1. Once my child has gone to the first session of a new program,  
he/she can't wait to go back \_\_\_\_\_
- 2. I have to persuade my child to start or continue new activities/programs,  
or else he/she won't go \_\_\_\_\_
- 3. My child would do well in a dance class with other children \_\_\_\_\_

**6. Please comment generally on your child's experiences within our dance program:**

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*This questionnaire is now complete – thank you for your time!*





## STAKEHOLDERS IN DANCE

Any additional comments regarding your level of satisfaction with the therapy (and the questions asked above) is appreciated.

Comments:

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## STAKEHOLDERS IN DANCE

Overall, how satisfied were you with the additional tools used in Dance with a B-E-A-T (e.g. stickers on the wall to help with spotting, tokens swapped for prizes)

1 2 3 4 5 6 7  
*not satisfied* *very satisfied*

Comments: \_\_\_\_\_

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Overall, how satisfied were you with your child's therapists?

1 2 3 4 5 6 7  
*not satisfied* *very satisfied*

Comments: \_\_\_\_\_

---

Overall, how prepared do you feel your child would be for a dance class with other children?

1 2 3 4 5 6 7  
*not prepared* *very prepared*

Comments: \_\_\_\_\_

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Overall, how effective did you feel Dance with a B-E-A-T was?

1 2 3 4 5 6 7  
*not effective* *very effective*

STAKEHOLDERS IN DANCE

Comments:

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Any additional comments regarding your level of satisfaction with the therapy (and the questions asked above) is appreciated.

Comments:

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