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Fostering Friendship and Acceptance in an Inclusive Summer Day Camp

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Abstract

Historically, individuals with intellectual and developmental disabilities (IDDs) have faced barriers to social inclusion and forming friendships - essential life factors. Research has indicated the importance of reducing social barriers to inclusion and highlights the benefits of improving social skills and fostering positive attitudes about IDDs for facilitating friendship formation and inclusion. With the goal of fostering friendships, the S^3 summer camp offered 22 youth (aged 9-14) with and without IDDs accessible and inclusive STEM education and a one-week social skills training package which included disability awareness lessons. Analysis examined the effects of this training package on participants' friendship formation, and pre- and post- camp differences in social skills and attitudes about disabilities. Results indicated there were nonsignificant group differences in friendships, and nonsignificant differences in pre versus post attitudes and social skills. This camp program package can be delivered in community settings - offering more opportunities for inclusive programming.

Keywords

Inclusion, Summer Camp, Intellectual and Developmental Disabilities, Friendship, Disability Awareness, Attitudes, Diversity, Social Skills, STEM

Summary for Lay Audience

Social inclusion is an important factor of life, offering opportunities to experience belonging and form friendships (an important piece of childhood development). Throughout history, youth with intellectual and developmental disabilities (IDDs) have been socially excluded and have faced challenges with forming friendships. While inclusive practices have improved over time, barriers and challenges persist. Beyond reducing barriers to inclusion, fostering positive attitudes about disabilities and improving social skills are researched methods that can be used to support friendship formation and inclusion for youth. The one-week S^3 summer day camp was designed the goal of supporting friendship formation and inclusion for youth. Based on these goals, participants (22 youth aged 9-14) engaged each morning in short lessons about different disabilities and social skills lessons. During social skills lessons, a new skill was taught to all campers each day by modelling the behaviour, followed by opportunities to practice the behaviour with feedback. After these lessons, participants engaged in partner-based STEM (science, technology, engineering and mathematics) activities and enjoyed 1-hour of free play outdoors. The researchers had three main questions about the summer camp: did participants of the camp demonstrate friendship formation and what was the effect of attending the camp on participants' attitudes towards disabled peers and social skills? Measurements of participants' social skills and attitudes about disabilities were taken before and after camp, and participants reported the friendships they made at camp on the last day. Further, observation data during free play periods were collected to determine the amount of time participants spent alone, playing around their peers, or playing with their peers. Findings showed that participants formed similar numbers of friendships while at camp, but non-labelled participants were more accepted by the group. Further, participants with IDDs spent more time alone during free play periods, while non-labelled participants spent more time playing with peers. There were no differences in participants' social skills and attitudes before and after camp. This study is important because the S^3 program package can be delivered in all community settings and offers an opportunity for youth to engage in an accessible and intentional, inclusive environment.

Co-Authorship Statement

The research for this master's thesis was conducted in collaboration with and under the supervision of Dr. Nicole Neil. The S^3 camp curriculum, the research design and data are part of a larger SSHRC funded study for which Dr. Nicole Neil and Dr. Anton Puvirajah are co-PIs. Dr. Anton Puvirajah contributed to the design of the study and curriculum. I acknowledge that the present manuscript is my own work; however, Dr. Nicole Neil contributed to the final manuscript.

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Preface

A Note on Language

Language is an important part of disability culture and self-identity. Due to the subjective nature of identity, disabled people have different preferences for the labels and language that is used to identify themselves. Some prefer the use of person-first language (e.g., they are a person with a disability). Others prefer the use of identity-first language (e.g., they are a disabled person). As such, the writing used throughout this thesis that identifies people with intellectual and developmental disabilities uses a combination of both person-first and identity-first language. This practice is used with the intention of being inclusive of, and taking into consideration, all those who participated in the study and the greater community.

In addition, people who do not have a diagnosis of an intellectual and/or developmental disability are referred to throughout this thesis as "non-labelled" as opposed to "neurotypical" or "nondisabled." This language was chosen as cultural understandings of neurotypicality and neurodiversity continue to expand. Defined simply, the term "neurotypical" is used to describe an individual who experiences and interacts with the world (through behaviours and thoughts) in a way that is considered to be the "norm." Neurodiversity is a term that encapsulates the diverse experiences and ways of thinking and behaving in the world. The assumption that those who do not have a diagnosis of an intellectual and/or developmental disability are (or identify as) neurotypical or nondisabled would likely be an inaccurate representation – as information about disability identity beyond intellectual and/or developmental disability was not explicitly collected for this study. Non-labelled (i.e., participants did not disclose a diagnostic label of an intellectual and/or developmental disability) is a more accurate and inclusive reflection of this group.

Chapter 1

1   Introduction

Humans have a fundamental desire, and need, to belong. This desire can be fulfilled when relationships are formed – when we have stability in relationships, frequent interactions with others, and care for others and feel cared for (Baumeister & Leary, 1995). For youth and adults with intellectual and developmental disabilities (IDDs), experiences of belonging are tied to social inclusion. In a recent literature review, Gur & Bina (2023) found that among other factors, intellectually and developmentally disabled people reported feeling an enhanced sense of belonging when they felt accepted, valued, and had opportunities for shared and reciprocal experiences with others in their community. These factors are components of the ecological model of social inclusion for people with IDDs, defined by Simplican et al. (2015).

The ecological model of inclusion focuses on two primary domains of social inclusion: interpersonal relationships and community participation (Simplican et al., 2015). Community has been defined as experiencing affiliation and belonging with a group that has commonality, wherein people are connected through social relationships (Cushing, 2015). These two domains are both necessary for experiencing social inclusion, and each domain is supportive of the other. Participation in community offers opportunities to build interpersonal relationships of varying degrees of formality and complexity, while building interpersonal relationships can lead to different opportunities for participation in community (Simplican et al., 2015).

While social inclusion is considered a core quality of life factor for individuals with IDDs (Schalock, 2004), historically, individuals with IDDs have encountered barriers to inclusive participation in community settings and are more vulnerable to experiencing exclusion than those without a diagnosis of an IDD (Merrells et al., 2019; Shields et al., 2014). People tend to navigate to communities that are most like themselves, so while intellectually and developmentally disabled people are now often provided more than segregated opportunities, inclusion has a long way to go (Cushing, 2015).

Inclusion has been defined as both a process (United Nations, 2016) and a goal to create opportunities and settings designed to value difference by addressing societal and institutional barriers that prevent participation (Cameron, 2014a). As it stands, inclusion in communities today is criticized as looking more like integration, which sees disability as a deficit and asks that disabled individuals change to become more "normal" (Cameron, 2014a). This perspective is reflective of a dominant view that disability is an individual "problem" that should be addressed through intervention solely for the individual (i.e., the medical model of disability; Cameron, 2014b; Linton, 1998; Mallet & Runswick-Cole, 2014). Achieving true inclusion requires the consideration of society's responsibility (Cameron, 2014a). The social model of disability makes this consideration and seeks to intervene on society (not on the disabled person) to improve quality of life. This model offers an opposing perspective to that of the medical model; that *society* must be held responsible for creating the barriers and problems that disabled people experience (Cameron, 2014a; Cameron, 2014c; Cushing, 2015; Mallet & Runswick-Cole, 2014). Alternatively, the biopsychosocial model has been proposed as a middle-ground and holistic approach to disability and is currently the dominant framework used by health organizations and policymakers (Hunt, 2022; Wade & Halligan, 2017; Zaks, 2023). This model, originally proposed by Engel (1997), seeks to intervene on biological, psychological, and social factors to improve quality of life. It considers the ways in which society must be held responsible for barriers that are experienced by people with disabilities while acknowledging the role of treatment and medical care (Engel, 1997; Wade & Halligan, 2017; Zaks, 2023). Critics of the biopsychosocial model emphasize that the model as it is implemented today does not adequately address broader social factors among other critiques (Hunt, 2022). Until it is recognized that social changes need to be made, inclusion as it is defined will not be fully achieved.

Creating accessible opportunities for true inclusion in community-based settings is fundamentally important, and this project was built primarily to create such an opportunity. Informed by the social model and biopsychosocial models of disability, and the ecological model of social inclusion, the "S^3" summer camp was designed. The social model of disability was emphasized in this design, as we incorporated Universal Design for Learning and prioritized limiting barriers to participation. In addition, we

incorporated intervention components (i.e., social skills and disability awareness lessons) that were designed based on previous literature that indicated the benefits of attending these lessons for youth with IDDs. Ultimately, it was recognized that a holistic approach had the potential to realize the camp's goals – to foster opportunities for friendship, inclusion, and positive attitudes about disabilities for all participants.

1.1   Friendship Formation

Inclusive spaces can support the development of interpersonal, social relationships (Haring, 1991; Wilson et al., 2017). Social networks are a lens through which these social relationships (within a social system) can be analyzed (Borgatti et al., 2024). Many types of relationships have been previously investigated and are said to exist on a continuum from more casual relationships (e.g., an acquaintance) to increasingly intimate relationships (Haring, 1991; Webster & Carter, 2007). Existing on this continuum are social contacts and friendships. These relationships are distinguished based on their level of intimacy. Social contacts are typically categorized as individuals who are interacted with in a certain context or during a certain activity, and this interaction may happen only once. These contacts have the potential to develop into friendships – a more intimate, consistent social relationship than a social contact (Allen & Haslam-Hopwood, 2005).

Notably, in different types of relationships, individuals take on different behaviours and roles, but overall, positive social relationships have been associated with many benefits for quality of life (Friedman & Rizzolo, 2018). Despite these important benefits, intellectually and developmentally disabled individuals face barriers to developing various social relationships beginning from childhood (Scott & Havercamp, 2018; Wilson et al., 2017).

As mentioned, friendships are one form of social relationship, and are a fundamentally important component of childhood development. Defined as reciprocal relationships that involve the presence of mutual liking and shared interests (Finke, 2016), friendships are proven to be highly beneficial factors for well-being. They offer children experiences which contribute to their emotional and social development, serve as a protective factor

against loneliness and peer victimization, and reduce the symptoms and onset of depression and anxiety (Finke, 2016; Meyer & Ostrosky, 2014).

Throughout childhood, concepts of friendship and depth of understandings of friendship develop. By three years old, friendships start to become stable. By five years old, children have a basic understanding of what it means to be lonely; the feeling of sadness that is associated with having no one to play with. This definition tends to be in alignment with more sophisticated definitions of loneliness found in the literature (Asher & Paquette, 2003; Meyer & Ostrosky, 2014). For school age youth, typically between the ages of 8-12, friendship becomes an important factor in the formation of self-concept and positive self-esteem (Mendelson et al., 2016). Moving into adolescence, forming and having high *quality* and *close* friendships becomes more important than quantity of friendships and is associated with happiness and better mental health (Narr et al., 2019).

Children with IDDs equally desire close and meaningful friendships with peers (Mendelson et al., 2016). Literature supports the notion that equally meaningful friendships for children and youth with IDDs can be developed between labelled and non-labelled youth (Rossetti, 2015) and with other intellectually and developmentally disabled peers (Black et al., 2022; Cushing 2015). In a study conducted by Black et al. (2022) friendships between Autistic individuals and Autistic (or alternately diagnosed) peers elicited feelings of understanding and happiness. In another study, preliminary findings suggested more stability was found in friendships between developmentally disabled peers opposed to a friendship between a labelled and non-labelled peer (Matheson et al., 2007). This is not to say that friendships between a labelled and non-labelled peer are of lower quality. Rosetti (2015) found that friendships between labelled and non-labelled youth are reported to be reciprocal and meaningful from both parties.

Nonetheless, differences in social functioning for youth with IDDs often results in a high risk for forming fewer and lower quality friendships than their same-age peers, and experiencing more loneliness (Black et al., 2022; Friedman & Rizzolo, 2018; Fulford & Cobigo, 2018; Mendelson et al., 2016) and greater feelings of exclusion (Black et al., 2022). Autistic youth are one specific subgroup that experiences difficulties in forming

friendships, a lack of friendships and friendship reciprocity, and have been found to have the lowest number of friendships in all disability categories (Black et al., 2022; Chamberlain et al., 2007; Finke, 2016; Petrina et al., 2014). A recent meta-analysis suggests that challenges with friendships can partially be explained by social differences and pressure on Autistic individuals to abide by social norms (Black et al., 2022). Despite these findings, few studies investigate friendship formation in school-age years for youth with IDDs (Webster & Carter, 2007).

Literature on friendship formation for intellectually and developmentally disabled children and youth typically involves discussions surrounding social (and peer) acceptance and rejection. While not direct measurements of friendship, acceptance and rejection are individual constructs that have been used to measure and make assumptions about peer relationships and social status (Feldman et al., 2022; Webster & Carter, 2007). Acceptance refers to nominations of being liked and included by peers while rejection refers to nominations of being disliked or excluded by a peer group (Feldman et al., 2022). Peer rejection has been associated with invisible disabilities and exhibiting externalizing behaviours that affect socialization (Feldman et al., 2022; Woodgate et al., 2020). Additionally, experiences of peer rejection are more likely to occur for those who experience physical barriers to participation (Woodgate et al., 2020). On the other hand, findings have suggested that Autistic and disabled children and youth have lower levels of acceptance than their non-labelled peers (Chamberlain et al., 2007; Pijl & Frostad, 2010; Rotheram-Fuller et al., 2010) and that acceptance is associated with strength of social skills (such that stronger social skills predict improved peer acceptance; Feldman et al., 2022).

1.2   Social Skills

Group-based social skills interventions were developed due to the link between differences in social functioning and challenges in friendship formation for children and youth with IDDs. These interventions have been well established for promoting social interaction and friendship formation for intellectually and developmentally disabled children (Laugeson et al., 2009; Wolstencroft et al., 2018) and have been successfully used across age groups, including for adolescents (Zheng et al., 2021). Group social skills

interventions commonly include behaviour-analytic teaching procedures such as behavioural skills training (model, rehearsal, and feedback) and *Stay, Play, and Talk* protocols.

Developed by English et al. (1996), *Stay, Play, and Talk* interventions are designed to teach children three fundamental social skills – staying with a friend, playing with a friend, and talking with a friend. Traditionally, *Stay, Play and Talk* interventions are peer-mediated; wherein peers are taught a skill which they then teach to a child with an IDD. The intervention typically begins with a discussion on the different ways that people communicate, and the concept of being a friend and buddy. Next, peers are taught to stay with (stay close to and/or sit next to), play with (engage in an activity with), and talk with (communicate with) their buddy. Finally, dyads are created including one child with an IDD and a non-labelled child. The peers are then instructed to use their newly learned social and communication skills with their buddy.

Studies have indicated that there are benefits to modifying *Stay, Play, and Talk* interventions for use in a group setting as opposed to a peer mediated intervention. When all children participate in education on these social skills, including those with disabilities, there are broad improvements in children's social interactions, and better long-term effects (Laushey & Heflin, 2000; Ledford & Pustejovsky, 2021). Generally, *Stay, Play, and Talk* interventions and modifications have been shown to promote increases in communication and social interactions between children with and without IDDs, which has the potential to result in long-term friendship development and inclusion (Boyd et al., 2008; Maich et al., 2022). However, there is limited information on the effects of rotating buddy assignments (Ledford & Pustejovsky, 2021), and few studies have investigated friendship development based upon implementation of *Stay, Play, and Talk* interventions.

Notably, social skills interventions are commonly attended by (and studied for use with) children and youth with IDDs. However, improvement in social skills (the target outcome of social skills interventions) is an outcome that can equally benefit children and youth without a labelled diagnosis. Research on the benefits of social skills interventions for

non-labelled youth differs slightly from those developed for youth with IDDs – focusing specifically on improving healthy peer relationships (Pollak et al., 2023) or socioemotional outcomes (de Mooij et al., 2020). These interventions have included psychoeducational and skill-building components and have proven beneficial for improving youths' interpersonal skills and peer relationships (de Mooij et al., 2020; Pollak et al., 2023).

1.3   Attitudes

Preliminary evidence has suggested that inclusion of diversity and awareness training within a formal education setting can be used as a tool to shift peers' attitudes towards intellectually and developmentally disabled youth. Diversity and awareness training sessions typically include descriptive (i.e., highlighting similarities between peers with and without a certain disability) and explanatory (i.e., explaining why people with a certain disability have certain behaviours) information about disabilities (Campbell, 2007). Other components of diversity and awareness training may include directive information (i.e., how to interact with someone with a disability in certain situations), facts about disabilities, and hypothetical scenarios for discussion (Morris et al., 2021). Acceptance and understanding of a peer are necessary for friendship formation. So, while social skills improvement can assist a child with an IDD in engaging and forming a relationship with their peers, acceptance must also be fostered in peers and is necessary to facilitate friendship formation (Morris et al., 2021).

The few studies that have evaluated and used diversity and awareness training sessions have included a control group comparison to assess changes in attitudes, understanding, and behaviours towards children with IDDs. These studies indicated that diversity and awareness training sessions can lead to knowledge and attitude changes towards Autistic children and youth in their peers (Campbell et al., 2019; Ranson & Byrne, 2014; Staniland & Byrne, 2013). Campbell et al. (2019) used the Kit for Kids program to educate fourth and fifth grade students on autism spectrum disorder (ASD). Results from this study indicated that knowledge about ASD increased from this program and those knowledge gains were maintained after one week of learning. In addition, it was found that students with no self-reported prior knowledge of ASD had improved attitudes

towards Autistic peers upon receiving this training. These attitude changes are associated with behavioural intentions towards increasing interactions with peers with disabilities (Campbell et al., 2019). Thus far, no studies have shown evidence of behavioural changes towards disabled peers (Morris et al., 2021). Nevertheless, these preliminary results are promising and highlight the possibility that diversity and awareness training can be an important component for supporting friendship formation between children with and without disabilities through aiding in attitudinal changes.

1.4   Camp Context

Summer camp is a unique community setting wherein youth are encouraged to prioritize having fun, socializing with others, and engaging in free-choice learning (Siperstein et al., 2007b). Research on summer camps has proven that participation is beneficial for all participants. Studies have indicated that participation in summer camps can lead to improvements in self-esteem, while providing youth with a space designed to foster peer relationships and friendship development (American Camp Association, 2005; Brannan et al., 2000; Henderson et al., 2007; Wilson et al., 2019).

Beyond the inherent benefits of summer camp for socialization and friendship formation, summer camp can be a positive space for education. Summer camp is an informal learning environment – a highly beneficial space for youth wherein learning takes place outside of school (e.g., afterschool programs and summer camps). Informal learning environments are not regulated in the same capacity as formal education settings. In these spaces, children have agency in deciding whether they *want* to participate in learning and enjoy the subject of their education. Most studies that investigate social skills interventions, however, focus on school and clinical settings, and very few have investigated informal education settings such as summer camp. Nevertheless, there is evidence that suggests that summer camp can be a beneficial space for education on socialization, social skills, and friendship formation. The informal nature of a summer day camp itself provides opportunities for learning and growth with high potential for friendship formation (Schelbe et al., 2018). Further, Boyd et al. (2008) developed the STAR intervention (a modification of *Stay, Play and Talk*), which was shown to improve interactions between children with and without disabilities in a summer camp context. In

another study, researchers found that summer camp is an ideal setting for Autistic children to work on social skills IEP goals, and that these goals were met at faster rates and were transferred to the school year when developed within an inclusive summer camp setting (Koegel et al., 2019). Finally, Thompson-Hodgetts et al. (2023) conducted a pilot study investigating the effects of using an autism education intervention on participants' joint engagement behaviour with Autistic peers at summer camp. Quantitative results from this study indicated that participants who received the intervention spent more time jointly engaged with Autistic peers by the end of the camp week than those in the control group. Qualitatively, however, results showed that some othering of Autistic campers still took place over the camp week.

1.5   Inclusive Setting

Historically, children with disabilities have been excluded from participation in summer camps (Blake, 1996). Nevertheless, over recent years opportunities for children and youth with IDDs to participate in both inclusive (wherein children with and without disabilities participate together) and segregated (designed specifically for children with disabilities) settings have been promoted. It should be noted that both segregated and inclusive community settings can provide unique, beneficial opportunities for intellectually and developmentally disabled children and youth. Specialized programming has been found to promote disability culture and is sometimes a preference for youth and their families (Clark & Nwokah, 2011; Cushing, 2015). Even so, recent research movements in the field of inclusive education have strongly suggested the importance of inclusive spaces. Inclusive community spaces have been found to promote friendship development (Buysse et al., 2002) while inclusive camps specifically have promoted acceptance and feelings of belonging (Devine & Parr, 2008). In a study conducted by Buysse et al. (2002) children with disabilities participating in inclusive settings were more likely to have formed at least one friendship than when they participated in a specialized setting. Another study indicated that organizations play a key role in friendship formation for individuals with IDDs, stating that they can either support or act as a barrier, and that those with IDDs working in segregated settings have more challenges forming friendships than those in community settings (Friedman & Rizzolo, 2018).

1.6   Inclusive Education Framework

Universal Design for Learning (UDL) is a well-researched framework for teachers to improve inclusive education in their classrooms. Initially inspired by architecture, Universal Design (UD) is broadly understood as designing environments with the consideration of all people in mind upfront, rather than making adaptations as or after people are accessing something (Specht & Hutchinson, 2024). When applied to educational settings, UDL is a framework that can be used by teachers to support the learning of all students in a classroom by offering flexibility in, and reduced barriers to, instruction and education (Hall et al., 2012). In application to teaching instruction and curriculum design, the Center for Applied Special Technology (CAST) introduced basic principles of UDL to introduce to a learning environment. These principles include providing multiple and flexible methods through which (1) learners can *engage* in education, (2) teachers can offer *representations* of the content being taught, and (3) teachers can offer options to students in the *action and expression* of their learning (Lapinski al., 2012; Ok et al., 2017; Specht & Hutchinson, 2024). Components that make up CAST's framework for UDL are research informed, but recent research has suggested that due to the large variability that comes with implementing UDL in teaching practices, the efficacy of UDL is also variable across studies (Hall et al., 2012; Ok et al., 2017). Nonetheless, implementing UDL has great potential to benefit students with varying educational needs.

1.7   STEM Education

It has also been determined that finding mutual enjoyment and desire towards a particular subject is conducive for friendship formation (Finke, 2016). Science, Technology, Engineering and Mathematics (STEM) programs have been found to be of particular interest for youth with IDDs, especially for Autistic youth, who gravitate towards post-secondary STEM education at higher rates than the general population (Fessenden, 2013; Wei et al., 2013). However, post-secondary enrollment rates are significantly lower for intellectually and developmentally disabled students than their non-labelled peers (Raue & Lewis, 2011; Wei et al., 2013). Despite the need to grow a STEM capable workforce (Council of Canadian Academies, 2015) and the evidence that suggests that people with

IDDs can contribute to the workforce in STEM disciplines, students with IDDs face barriers to education in STEM. One such barrier to accessing post-secondary education is social communication difficulties (Hendricks & Wehman, 2009). More specifically, social communication is a fundamental core competency to STEM education and work (Hurlbutt & Chalmers, 2004). As such, opportunities for developing social skills and STEM education throughout childhood and adolescence can benefit children with and without IDDs and can supplement their interest in STEM disciplines.

Availability of informal STEM programs have increased in response to the need to grow a STEM capable workforce (Council of Canadian Academies, 2015), and studies have indicated that participation in high quality and afterschool STEM programming is correlated with increased interest in pursuing a career or future education in STEM (Allen et al., 2019). Despite this, there are no targeted afterschool STEM programs for children with IDDs. Summer camp offers the opportunity for targeted STEM education which can be tailored to individual students' needs, while also providing specific opportunities for social skills development.

1.8 The S^3 Summer Camp

The S^3 summer camp was designed to be interdisciplinary – combining a theoretical disability studies lens, psychological research methodology and procedures, and STEM education. These three components were significant for both the context and content of the summer camp that participants attended and the research itself.

A disability studies theoretical lens was used to shape the summer camp context. The camp was designed to be inclusive and accessible for all participants, with the fundamental belief that all youth have a right to experience the joy of summer camp and engage in learning without barriers. Limited exclusion criteria for the summer camp meant that any participant would be welcome to join camp so long as they wanted to join. That is, both youth with IDDs and those without a label were able to learn and participate together without barriers. Principles of both the social model and the biopsychosocial model informed the camp's design. Reflective of the social model and informed by UDL the goal for camp was to limit barriers to participation by creating accessible content

upfront rather than solely adjusting content once participants expressed a barrier. For example, instructions for all lesson-based content (including disability awareness lessons, social skills lessons, and STEM lessons) were developed to include visual (typed-text alongside images, video, walk-throughs) and verbal instruction. In addition to the modifications to the social context of the camp, intervention components were included to provide support to participants, reflecting the biopsychosocial model of disability. These contextual components of the camp were developed to holistically support friendship formation and promote positive attitudes about disabilities – both by creating an inclusive and accessible social setting and using intervention tools to address perceived needs (i.e., develop social skills and promote positive attitudes about disabilities).

Notably, S^3 was designed to reflect social inclusion. The goal of this summer camp was to create a space of understanding and acceptance of others' differences – not to assimilate to the "norm." Social skills lessons were designed to provide opportunities for *all* participants (not just intellectually and developmentally disabled participants) to practice social skills that would support friendship development and socialization. Mastery criteria for success for social skills learning was not based upon neurotypical standards for socialization. Similarly, awareness training was designed with the belief that *all* participants (not just non-labelled participants) have a right to be educated about, and can benefit from education on, different disabilities. Further, youth who enrolled in camp were required to express interest in the camp and its components in order to participate. No camper was required or forced to engage in behaviour or content that was uncomfortable. Additionally, should participants require accommodation beyond what was pre-planned for the summer camp, this camp was designed such that additional support was available at any time. Extra staff were available to provide one-to-one support if it was requested. Ultimately, this inclusive context of the camp was fundamentally important to the camp's design.

Beyond the contextual importance of the S^3 camp, elements of the summer camp's design were thoughtfully crafted to support camper needs. The summer camp was designed specifically for participants between 9-14 years old. This age range was chosen to fill a

literature gap, as most of the literature that has studied group-based social skills interventions tend towards much younger (i.e., kindergarten) or older (i.e., high school) age groups. In addition, there is significance in studying this pre-adolescence age range, as this is a stage of life where friendships become more important and complex. There are increased expectations from peers that can be challenging to negotiate. For youth who differ in social skills, this is a particularly important time to develop friendships, which can act as a protective factor against bullying and internalizing disorders (e.g., anxiety and depression) that become more prevalent in the transition to adolescence (O'Connor et al., 2022).

Additionally, research goals were created to evaluate specific intervention components. Namely, the camp was designed to foster friendship formation, acceptance, and the development of social skills for all participants in attendance. Previous literature has emphasized the desire and necessity for friendship development and formation for intellectually and developmentally disabled youth. As such, many components of the S^3 camp were designed to support friendship development. Previous studies have indicated the benefits of group-based social skills training (Laugeson et al., 2009; Wolstencroft et al., 2018), and diversity awareness training (Campbell et al., 2019; Ranson & Byrne, 2014; Staniland & Byrne, 2013), as intervention methods through which friendship development and acceptance are fostered for youth with IDDs. As such, the major intervention components of the S^3 summer camp include *all* participants taking part in inclusive social skills development sessions and diversity awareness training activities. In addition to these intervention components, Science, Technology, Engineering, and Math (STEM) activities and instructions will take place throughout the camp day, forming the context for the camp – creating a space of shared interest for participants.

1.9   Objectives

The current study aims to answer the following research questions:

1. Did participants of the S^3 inclusive summer camp demonstrate friendship formation?

     a. Did friendship formation at the S^3 camp differ for disabled and non-labelled peers?

2. What is the effect of attending the S^3 inclusive summer camp on participants' attitudes towards disabled peers?

3. What is the effect of attending the S^3 inclusive summer camp on participants' social skills?

It is hypothesized that participants will demonstrate friendship formation after attending the S^3 camp. Further, it is hypothesized that participation in the S^3 summer day camp will result in improved attitudes towards peers with disabilities. Finally, it is hypothesized that participation in the S^3 summer day camp program will lead to improved social skills in comparison to the control group.

Chapter 2

2 Methods

The following section outlines the research methodology that was used in the project.

2.1 Ethics Approval

This study received approval from the Research Ethics Board at the University of Western Ontario. See Appendix A.

2.2 Recruitment

Recruitment took place through dissemination of physical posters at local agencies and recreation centers which serve families of children with IDDs and Western's Faculty of Education. In addition, emails with electronic recruitment posters were sent to families and local agencies. Parents and caregivers who were interested in this study participated in an initial screening and pre-assessment interview to ensure that the inclusion criteria were satisfied.

2.3 Participants

A total of 24 (with IDD, $n = 10$; non-labelled, $n = 14$) participants between the ages of 9–14 years old were recruited to participate in the current study. During week one of summer camp, one participant was unable to attend all five days of summer camp. During week two of summer camp, one participant was unable to attend the last four days of summer camp. These participants' data were excluded from analyses (see Figure 1).

S³ Participant Recruitment Flow Chart

Recruitment / Pre-Assessment	1. Participants enrol in the S³ summer camp (*n* = 24) 2. Participants complete the pre-assessment.

Group Assignment	Week 1: Intervention (*n* = 12)	Week 2: Waitlist-Control (*n* = 12)

Camp Absences	One participant unable to attend all five days.	One participant unable to attend last four days.	Participant data excluded

Final Participants	Total Participants (*n* = 11)	Total Participants (*n* = 11)

With an IDD (*n* = 5)	Non-labelled (*n* = 6)	With an IDD (*n* = 5)	Non-labelled (*n* = 6)

Figure 1. This figure illustrates the participant recruitment process and final participant counts.

Participants with a diagnosed IDD must meet the following inclusion criteria: (a) diagnosis of an IDD by a regulated health professional (pediatricians, psychologists, or psychiatrists) as confirmed by a caregiver (b) between the ages of 9 and 14 (c) have an interest in participating in the camp. Participants without an IDD (non-labelled) must meet the following inclusion criteria: (a) between the ages of 9 and 14 (b) have an interest in participating in the camp. Participants who did not meet these inclusion criteria were excluded from the study.

For the purposes of this study, participants who disclosed a diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD) were placed in the "non-labelled" categorization. ADHD is categorized as a neurodevelopmental disorder by the Diagnostic and Statistical Manual of Mental Disorders, fifth edition-text revision (DSM-5-TR; 2022) and is not

typically categorized as an IDD. Additionally, parents of participants who disclosed an ADHD diagnosis did not identify their child as having an IDD, unless the diagnosis of ADHD was co-occurring with another IDD diagnosis.

Categorization into "IDD" and "non-labelled" categories for the purposes of this study were based on parental disclosure. Participants were not required to provide proof of a diagnosis for their child, and we did not provide diagnoses to participants. As such, those who disclosed their child as having an intellectual or developmental disability were placed in the "IDD" category, and those who did not were placed in the "non-labelled" categorization. See Table 1 for additional demographic information.

Table 1. Demographics and Clinical Information for Participants

Measure	Week 1: Intervention (n =11) n(%)		Week 2: Control (n =11) n(%)	
	IDD (n= 5)	No IDD (n= 6)	IDD (n= 5)	No IDD (n= 6)
Sex (Male)	4(80)	2(33.3)	5(100)	2(33.3)
Age	11.20 (SD=1.93)	11.33 (SD=1.21)	11.20 (SD=1.48)	12.33 (SD=1.21)
Grade in Fall 2023				
Four	0	0	1(20)	0
Five	2(40)	2(33.3)	0	1(16.7)
Six	1(20)	1(16.7)	1(20)	0
Seven	1(20)	2(33.3)	1(20)	2(33.3)
Eight	0	1(16.7)	2(40)	3(50)
Nine	1(20)	0	0	0
Diagnosis				
Autism	4	0	4	0
Severe Learning Disability	1	0	0	0
Learning Disability		0	0	1
Intellectual Disability	0	0	1	0
Cerebral Palsy	0	0	1	0
ADD/ADHD	0	1	1	0
Expressive Language Disorder	0	0	1	0
Experience with PWD (Yes)	4(80)	3(50)	5(100)	4(66.7)
Vineland ABC (SS)	72.80 (SD= 8.93)	101.33 (SD=12.38)	73.80 (SD= 14.24)	106.50 (SD= 5.75)
Communication Subscale (SS)	68.40 (SD= 14.74)	105.00(SD= 12.41)	78.60 (SD= 15.96)	104.33 (SD= 8.66)

Daily Living Skills Subscale (SS)	77.80 (*SD*= 18.55)	98.00 (*SD*= 13.37)	73.20 (*SD*= 13.37)	105.17(*SD*= 6.46)
Socialization Subscale (SS)	75.20 (*SD*= 11.95)	100.17 (*SD*=10.25)	69.40 (*SD*= 20.37)	107.67 (*SD*= 6.25)
BASC Externalizing T-Score	56.60 (*SD*= 21.85)	48.00 (*SD*= 8.81)	65.80 (*SD*= 15.45)	47.00 (*SD*= 1.79)
BASC Internalizing T-Score	69.20 (*SD*= 17.17)	56.83 (*SD*= 13.21)	61.40 (*SD*= 4.67)	44.67 (*SD*= 3.98)
BASC BSI T-Score	69.60 (*SD*= 17.95)	50.83 (*SD*= 8.65)	73.20 (*SD*= 9.42)	45.33 (*SD*= 2.42)
BASC Adaptive Skills T-Score	37.80 (*SD*= 7.92)	46.83 (*SD*= 9.87)	33.40 (*SD*= 8.47)	55.00 (*SD*= 9.12)

Note. PWD = people with disabilities; ABC= adaptive behaviour composite; SS = standard score; BASC = Behaviour Assessment System for Children; BSI = behavioural symptoms index. Some participants have multiple or co-occurring diagnoses.

2.4   Setting

The study took place at the Faculty of Education at the University of Western Ontario. Both pre-assessments and the S³ summer camp took place within this setting. For some participants, the pre-assessment was conducted virtually using the Zoom Video Conferencing Platform. Additionally, initial participant screening was conducted via phone calls, while post-assessments were completed individually by participant families.

2.5   Camp Facilitators and Research Assistants

The S³ camp employed several students across disciplines from the University of Western Ontario. The camp was facilitated by two Bachelor of Education students who had experience with working with elementary and high school students. The facilitators were responsible for running the daily camp curriculum, including awareness lessons, social skills lessons, and STEM curriculum. Beyond the two primary facilitators, four research assistants were employed to support research-based activities including note taking during social skills and awareness lessons, coding during observation sessions, and organization of materials. Research assistants were students in undergraduate and graduate psychology programs from the University of Western Ontario.

Taking into consideration all camp staff, the ratio of counsellors (i.e., all camp staff including facilitators and research assistants) to campers at many times during the camp day was 6:11. This is a high staff ratio unlike the standard at most camps, which

generally have a 1:10 (counsellor: camper) ratio for campers aged eight and older. It was necessary to employ a higher ratio of camp staff for notetaking and supporting the research project. However, this high ratio allowed for additional support that may not otherwise be seen at a typical summer camp. If necessary, research assistants could step into a facilitator role or support a camper in a 1:1 ratio. The flexibility of staffing often removed barriers to participation when any campers needed additional support with an activity.

2.6   Data Collection

2.6.1   Friendship Survey

The *Friendship Survey* (adapted from Rotheram-Fuller et al., 2010) was used to analyze reciprocal friendships and best friends, acceptance, and rejection. Participants individually sat with two research assistants for an interview. Prior to asking interview questions, the research assistant explained: "I am going to ask you questions about the friends you made at camp. Remember, none of your peers in the camp will hear the answers to your questions. I will not tell anyone in the camp about how you answered. This is not a test and there are no rewards or points. There are no right or wrong answers." The research assistant then presented the participant with a list of names and pictures of the campers in the camp group and verbally asked the following questions: (1) Who are your friends in the camp? Circle your friends' names and put a star next to your best friend. You can only pick one best friend. (2) Who do you not like to hang out with at camp? (3) Are there kids in the camp who like to hang out together? Who are they? Can you tell me their names?

Scoring for the *Friendship Survey* mirrors Rotheram-Fuller et al (2010). Reciprocal friendships are peers who mutually list each other as friends, while "best friends" are peers who mutually list each other as best friends. *Z*-scores were calculated for each participant to determine their acceptance in the camp group, based on the number of peers who nominated the participant as a friend. Positive scores represent above-average acceptance, zero represents average acceptance, and negative scores represent below-average acceptance. Similarly, *Z*-scores were calculated for each participant to determine

their rejection in the camp group based on the number of peers who nominated the participant as someone they "did not like to hang out with" at camp. In this case, positive scores represent above-average levels of rejection, zero represents average levels of rejection, and negative scores represent below-average levels of rejection. The friendship survey is validated for use with Autistic youth (Rotheram-Fuller et al., 2010).

2.6.2   Playground Observation of Peer Engagement (POPE)

The *Playground Observation of Peer Engagement* (POPE) is adapted from Kasari et al. (2011) and was used to observe friendship formation and interaction between children during free play periods at camp on Monday, Wednesday, and Friday. This is a timed-interval behaviour-coding system and has been used to observe children with and without Autism (Locke et al., 2016). Over 50, 30-second intervals, research assistants recorded each child's engagement behaviours at the end of the 30-second interval. Camper behaviours during the free play period were coded based on seven different categories of engagement: solidarity behaviour, onlooker behaviour, parallel play behaviour, parallel aware behaviour, joint engagement with peers, participating in games with rules, and engagement with an adult facilitator (See Appendix B for the modified POPE measure and behaviour descriptions). Four research assistants (three primary observers, one reliability observer) were responsible for recording peer engagement. Upon completion of summer camp, the proportion of intervals for each category was calculated providing an estimate of the duration of time participants spent engaging in each type of behaviour.

Participants' engagement behaviours were grouped into three categories. The first category, Absence of Peers, combined observations of solidarity behaviour and engagement with an adult facilitator. The second category, Playing Around Peers, combined observations of onlooker, parallel, and parallel-aware behaviours. In this category, participants were engaging in an activity around a peer but are not directly engaging with their peer in an activity. The final category, Playing With Peers, combined observations of joint engagement and participation in games with rules. In this case, participants are actively engaging with their peers in an activity. To create these categories, the sum of the percentages of the number of intervals in each initial code (e.g., solidarity and engagement with an adult facilitator) were calculated.

2.6.3 Interobserver Agreement

Measures of interobserver agreement were conducted to ensure behaviour coding was reliable across observers. An interval was coded as agreed upon when both the primary observer and the reliability observer recorded the same behaviour for a participant during an interval (i.e., during interval 1 both observers reported that the participant was an onlooker "O"). An interval was coded as a disagreement when the primary observer and the reliability observer recorded a different behaviour for a participant during an interval (i.e., during interval 1, one observer reported the participant was an onlooker "O" while the other reported the participant was engaging in solidarity "S"). Finally, an interval was coded as unobserved (and therefore was not counted in the total number of intervals) when one or both observers did not code a behaviour (i.e., the participant was away during that interval, or the observer did not see the child).

Interval-by-interval calculations of interobserver agreement were conducted, such that the total number of agreed upon intervals were divided by the grand total of intervals, multiplied by 100. Across both weeks of observation, 24.53% of intervals were scored for interobserver agreement.

During week one, 93.93% interobserver agreement was achieved across three days of observation (560 intervals). Each day, four participants were observed by the primary and reliability observer – 22.51% of all intervals on Monday, 28.78% of all intervals on Wednesday, and 26.96% of all intervals on Friday were observed. On Monday, 91.49% agreement was achieved. On Wednesday, 95.5% agreement was achieved. On Friday, 94.77% agreement was achieved.

During week two, 97.84% interobserver agreement was achieved across three days of observation (463 intervals). On Monday, 35.62% of all intervals (four participants) were observed for reliability and 97.18% agreement was achieved. On Wednesday, 21.34% of all intervals (three participants) were observed for reliability and 100% agreement was achieved. On Friday, 22.26% of all intervals (three participants) were observed for reliability and 96.58% agreement was achieved.

Across both weeks of camp interobserver agreement was calculated to determine the percentage of agreements between the reliability observer and each primary observer. Observer A achieved 94.25% agreement, Observer B achieved 97.35% agreement, and Observer C achieved 95.60% agreement with the reliability observer.

2.6.4   Adjective Checklist (ACL)

The Adjective Checklist (Siperstein, 2007a) was used to assess the cognitive component (opinions and beliefs) of participants' attitudes towards children with disabilities before and after participating in the summer camp. Participants were provided with a list of 34 adjectives (17 positive and 17 negative) that may be used to describe a hypothetical person, in this case, a peer with disabilities. Participants were asked to circle all the words they would use to describe a peer with disabilities to their classmates. Upon completion, a composite score was calculated for each participant to determine their overall attitude towards peers with disabilities. Composite scores below 20 indicate negative attitudes towards the hypothetical peer with disabilities. Composite scores above 20 indicate positive attitudes towards the hypothetical peer with disabilities. This measure has been validated for use with youth ages 8-12, has good construct validity ($r = .76$) and has an acceptable internal consistency of .81 (Siperstein, 2007a; Swaim & Morgan, 2001; Vignes et al., 2008).

2.6.5   Vineland-3

The Vineland-3 Parent/Caregiver form (by Sparrow et al., 2016) was used to evaluate the adaptive functioning of individuals across the domains of Daily Living Skills, Communication, Socialization Skills, Motor Skills, and Maladaptive Functioning, through a 502-item questionnaire. Some of these items are rated using a response of *Yes* (score of 2) or *No* (score of 1)*,* while most of the scale's items use a 3-point Likert Scale (i.e., *0 = Never; 1 = Sometimes; 2 = Usually*) to indicate how frequently the child performs a behaviour independently (without prompting). This assessment is norm-referenced, individually administered and has excellent (.94 to .99) internal consistency reliability scores (Pepperdine & McCrimmon, 2018).

2.6.6   Behaviour Assessment System for Children (BASC-3)

The BASC-3 Parent Rating Scale (by Reynolds & Kamphaus, 2015) was used to evaluate participants' behaviours across the following domains: externalizing, internalizing, behavioural symptoms index and adaptive skills. The child form (175 items) was completed by parents of children between the ages of 6-11, while the adolescent form (173 items) was completed by parents of children 12 years and older. Items are rated using a 4-point scale (i.e., *0 = Never; 1 = Sometimes; 2 = Often; 3 = Almost Always*) to describe the child's behaviours. This assessment is norm-referenced, individually administered, and has good to excellent (Ages 8-11: .86-.94; Ages 12-14: .89-.97) median coefficient alpha reliability scores (Pearson, 2019).

2.6.7   Social Responsiveness Scale (SRS-2)

The SRS-2 School-Age form (by Constantino & Gruber, 2012) was used to evaluate participants' social skills and behaviours. The form evaluates six behaviour subscales including: social awareness, social cognition, social communication, social motivation, restricted interests, and repetitive behaviour. The form includes 65-items rated using a 4-point Likert Scale (i.e., *0 = Not True; 1 = Sometimes True; 2 = Often True; 3 = Almost Always True*). This assessment is norm-referenced, individually administered, and has strong internal consistency for the standardization and clinical samples (ranging from .94 to .96) (Bruni, 2014).

2.6.8   Social Validity

A measure of social validity was created for this study to assess participants' feelings about the S[3] camp and its different components (i.e., friendship, social skills, learning about disabilities, STEM, and general camp enjoyment). The questionnaire was made up of 30 questions. The first 24 questions asked participants to rank their level of agreement to different statements about camp (i.e., *strongly disagree, disagree, neither agree nor disagree, agree, strongly agree*). Sample questions include: *I believe learning social skills is important* and *I was interested in learning more about different disabilities.* The final five questions asked participants to write their responses about what they enjoyed most and least about different components of the camp. Sample questions include: *please*

tell us what you liked most about the STEM camp and *please tell us what you liked least about the social skills lesson.*

2.6.9   Materials

Materials for the STEM education components of the S^3 curriculum included Ozobot robots, Makey Makey STEM kits, Sphero RVRs, micro:bits, littleBits, Chromebooks and Chromebook apps (SpheroEDU and Scratch). Beads and string, word searches, and paper materials were used during awareness lessons. During free play and observation sessions, campers were given a variety of games (including Trouble, Battleships, a deck of cards, and Chess and Checkers), a basketball and soccer ball, and other outdoor activities (i.e., chalk). In addition, pencils, pens, paper, markers, and other materials used to draw and colour were provided to campers throughout the day.

2.6.10   Visual Aids

Visual Aids were used to support participants' learning of social skills each day. Visual aids contained a symbol depicting the daily social skill with the name of the social skill written on the image (see Appendix C). Large versions of these visual aids were posted on walls of the camp classroom, while smaller photo card images of the skill were provided to participants who need additional reminders throughout the day. In addition, a "buddy chart" was posted on the wall of the camp classroom. This chart contained the names and pictures of all the participants and indicated the peer(s) they were paired with for the day's activities. This served as a visual reminder of each participant's buddy for the day (see Appendix D).

2.6.11   Video-Based Models

After learning the day's social skill, behavioural skills training video models were used to demonstrate the social skill that was being taught that day. Each video model was less than one-minute long and featured two teenagers role-playing the social skill that was being practiced that day. One video model was made for each of the social skills that had the potential of being taught, for a total of 15 created videos.

During the second week of camp, one social skill (Stop, Think, and Go) was developed for the camp group. The video model for this social skill was less than one-minute long and featured two of the camp facilitators role-playing the social skill.

2.7   Research Design

A quasi-experimental waitlist-control design was used to determine the effects of the S^3 camp program on participants' friendship formation, attitudes towards peers with disabilities, and social skills. During registration, participants specified whether they would like to attend week one (the S^3 program first group; the intervention group) or week two (the waitlist-control first group). Pre-assessment took place prior to participation in the summer camp upon registration in the camp program. Post-assessments took place on or in the two-days following the last day (i.e., day five) of participation in the summer camp program.

2.7.1 S^3 Program

2.7.1.1   Awareness Training

Brief, 10-minute, awareness training lessons are embedded in the social skills training package for the S^3 Camp. Each morning at camp started with an awareness lesson, which included descriptive and explanatory information on five IDDs across the five days of summer camp. In addition to this information, each lesson included an activity that was designed to build an understanding of and empathy for differences in abilities. Many of the activities included were designed by Camps on Tracks as activities used to build awareness for different abilities while at summer camp.

On the first day, campers were taught about similarities and differences. During this lesson, campers created a full value contract which contained the goals, rules, and values that they wanted to establish at camp. This was followed by a camp game, colloquially known as "Where the Wind Blows." During this game, participants had the opportunity to get to know each other and share their similarities and differences.

On the second day of camp, a modified version of the Kit for Kids program was used to teach campers about Autism. Developed by the Organization for Autism Research (n.d.),

the Kit for Kids program has promising preliminary evidence, and has been used to improve children's initial attitudes towards Autistic peers (Campbell et al., 2019). Kit for Kids includes a workbook, tip sheet for how to be a good friend to peers with Autism, and short videos to start conversations about Autism.

Across the following three days of camp, campers learned about Down Syndrome (Wednesday), Intellectual Disabilities (Thursday), Cerebral Palsy and ADHD (Friday). The lesson on ADHD was highly requested by a camper during the first week of camp. As such, the lesson was implemented following the Cerebral Palsy lesson, so students participated in two awareness lessons on Friday. The ADHD lesson was also embedded for campers in week two.

2.7.1.2   Behavioural Skills Training (BST)

Behavioural skills training (BST) is the second component of the social skills training package for the S^3 Camp. These lessons were approximately 15-20 minutes long and took place once each morning of the camp week. Over the first three days of summer camp, stay, engage and talk were chosen as the target social skills for each day respectively. On the fourth and fifth day of summer camp, the social skill lesson was chosen by facilitators from a package of social skills lesson plans based on the camp group's mastery of previous social skills. The social skills package contained fifteen social skills lessons designed for use in the camp. For the list of social skills and sample social skills lesson plan, the mastery criteria for all social skills, and the integrity checklist for BST, see Appendices E, F and G.

BST consists of the following steps: introduction to the skill, model, practice, and feedback. Lessons began with an introduction which included explicit explanation and discussion about the targeted social skill. Following the introduction, both video modelling and live modelling (by camp facilitators) were used to demonstrate the targeted social skill for the day. The video modelling procedures that were used are adapted from Plavnick et al. (2013, 2015). After watching the video, participants were asked approximately three questions about what they just watched, what the steps are to perform the desired skill (if applicable), and how or why we might use this social skill

when we are with peers. These questions provided an opportunity for cognitive rehearsal of the targeted social skill. Following the cognitive rehearsal, participants were divided into small groups of three to four participants for a behavioural rehearsal of the skill with their peers and a trained interventionist (i.e., camp facilitators and research assistants). Facilitators provided feedback after the behavioural rehearsal by reviewing the components of the skill that the camper did well and providing constructive support for components that were missing. Throughout the rest of the camp day, all participants were given praise or corrective feedback about the targeted social skill.

2.7.1.3   Buddy Pairings

Following the social skills training session for the day, participants were paired with a peer buddy or buddies (for a group of three). To ensure that participants with IDDs and non-labelled participants had opportunities to interact with each other, all buddy pairings (dyads) contained one participant with an IDD and one non-labelled participant. The group of three either contained one IDD participant with two non-labelled participants or two non-labelled participants with one IDD participant.

It was explained to the participants that the goal is to continue to practice the targeted social skill with their buddy throughout the day and during the STEM activities. To ensure that campers had easy access and reminders of who their buddy/buddies were, a buddy board was made visible at the front of the camp classroom (see Appendix D). Campers were introduced to the buddy board on the first day of camp and were reminded of it each day following. There was a rotating buddy system for the week of camp, such that each day, campers had the opportunity to practice their social skills with many different peers. Throughout the camp day, facilitators were prompted to ensure that campers had at least three opportunities for praise or corrective feedback about the targeted social skill while working with their buddy/buddies. Facilitators were also given the option of offering small photo card reminders of the social skill to buddies who are having trouble remembering to practice the skill together.

2.7.1.4   Room Setup

The main camp room wherein participants learned and engaged in social skills and STEM activities, ate lunch and snack, and started and ended each day was set up as a typical classroom or summer camp space. Tables were arranged such that four participants (i.e., two buddy pairs) could sit in a group and socialize while being able to see the front board for instruction. Seating arrangements were made each day to ensure buddy pairings sat together for the day's activities. Buddies typically sat side by side, rather than across from each other, at the table to facilitate paired activities. Participants were not required to sit in their designated seat during lunch and snack breaks or free activity time.

2.7.1.5   STEM Curriculum

Upon completion of the social skills programming each morning, campers spent the rest of the day learning to use different coding and robotics tools throughout the week. The S^3 camp was designed to integrate STEM education in an informal and inclusive learning environment. All the activities were designed to be accessible, using Universal Design for Learning with low-floor entry points and high-ceiling opportunities. This ensured that any and all participants (with any ability or experience level) could access all the activities provided at camp. STEM curriculum for this program was designed by a student in Western University's Bachelor of Education program. The activities designed for this program focused on coding and robotics, with the goal of fostering and nurturing interest and curiosity for STEM activities. Activities included using Ozobot robots, Makey Makey STEM kits, Sphero RVRs, and micro:bits. As the camp week progressed, lessons built upon previous learning and had the option of increasing in difficulty. A sample of the STEM curriculum and the daily camp agenda can be found in Appendix H.

2.7.1.6   Free Play Periods

Free play periods were offered once each day after lunch, lasting one hour in length. During free play periods, campers were given the opportunity for unstructured play and socialization time outdoors. Campers were provided with different toys, games, and outdoor objects to play with including chalk, balls, and board games. During each period,

five research assistants were present to observe and were available for questions and support. On Monday, Wednesday, and Friday, these free play periods were used for observation of peer engagement.

Chapter 3

3   Procedures

Participants in both the intervention and waitlist-control group experienced the same procedures throughout their recruitment and participation in camp (see Figure 2). Participants in the intervention group were only required to complete one pre-assessment, while participants in the waitlist-control group were required to complete a post-waitlist assessment. The timing of the pre- and post- assessment periods for both groups varied. At time one, before camp started, all groups completed the initial pre-assessment. At time two, on the weekend between week one and week two of camp, participants in the intervention group completed the post-assessment, while participants in the waitlist-control group completed their second pre-assessment. At time three, after week two of summer camp, participants in the waitlist-control group completed their post-assessment.

Camp Procedures Flow Chart

Stage	Intervention Group	Waitlist-Control Group
Before Camp (May-June)	All participants complete the phone-screening interview	
Time One (June)	Participants complete the pre-assessment	Participants complete the pre-assessment
Camp Week 1 (July 10-14)	Participation in S^3 camp	
Time Two (July 14-16)	Participants complete the post-assessment	Participants complete the post-waitlist assessment
Camp Week 2 (July 17-21)		Participation in S^3 camp
Time Three (July 21-23)		Participants complete the post-assessment
After Camp (July 24 -)	All participants are sent the social validity questionnaire	

Figure 2. This figure illustrates the timeline for participation in the study.

3.1   Phone Screening Interview

Following recruitment, parents and/or caregivers of those interested in participating in the study took part in an initial screening interview over the phone. This phone call was conducted by a research assistant and took approximately 20- to 30- minutes to complete. Caregivers were asked to verbally respond to questions about their child's age, diagnosis, and interest in participating, but no data was collected from this interview. Upon completion of the interview, the research assistants reviewed the inclusion and exclusion criteria to determine whether the participant met the criteria to participate. Those who did not meet the inclusion criteria were thanked for their time, and asked if they would like to be contacted for future research in the lab. Those who met the inclusion criteria continued the phone call with a review of the letter of information, consent, and assent documents. Participants were offered the opportunity to ask questions about the documents and the camp structure and were asked for verbal consent to participate in the study. Participants were assured that they would have another opportunity to review the documents with a research assistant during the pre-assessment, where they could ask questions and provide written consent. If participants consented to participation in the study, a pre-assessment meeting time was scheduled.

3.2   Pre-Assessment

Parents and/or caregivers and their child were invited to complete a pre-assessment interview at the Faculty of Education at Western University or virtually over Zoom. The pre-assessment was used to: review inclusion and exclusion criteria to ensure the child is eligible for participation, obtain informed written consent and assent, and (should consent and assent be obtained) complete a series of standardized measures that were used for pre- and post-camp comparisons. Each pre-assessment was conducted by a research assistant and took approximately 1.5 hours.

Parents and/or caregivers completed one paper questionnaire, the Social Responsiveness Scale – Second Edition (SRS-2), and two online questionnaires through Q-Global: The Vineland Adaptive Behaviour Scales – Third Edition (Vineland-3) and the Behaviour Assessment System for Children – Third Edition (BASC-3). Children completed their

questionnaire, The Adjective Checklist (ACL) on paper. During this time, children were also given the option to tell research assistants what they were looking forward to at camp and what they like to do for fun.

3.3   Camp Participation (Intervention Group - S3 Camp Program First)

The intervention group attended the first week of summer camp. Participant attendance took place over five days (Monday to Friday) for seven hours each day (9:00am to 4:00pm). Each morning, camp started off with an awareness lesson followed by BST for the day's target social skill. Campers in week one completed BST for the following social skills: day one: *stay*, day two: *engage* and *talk*, day three: *asking for an object*, days four and five: *self-advocacy*. On day two, *engage* and *talk* were both taught in the same morning, as facilitators had confidence that participants had mastery of these skills. *Self-advocacy* was taught on both days four and five, as facilitators determined that more time was needed for the group to practice this skill. Following these lessons, campers spent the rest of the day participating in different STEM activities and in a one-hour free play period each day. On Friday, the afternoon was dedicated to preparing a showcase for their parents to attend. During this time, campers worked as a group to create different stations with all of the activities they had done throughout the week.

3.4   Camp Participation (Week Two – Waitlist Control First)

Participants in the waitlist control group received no S^3 program while the first week of summer camp was taking place. On the weekend between the two weeks of camp (i.e., the weekend before their participation in camp took place), participants were required to complete a post-waitlist assessment. During this assessment, parents completed the Social Responsiveness Scale – Second Edition (SRS-2), and children completed the Adjective Checklist (ACL).

Following the post-waitlist assessment period, participants attended camp on the second offered week for the same amount of time (i.e., Monday to Friday, 9:00am – 4:00pm). Over the course of the week, participants in this group followed the same camp

day schedule as participants in week one. The campers in week two completed BST for the following social skills: day one: *stay*, day two: *stay* and *engage*, day three: *engage* and *talk*, days four and five: *stop, think, and go*. On day two, *stay* and *engage* were both taught in the same morning. *Stay* was taught as a refresher lesson, so facilitators quickly walked through the BST protocol again, and followed-up by teaching *engage*. Participants had the opportunity to practice both of these skills three times during the social skills lesson. Similarly, on day three, *engage* and *talk* were both taught in the same morning. *Engage* was taught as a refresher lesson, while *talk* was taught at normal pace. Finally, *stop, think, and go* was taught on both days four and five. Facilitators felt the need to reiterate the importance of this skill and to have campers continue to practice. As with week one, following the social skills and awareness lessons, participants engaged in STEM learning, and in a one-hour free play period, for the remainder of the day each day. On Friday, participants prepared a showcase for their parents to attend.

3.5   Post-Assessment

Within the last hour and a half on day five of the camp week (i.e., Friday; the last day of camp) participants were pulled out of the showcase individually to complete the friendship survey. When participants completed this survey, they returned to the camp showcase.

After summer camp, campers and their parents were sent home to complete their post-assessment. Parents were asked to complete the SRS-2, while children were asked to complete the ACL. Participants were asked to complete and mail back their post-assessment measures in the weekend following their last day at the S^3 summer camp.

3.6   Social Validity Questionnaire

One week after camp was completed for both groups, all participants in the study were emailed a copy of a social validity questionnaire to be completed virtually and sent back. This questionnaire was to be completed by the children who participated in summer camp. There was no time limit for participants to complete this form.

Chapter 4

4   Study Results

This chapter outlines the results from data analysis. Tests for normality were conducted for the data. For instances where the assumption of normality was violated, nonparametric tests were used.

4.1   Research Question 1. Did participants of the S3 inclusive summer camp demonstrate friendship formation? Did friendship formation at the S3 camp differ for disabled and non-labelled peers?

To determine whether participants at the S[3] camp formed friendships with each other, we analyzed participants' acceptance and rejection z-scores based on responses to the *Friendship Survey*. We used an independent-samples t-test to examine whether participants' levels of acceptance in the camp group differed depending on their diagnosis (IDD or non-labelled). Results indicated that there was a significant difference between these two groups, $t(20) = -2.39$, $p = .027$, two-tailed, $d = -1.03$, such that participants with a diagnosis of an IDD ($M = -0.52$, $SD = 0.96$) were less accepted in the camp group than non-labelled participants ($M = 0.43$, $SD = 0.90$). See Figure 3.
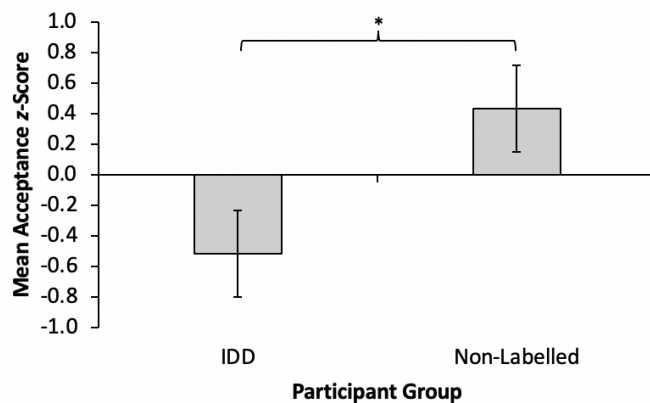
Figure 3. This figure illustrates the mean z-Scores for friendship acceptance for participants with an IDD and non-labelled participants (*$p < .05$). Error bars reflect the standard error of the mean.

Additionally, we used an independent-samples *t*-test to examine whether participants' levels of rejection in the camp group differed depending on their diagnosis (IDD or non-labelled). Results indicated that there was a nonsignificant difference between these two groups, $t(20) = 1.44$, $p = .165$, two-tailed, $d = 0.62$, such that participants with a diagnosis of an IDD ($M = 0.34$, $SD = 1.42$) and non-labelled participants ($M = -0.28$, $SD = 0.41$) did not have different ratings of rejection from their peers in the camp group. See Figure 4.
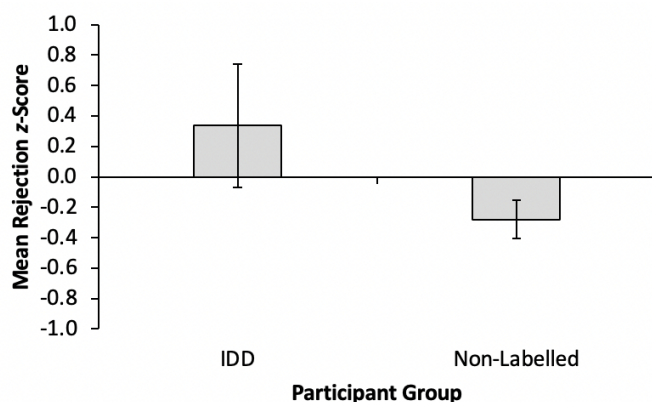
Figure 4. This figure illustrates the mean *z*-Scores for friendship rejection for participants with an IDD and non-labelled participants. Error bars reflect the standard error of the mean.

Next, we used an independent-samples *t*-test to examine whether the number of friendship nominations in the camp group differed depending on participant diagnosis (IDD or Non-labelled). Results indicated that there was a nonsignificant difference between these two groups, $t(20) = -1.75$, $p = .096$, two-tailed, $d = -0.75$, such that participants with a diagnosis of an IDD ($M = 5.10$, $SD = 1.52$) received a similar number of friendship nominations from their peer group as those without IDDs ($M = 6.42$, $SD = 1.93$). See Figure 5.
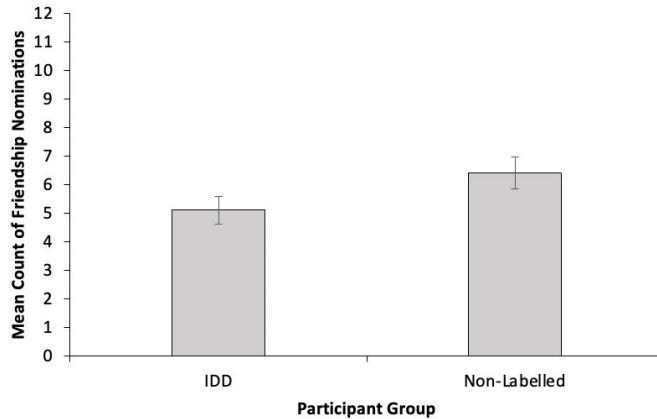
Figure 5. This figure illustrates the mean number of friendship nominations for participants with an IDD and non-labelled participants. Error bars reflect the standard error of the mean.

Further, an independent-samples *t*-test was used to examine whether participants' reciprocal friendship nominations differed based on participant diagnosis (IDD or Non-labelled). Results indicated that there was a nonsignificant difference between these two groups, $t(20) = -1.48$, $p = .155$, two-tailed, $d = -0.63$, such that participants with a diagnosis of an IDD ($M = 3.60$, $SD = 1.84$) and non-labelled participants ($M = 4.83$, $SD = 2.04$) had similar numbers of reciprocal friendship nominations. See Figure 6.
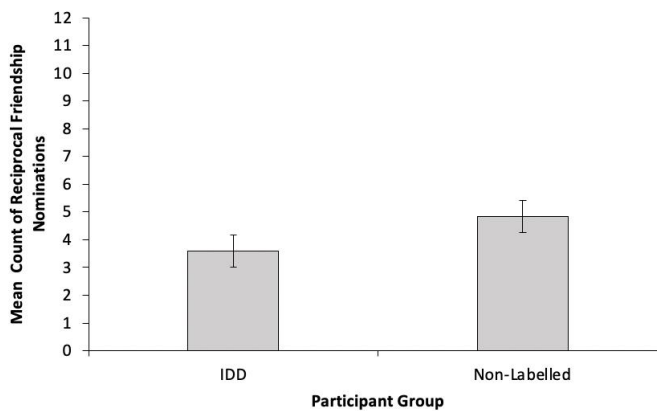
Figure 6. This figure illustrates the mean number of reciprocal friendship nominations for participants with an IDD and non-labelled participants. Error bars reflect the standard error of the mean.

Finally, to examine whether the best friendship nominations in the camp group differed depending on participant diagnosis (IDD or Non-labelled), we examined count data for best friend nomination matches. Of the 10 participants with an IDD, three (30%) had a best friend match. Of the 12 non-labelled participants, five (41.67%) had a best friend match.

4.1.1   Playground Observation of Peer Engagement (POPE)

Friedman tests were used to examine the differences in playground engagement behaviours across the three observation periods in the camp week (see Figure 7). First, a Friedman test was used to examine the differences in engagement involving the absence of peers on Monday, Wednesday, and Friday. Results indicated that there were no significant differences across the three observation periods, $X^2(2) = 2.52$, $p = .284$, such that the proportion of time spent in the absence of peers on Monday ($M = 9.91\%$, $SD = 13.07\%$), Wednesday ($M = 18.00\%$, $SD = 24.37\%$), and Friday ($M = 10.56\%$, $SD = 13.92\%$) were similar.

Next, a Friedman test was used to examine the differences in engagement for participants playing around peers on Monday, Wednesday, and Friday. Results indicated that there were no significant differences across the three observation periods, $X^2(2) = 2.42$, $p = .299$, such that the proportion of time spent playing around peers on Monday ($M = 25.75\%$, $SD = 20.13\%$), Wednesday ($M = 20.20\%$, $SD = 24.31\%$), and Friday ($M = 21.18\%$, $SD = 22.15\%$) were similar.

Finally, a Friedman test was used to examine the differences in engagement for participants playing with peers on Monday, Wednesday, and Friday. Results indicated that there were no significant differences across the three observation periods, $X^2(2) = 1.92$, $p = .382$, such that the proportion of time spent playing with peers on Monday ($M = 64.34\%$, $SD = 23.03\%$), Wednesday ($M = 61.80\%$, $SD = 31.08\%$), and Friday ($M = 68.26\%$, $SD = 31.34\%$) were similar.
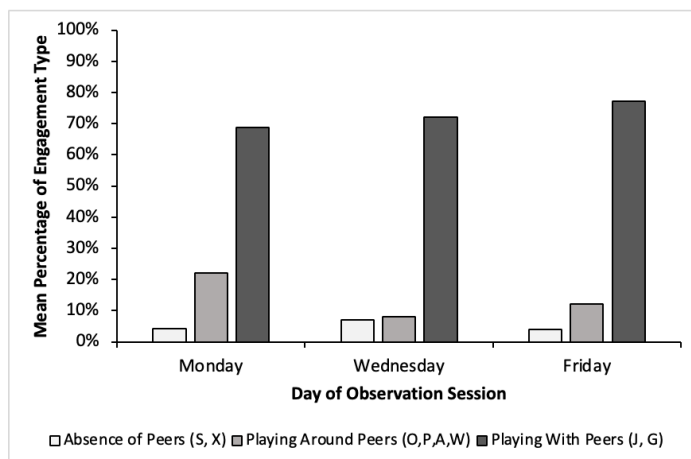
Figure 7. This figure illustrates the median percentages of engagement behaviours across the three observation periods during the camp week.

A Kruskal-Wallis test was used to examine the differences in the types of peer engagement behaviours from participants with an IDD and non-labelled participants during observation periods. Results indicated that there was a significant difference between groups in engagement behaviours with an absence of peers, $H(1) = 11.76$, $p < .001$, such that participants with an IDD ($M = 21.21\%$, $SD = 15.17\%$) spent a significantly greater proportion of time in the absence of their peers (i.e., on their own or with an adult) than non-labelled participants ($M = 4.27\%$, $SD = 5.13\%$). Additionally, results indicated that there was a significant difference between groups in engagement behaviours for playing with peers, $H(1) = 6.28$, $p = .012$, such that participants with an IDD ($M = 52.00\%$, $SD = 22.04\%$) spent a significantly lower proportion of time playing with peers (through joint engagement or games) than non-labelled participants ($M = 77.57\%$, $SD = 15.51\%$). Finally, results indicated a nonsignificant difference between groups in engagement behaviours for playing around peers $H(1) = 1.74$, $p = .187$, such that participants with an IDD ($M = 26.79\%$, $SD = 17.72\%$) and non-labelled participants ($M = 18.17\%$, $SD = 14.97\%$) spent similar proportions of time playing around peers during the free play periods. See Figure 8.
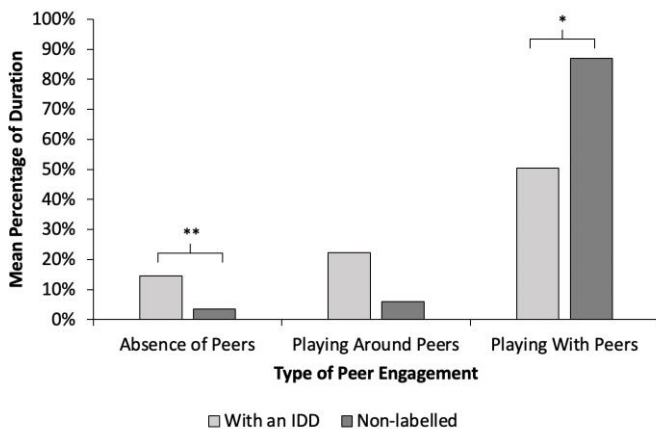
Figure 8. This figure illustrates the median percentages of engagement behaviours for non-labelled participants and participants with an IDD (*p < .05, **p < .001).

4.2   Research Question 2. What is the effect of attending the S3 inclusive summer camp on participants' attitudes towards disabled peers?

A 2 (Group) x 2 (Time) mixed factorial analysis of variance (ANOVA) was used to examine participants' attitudes towards peers with disabilities before and after participation in summer camp. Results indicated that there was a significant main effect of time, $F(1, 20) = 8.39$, $p = .009$, $\eta^2 p = 0.30$. This indicates that participants had more positive attitude scores at time two ($M = 28.09$, $SD = 5.20$) than at time one ($M = 25.50$, $SD = 5.62$). There was no significant main effect of group on attitudes towards peers with disabilities, $F(1, 20) = 0.00$, $p = .951$, $\eta^2 p = 0.00$ and no significant interaction between time and group on attitudes towards peers with disabilities $F(1, 20) = 0.65$, $p = .802$, $\eta^2 p = 0.00$. See Figure 9.
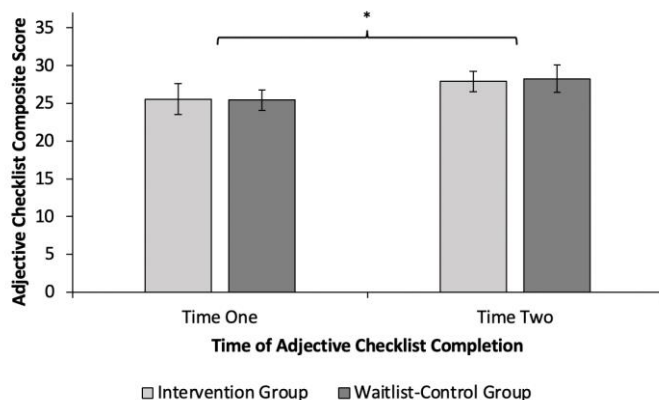
Figure 9. This figure illustrates the interaction effect of time (time one, time two) and group affiliation (intervention, waitlist control) on participants' attitudes towards peers with disabilities (*_p_ < .01). Error bars reflect the standard error of the mean.

4.2.1   Analysis Two: Whole Group Pre-Post Analysis

A paired-samples _t_-test was used to examine participants' attitudes towards peers with disabilities before and after participation in the S^3 summer camp. The intervention and waitlist-control groups were combined in this analysis to analyze total pre-test and post-test differences in attitudes. For the purposes of this analysis, the pre-test scores for both the intervention and waitlist-control groups were taken from time one. The post-test scores for the intervention group were taken at time two, while the post-test scores for the waitlist-control group were taken from time three. Results indicated that there was a non-significant difference on scores on the ACL before and after participating in summer camp, $t(20) = -0.93$, $p = .361$, two-tailed, $d = -0.20$, such that participants scored similarly on the ACL before participating in summer camp ($M = 26.81$, $SD = 6.59$) and after participating in summer camp ($M = 27.71$, $SD = 5.27$). See Figure 10.
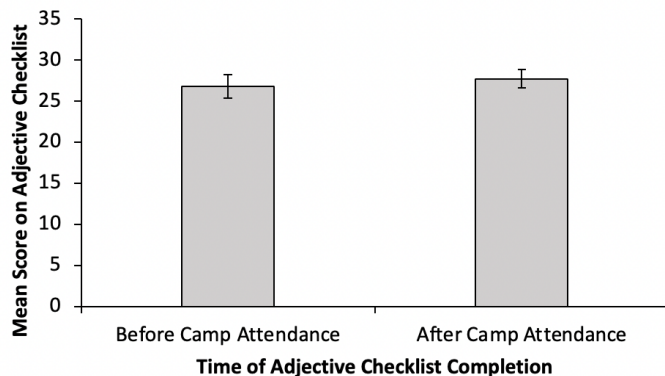
Figure 10. This figure illustrates the mean differences in scores on the Adjective Checklist for all participants before and after participating in the S³ summer camp. Error bars reflect the standard error from the mean.

4.3   Research Question 3. What is the effect of attending the S3 inclusive summer camp on participants' social skills?

A 2 (Group) x 2 (Time) mixed factorial analysis of variance (ANOVA) was used to examine participants' social skills (as assessed by the SRS-2) before and after participation in summer camp. Results indicated that there was a nonsignificant interaction between time and group on participants' social skills as measured through the SRS-2, $F(1, 19) = 0.00$, $p = .968$, $\eta^2 p = 0.00$. Additionally, results indicated that there was a nonsignificant main effect of time on social skills, $F(1, 19) = 0.72$, $p = .408$, $\eta^2 p = 0.04$ (small effect) and a nonsignificant main effect of group on social skills, $F(1, 19) = 0.05$, $p = .832$, $\eta^2 p = 0.00$. See Figure 11.
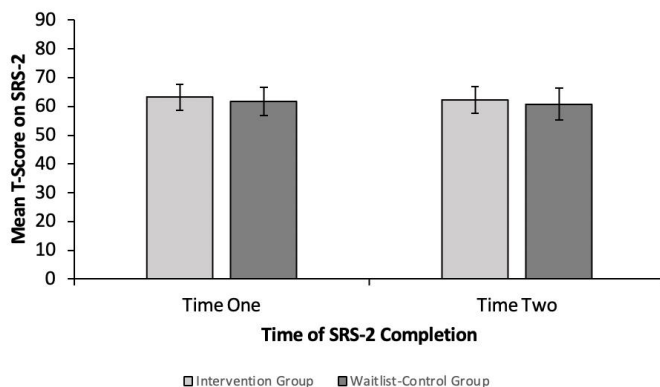
Figure 11. This figure illustrates the interaction effect of time (time one, time two) and group affiliation (intervention, waitlist control) on participants' *t*-scores on the SRS-2. Error bars reflect the standard deviation from the mean.

4.3.1   Analysis Two: Whole Group Pre-Post Analysis

A paired-samples *t*-test was used to examine participants' social skills, as measured through the SRS-2, before and after participation in the S^3 summer camp. The intervention and waitlist-control groups were combined in this analysis to analyze total pre-test and post-test differences in social skills. For the purposes of this analysis, the pre-test scores for both the intervention and waitlist-control groups were taken from time one. The post-test scores for the intervention group were taken at time two, while the post-test scores for the waitlist-control group were taken from time three. Results indicated that there was a non-significant difference on scores on the SRS-2 before and after participating in summer camp, $t(18) = -0.10$, $p = .920$, two-tailed, $d = -0.02$, such that participants scored similarly on the SRS-2 before participating in summer camp ($M = 61.47$, $SD = 15.81$) and after participating in summer camp ($M = 61.58$, $SD = 15.63$). See Figure 12.
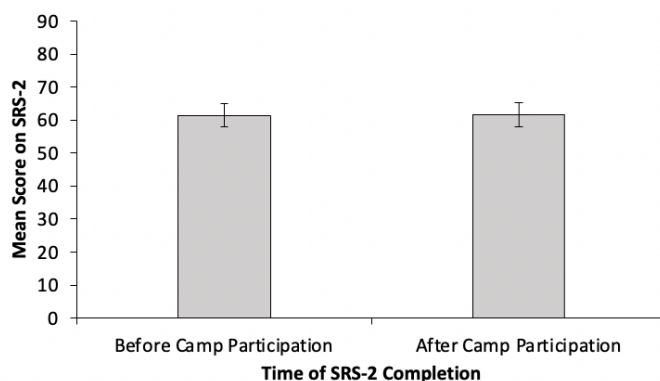
Figure 12. This figure illustrates the mean differences in scores on the SRS-2 for all participants before and after participating in the S^3 summer camp. Error bars reflect standard error of the mean.

4.4 Social Validity

Across both weeks of summer camp, 15 participants completed and returned the social validity questionnaire. Overall, responses to the social validity questionnaire indicated that in general, participants enjoyed attending the S^3 summer camp, and felt as though they made friends at camp. Additionally, participants enjoyed the disability awareness lessons and STEM content at the camp but felt marginally less positively about the social skills lessons. See Table 2 for mean responses to the social validity questionnaire.

Table 2. Social Validity Questionnaire Data

Statement	Mean (SD)
Overall Camp Enjoyment	
1. I had fun during summer camp	4.4(0.8)
2. I would come to summer camp again in the future	4.4(0.8)
3. Overall, I enjoyed going to this summer camp	4.5(0.6)
Friendship	
1. I would say I made friends at this summer camp	4.3(0.6)
Disability Awareness Lessons	
1. I believe learning about different disabilities is important	4.3(0.6)
2. I believe that the camp was an acceptable way to learn about different disabilities	4.3(0.5)
3. I was interested in learning more about different disabilities	3.9(0.6)
4. I would recommend the camp to others who want to learn about disabilities	4.2(0.7)

5. Learning about disabilities helped me connect with other people at camp	3.9(0.7)
6. I think other kids should learn about different disabilities	4.3(0.5)
Social Skills Lessons	
1. I believe learning about social skills is important	4.3(0.5)
2. I think I will be more successful in my relationships with my family and friends if I can use social skills	4.0(0.5)
3. I believe the camp was an acceptable way to learn social skills	4.1(0.7)
4. I was interested in learning more about social skills	3.2(0.9)
5. I would recommend the camp to others who want to work on their social skills	4.1(0.8)
6. I believe I am better at social skills after participating in the camp	3.5(0.9)
7. I feel confident in my social skills abilities	3.6(0.7)
STEM Lessons	
1. I believe that learning STEM skills is important	4.1(0.6)
2. I think I will be more successful in school and daily living using STEM skills	4.2(0.6)
3. I believe that camp was an acceptable way to learn STEM skills	4.1(0.5)
4. I was interested in learning more about STEM skills	4.2(0.9)
5. I would recommend the camp to others who want to work on their STEM skills	4.1(0.7)
6. I believe I am better at STEM after participating in the camp	4.0(0.5)
7. I think other kids should learn about STEM	4.1(0.8)

Chapter 5

5   Discussion

The current study created and examined the S^3 summer camp program for non-labelled and intellectually and developmentally disabled youth. Specifically, the program was conducted with the goal of understanding whether attending the S^3 camp would promote the development of social relationships for participants, and how attending would affect participants' attitudes toward disabled peers, and social skills development. Additionally, the study was designed to fill gaps in previous literature in the areas of friendship formation, attitudes towards peers, and social skills. Namely, this study investigated friendship formation and development for school-age youth and incorporated a rotating buddy assignment system. Further, this research investigated the benefits of disability awareness training lessons – adding to the limited, but growing, body of research in this area.

Beyond the intervention components of the study, the S^3 summer camp was designed to create an inclusive environment which valued differences and broke down barriers to accessibility. Both the research design and camp setting and curriculum held values of accessibility and inclusion. All the components of the study were attended by all participants (e.g., social skills interventions were attended both by participants with IDDs *and* non-labelled youth) without the assumption that any participant required intervention more than another. Further, using Universal Design ensured that participants felt supported and able to participate fully in every component of the study. These crucial components to the study and camp design signify the importance of this work in the context of intervention studies and social inclusion literature.

Results from this preliminary study indicated that attending the S^3 summer camp supported components of friendship formation and development for both disabled and non-labelled campers but did not influence participants' attitudes towards disabled peers or social skills development.

5.1 Friendship

5.1.1 The Friendship Survey

Participants' friendship formation was first measured using *The Friendship Survey.* Rotheram-Fuller et al (2010) used *z*-scores to interpret acceptance such that scores above zero represent above average acceptance, while scores below zero indicate below average acceptance. Analysis of participants' acceptance *z*-scores indicated that participants with an IDD had significantly lower levels of acceptance from their peers at summer camp. Despite receiving a similar average number of friendship nominations from the peer group, participants with IDDs were less accepted in the group on average than their non-labelled peers. This finding replicates previous studies that have found that on average, children and youth with IDDs typically are less accepted than their non-labelled peers (Chamberlain et al., 2007; Pijl & Frostad, 2010; Rotheram-Fuller et al., 2010). On the other hand, the analysis of the *z*-scores for participants' rejection (i.e., being nominated as a peer that participants did not like to "hang out" with at camp) resulted in a nonsignificant difference. As such, it can be said that both non-labelled participants and participants with an IDD diagnosis had similar levels of rejection in the camp group. This replicates findings from Rotheram-Fuler et al. (2010), who similarly found that Autistic children were not significantly rejected more than their non-labelled peers.

However, acceptance and rejection do not necessarily represent friendships or social relationships developed at summer camp, as they are separate and individual constructs (Feldman et al., 2022; Webster & Carter, 2007). When looking at the total friendship nomination count data, a different story is told. Results from participants' initial friendship nominations indicated that there were nonsignificant differences between intellectually and developmentally disabled participants and non-labelled participants. There were also nonsignificant differences in the number of reciprocal friendship nominations between non-labelled participants and participants with IDDs. These nonsignificant findings are promising, as they indicate that despite marginal differences in total friendship nominations and reciprocal friendship nominations (in both cases, participants with IDDs receiving marginally fewer nominations) it can be said that

participants made similar social relationships at the S^3 camp. Additionally, count data of best friend matches indicated that both participants with IDDs and non-labelled participants formed at least one self-reported "best friendship" while at the S^3 camp, despite marginal differences between groups (participants with IDDs received marginally fewer best friend nominations). These findings are bolstered by responses on the social validity questionnaire, wherein self-reports from participants indicated that participants believed they made friends at the S^3 camp.

The results from *The Friendship Survey* are promising and demonstrate preliminary support that social relationships were developed at the S^3 camp. In some instances, for friendship nominations and rejection scores, participants with IDDs and non-labelled participants had similar experiences of friendship and social connection. Participants responded to questions about the development of friendships while at camp, but it should be emphasized that in this short period of time (i.e., five days) it is more than likely that participants developed a social contact – rather than a full-fledged intimate friendship. By developing these connections, and self-reported friendships, this camp provided an opportunity to build on the social contact that was developed into the future – expanding each child's social network. However, in terms of acceptance, participants with IDDs received significantly lower scores than their non-labelled peers. Previous literature has demonstrated that youth with IDDs lack quality and quantity of friendships and acceptance in comparison to their same-age peers (Friedman & Rizzolo, 2018; Fulford & Cobigo, 2018; Mendelson et al., 2016). Results from this study found that participants with IDDs were able to form self-reported friendships while at summer camp. These promising results may be due to the camp's goals to support friendship and social connection development and acceptance for all participants. This goal was supported by encouraging participants to work with different peers, practice social skills, and play games with each other. As such, this inclusive setting, the collaborative nature of many of the camp's activities, and the explicit goals of friendship formation may have better supported the development of social relationships than a typical summer camp.

Despite nonsignificant differences in friendship nominations, acceptance scores remained significantly different (lower) for participants with IDDs. Future iterations of the S^3 camp

should work to better support the development of peer acceptance throughout the social skills, attitudes, and STEM programming.

5.1.2   Playground Observation of Peer Engagement

Findings from the observation sessions indicated that across the three days of observation (Monday, Wednesday, and Friday) there were no significant changes in participants' engagement with an absence of peers, playing around peers, and playing with peers. Across all three days of camp, participants spent the highest percentage of time playing with peers, rather than playing around peers or alone. These findings are likely the result of the encouragement from camp facilitators to engage with peers, which started from the moment participants entered the camp. Throughout the camp day, participants were encouraged to engage with their buddy on activities. While participants were not given any direction on how they should engage with peers during free play periods, this messaging throughout the camp day (and priming during the morning social skills lesson) may have influenced participants' decisions to play with peers during free play. Additionally, many of the activities that were offered to participants during the free play period (including board games, playing cards, and balls) were activities that require the collaboration of peers to play. Many participants gravitated towards playing with these items rather than other items (e.g., colouring pages, beads and string, Lego) during free play periods. Further, these findings may be the result of having more of an *opportunity* to engage with other peers. Summer camp is an environment that fundamentally encourages play, having fun, and socialization with peers (Siperstein et al., 2007b). Being a part of this environment alone provided participants an opportunity for socialization that they may not otherwise have had during the summer. Encouragement of engagement with other campers and social skills lessons occurred immediately on the first day of summer camp, and therefore there are no baseline data on engagement and no means for comparison. It is possible that participants in this study generally engage or gravitate towards playing with peers during recesses or free periods while at school, or that the social programming resulted in increased play with peers.

Additional analysis of the POPE resulted in a significant difference between intellectually and developmentally disabled and non-labelled participants in the proportion of intervals

spent in the absence of peers and playing with peers. Participants with IDDs spent significantly more time (i.e., a greater proportion of intervals) in the absence of peers than non-labelled participants. Locke et al. (2016) also found that Autistic participants spent more time solitary or unengaged with participants than their matched, non-labelled peers. There was also a significant difference between groups in the proportion of time spent playing with peers – such that non-labelled participants spent more time playing with peers (i.e., had a greater proportion of intervals) playing with peers than participants with IDDs. This is a similar finding to those of Locke et al. (2016) who found that joint engagement behaviours with peers were higher for non-labelled participants than Autistic participants.

In the context of this study, these findings may be significant for several reasons. First, the free play periods were the longest period of the camp day where participants were free to choose to engage however they wanted with whomever they wanted. For most of the other activities, participants were highly encouraged to engage with their peers in activities. As such, this was an opportunity to take a break from engagement and the stimulation of being in a classroom with focused activities that required interaction with peers. It is possible and likely that participants with IDDs were using this as an opportunity to decompress from the activities early in the day. Further, it is also possible that some participants with IDDs had difficulty integrating into the free play activities. So, participants may have chosen to engage in an activity on their own or engage with a facilitator, knowing with more confidence that a facilitator would respond to their bid for engagement. Additionally, non-labelled participants may have had an easier time connecting with peers and initiating joint engagement or games with rules than non-labelled participants. Non-labelled children and youth have been found to be more successful with initiations and responses for engagement (Locke et al., 2016). Alternatively, non-labelled participants may have found more value in the social reinforcement that could be gained in this unstructured time – gaining an opportunity to socialize outside of the STEM activities. Or escape (like taking time alone) may have been a less valuable reinforcer. In either case, individual preferences and differences during the free play period do not necessarily indicate that participants with IDDs had less socialization or fewer friendships than non-labelled participants. In fact, observations

from facilitators throughout the camp week suggested that participants were receptive to including new peers into activities. To name a few examples, participants were observed inviting others to sit together while eating lunch and offering to teach a card game to a peer who did not know how to play. Ultimately, the interval data collected in this study does not paint a full picture of the socialization and friendships that were formed while at camp.

Using a timed-interval behaviour-coding system such as the POPE measure (which involved using momentary time sampling) has limitations in the specificity of the data that can be collected. One behaviour is coded per interval, meaning that many of the behaviours that may have taken place during an interval may not be captured by this coding system. Using momentary time sampling as opposed to a continuous behaviour recording method makes estimates of behaviour, but in this context is required as a continuous recording method would not be feasible for the number of participants. However, momentary time sampling can result in over- and under-estimates of behaviour – a limitation of the use of this system (Meany-Daboul et al., 2007). Further, frequency counts of every behaviour a participant displayed during the free play period are not available. As such, participants displayed many more behaviours in each category than what was captured by the behaviour-coding system. Additionally, by using this coding system we are unable to measure or capture quality of interactions with peers. Ideally, it would be beneficial to capture more data from participants to represent a fuller understanding of their behaviours during free play periods. Future iterations of this study should include methods through which engagement quality can be measured.

There were other additional limitations in the procedures used during the free play periods that may have affected results. Specifically, if participants left the free play period to use the washroom or go to the water fountain, the intervals in which they were not in the courtyard (the area for free play) were not coded. Upon reflection, these breaks for water or the washroom were opportunities for engagement with a peer, as participants needed to take a buddy with them to go for water or a washroom break. It would have been interesting to analyze whether participants used this as an opportunity to engage

with a peer. In future iterations of this project, these intervals should be coded for analysis.

Additionally, despite observers making participants aware that they were unavailable for engagement during free play periods, there were moments wherein observers needed to engage with participants for safety reasons. For example, if participants were arguing or if a participant was injured, an observer would step in to facilitate. There was one additional facilitator available during the free play periods that participants were directed to if needed, but certain scenarios required more support from facilitators. In these rare cases, observers may have missed recording an interval, or an interval may have been coded as an interaction with an adult because the facilitator directly stepped in. Moreover, by having five adult figures (i.e., four observers and one facilitator) in the area, participants may have adjusted their behaviours with the knowledge that there were many adults watching them.

Furthermore, adding a qualitative component to the playground observation may have painted a fuller picture of the socialization and engagement behaviours of participants during free play periods. Gathering information on individual preferences for the use of this free time would better and more accurately provide context for the reasoning behind the observed behaviours. In future iterations of this study, it would be helpful to collect information on participant preferences and experiences during the free play periods to gain an understanding of why different types of engagement were occurring.

Finally, the purpose for observation during free play periods was to assess whether skills and values gained, such as working together and communication, during the structured lessons at camp (e.g., social skills, awareness, and STEM activities) would generalize to a new setting. However, it is possible that the contrast between the context in which participants practiced skills (i.e., in a classroom-like, structured environment) and the context in which we observed participants (i.e., in an outdoor, open, unstructured environment) may not have facilitated generalization of behaviours. In future iterations of this study, more effort is needed to support the transition of behaviours outside of the structured, classroom context. Alternatively, the measurement of generalization should

take place in a more similar context, or in both contexts, to more accurately capture the generalization of learned skills.

5.2   Attitudes Towards Disabled Peers

It was expected that participation in the S^3 summer camp would improve participants' attitudes towards disabled peers. This hypothesis was based on the intentional programming of awareness lessons that would provide participants with opportunities to learn and ask questions about different intellectual and developmental disabilities.

Results indicated that there was a significant main effect of time on participants attitudes, such that participants attitudes were better at time two than at time one. This means that all participants had higher scores on the ACL at time two (i.e., between week one and week two of summer camp). For those participating in the week one group, this significant increase in ACL scores may suggest that attitudes were improved following participation in camp. However, participants in week two had not yet experienced the S^3 camp or awareness lessons. As such, it is possible, although less likely, that this group had a mean change in attitudes over the course of the first week based on experiences in their own lives. Perhaps these participants were looking forward to attending summer camp and sought their own education on different disabilities prior to attending the summer camp.

A more likely possibility is that the ACL was not appropriately or accurately measuring participants' attitudes toward disabilities. Participants in the S^3 camp were aware that they would be engaging in lessons about different disabilities and working alongside participants who had disabilities. It is possible that these participants experienced social desirability bias when completing the ACL questionnaire, wanting to be viewed favorably by the research assistants and their camp facilitators, and circled more of the positive terms on the ACL leading to positive attitude scores. When completing the survey at time two, participants in the week two group would have been preparing to attend camp within three days and may have experienced more social desirability bias than when they first completed the ACL.

On that note, the rest of the results were nonsignificant, indicating no changes in participants' attitudes. Mean composite scores for both groups (at all times) on the ACL were above 20. This is the cutoff point on the scale indicating positive attitudes. As such, even before participating in camp, participants had a mean average of positive attitudes towards peers with disabilities. It is likely that self-selection took place when participants were enrolling in the S^3 camp. Parents and participants who enrolled likely had positive views about inclusive education and practices and were interested in engaging in an inclusive setting. In addition, many of the participants in the S3 summer camp disclosed having previous experience interacting with people with disabilities, which may have led to positive attitudes.

In conclusion, more work needs to be done to evaluate whether attending the S^3 program can result in positive significant changes in attitudes towards peers with disabilities. This preliminary sample may have experienced biases that impacted their scores on the ACL.

5.3   Social Skills

Finally, participants' social skills were measured using the SRS-2. Results indicated that there were no significant differences in social skills before and after participating in summer camp. These results are as expected, as participants only had the opportunity to practice social skills over the course of one week. The social skills lessons themselves were only a small portion of the entire camp day (i.e., 15-20 minutes in the morning; approximately one hour and 40 minutes over the week), so large changes in socialization skills, as was measured by the SRS-2, could not be expected after attendance. Typical social skills interventions that do have global effects on social skills take place over several weeks and hours. Recent meta-analytic data that examined the effects of group based social skills interventions for Autistic children found that duration and intensity of the intervention has significant implications for scores on the SRS measure. Group social skills interventions that required participation in under 40-hours of contact time had only moderate effect sizes. The study also determined that intensity of the intervention had implications for effect size (such that more intensive programming had a larger effect size than less intense programming that took place once a week; Wolstencroft et al.,

2018). The duration and intensity of the social skills lessons that took place during the S^3 camp do not come close to these values. While minor and anecdotal improvements in social skills took place, (i.e., facilitators noticed more interactions with peers over the course of the week and small improvements in the daily social skills during the day) these changes are unlikely to make a significant impact on the SRS-2 scale. In future iterations of this study, it may be beneficial to employ other measurements of social skills to add to the assessment of pre- and post-camp differences. For example, a self-report measure from parents and their children about the social skills that they learned or improved upon in camp may give more of an indication as to whether participants felt as though the social skills lessons were useful while at camp.

Chapter 6

6 Conclusion

The S^3 summer camp program was designed with the goals of benefiting all participants (both non-labelled and intellectually and developmentally disabled) in the areas of friendship formation, attitudes towards peers with disabilities, and social skills. While this preliminary study found nonsignificant results in the areas of attitudes and social skills, findings suggest that participation in the S^3 summer camp program had benefits for participants' friendship development.

6.1 Implications for Research

The present study will add to the current literature on summer camp, friendship formation, and attitudes for youth with IDDs and non-labelled youth. As it stands, literature gaps exist within these content areas. As mentioned, few studies have investigated friendship formation for youth with IDDs (Webster & Carter, 2007). This study will add to the literature, directly addressing friendship formation in school-age youth with IDDs and non-labelled youth. Additionally, friendship development hasn't been evaluated with respect to rotating buddy assignments (Ledford & Pustejovsky, 2021) or the implementation of *Stay, Play, and Talk* interventions. The present study addresses this gap, as both were implemented within the S^3 camp. Moreover, with respect to attitude changes, literature has only begun to evaluate the use of awareness training as a method through which attitudes about peers with disabilities can be improved. The present study will add to this body of research, as it examines the effects of awareness training on attitudes about disabled peers. Further, this study looks at awareness training outside of a school context, a context within which most studies evaluate awareness training and disability attitudes for youth. Finally, research on inclusive summer camp settings and participation in summer camps is limited. This study will add to the body of literature on inclusive summer camps for both youth with IDDs and non-labelled youth.

6.2   Implications for Practice

The present study has vast practical implications. As it stands, there is a lack of targeted after school or recreational STEM programs for youth with IDDs. The S^3 program uniquely offers inclusive and accessible STEM curriculum designed for informal learning environments. This curriculum was also designed to be tailored to individual participant needs, creating opportunities for youth to engage in accessible STEM education without the pressure of an educational environment. In addition to the provision of STEM opportunities, specific opportunities for social skills and attitude development were offered to all participants. Few opportunities exist for youth to participate in this education outside of school or clinical settings. Further, many camp programs are designed to be suitable for non-labelled youth, with modifications being made when a participant is unable to access a certain activity or component of the curriculum. This program was designed with accessibility and inclusion in mind up front. Any child with any needs (i.e., learning, behavioural, and otherwise) would be able to participate in all elements of the program. Finally, the program package for the S^3 camp is feasible for non-clinicians and clinicians to implement in community settings. The impacts of this program have the potential to be far reaching. The program itself is adaptable, accessible, and inclusive for any participants who are interested in joining. By implementing this programming across recreational settings, more opportunities will become available to youth to engage in an intentional, inclusive environment and to build community.

6.3   Limitations and Future Directions

Despite the promising findings in this preliminary study, the limitations in this study provide support for the need for future research. Primarily, it should be noted that the present study is not a randomized-control trial (RCT), which is the gold standard for providing evidence for a program's effectiveness. As such, future iterations of this project should be designed as an RCT in order to provide strong evidence of effectiveness. Moreover, this study is a preliminary pilot of the S^3 camp and curriculum. The sample for this study is small (*n=22*) and as such, interpretation of the study's results is limited in its generalizability.

Further, categorization of participants into "IDD" and "non-labelled" categories was based on parental disclosure of participants' diagnoses and identification. No diagnostic assessments were completed by the research team, and no proof of diagnosis was required for participation. As such, there are limits to the detail in the demographic information that can be provided.

In addition, the study had methodological challenges that should be improved in a second iteration of the program. The goal for this project was to have participants work in their buddy pairings for the duration of the camp day on every STEM-based activity. This element of the study design was challenging to implement as campers got to know each other throughout the week. In many cases, campers opted to work in larger groups (or with their friends) on STEM activities. While facilitators encouraged working with their assigned buddy with reminders to practice the daily social skill, campers still took liberties to work with other friends in the camp group. As such, the buddy system was not implemented as effectively as initially intended. However, because the goal of the program was to support friendship formation, the facilitators and research assistants chose not to strictly enforce the buddy system outside of the social skills lessons. It was clear that participants were forming relationships with peers in the camp group, regardless of the buddy system. In future iterations of this study, reinforcement of the buddy system through certain STEM activities may offer more structure for the camp, and support to determine whether the buddy system bolsters friendship formation and attitude improvement.

Moreover, measurement of friendship formation was based on self-report from participants. Friendship is ultimately a subjective experience, and participants were not provided with a definition of "friendship" when answering The Friendship Survey. As such, it is possible that participants had unique, personal definitions of "friendship" that influenced their responses.

As noted in the discussion, it is possible that self-selection biases took place during the recruitment of this study, leading to higher-than-average levels of acceptance for peers with disabilities. This is a limitation of the study, as the sample of participants that was

included in the study tended to have more experience with disabilities prior to camp, and more positive attitudes than average. Anecdotally, many of the parents were excited for the prospect of having their child participate in a fully inclusive summer camp with opportunities to meet new friends and learn more about IDDs. As such, the measurement of attitudes may be skewed and lack representation of average levels of attitudes for youth. In future iterations of this study, it will be important to begin recruitment at an earlier time and reach out to a wider audience of participants.

Finally, despite best efforts to create an inclusive summer camp environment informed by a theoretical disability studies lens, an acknowledged limit to this project is the lack of codesign by individuals with intellectual or developmental disabilities. In future iterations of the project and summer camp, intentional effort will be made to include voices from intellectually and developmentally disabled people in the design.

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7   Appendices

7.1   Appendix A: Ethics Approval

Date: 25 April 2023

To: Dr. Nicole Neil

Project ID: 121899

Study Title: Promoting social skills, STEM skills, and friendship through a summer camp for adolescents with and without intellectual and developmental disabilities

Short Title: S3 Camp for students with Intellectual and Developmental Disabilities

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 05/May/2023

Date Approval Issued: 25/Apr/2023 09:41

REB Approval Expiry Date: 25/Apr/2024

_____

Dear Dr. Nicole Neil

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Social Responsiveness Scale_PaperSurvey	Paper Survey	25/Nov/2022	1
Social Skills Improvement System_PaperSurvey	Paper Survey	25/Nov/2022	1
Vineland_PaperSurvey	Paper Survey	25/Nov/2022	1
Friendship Survey	Paper Survey	25/Nov/2022	1
CLEAN_Student Attitudes towards STEM_PaperSurveypdf (1) (3)	Paper Survey	13/Mar/2023	2
CLEAN_ Playground Observation of Peer Engagement	Paper Survey	13/Mar/2023	2
CLEAN_Adjective Checklist (ACL) (1)	Paper Survey	13/Mar/2023	2
Video Release Form	Written Consent/Assent	13/Mar/2023	1
CLEAN_LOI and Consent	Written Consent/Assent	13/Mar/2023	2
CLEAN_SocialValidityQuestionnaire_PaperSurvey	Paper Survey	13/Mar/2023	2
Screening	Online Survey	13/Mar/2023	2
CLEAN_Past Participant Recruitment Email S3	Recruitment Materials	21/Apr/2023	2
CLEAN_S3_RecruitmentEmail_Organization	Recruitment Materials	21/Apr/2023	2
CLEAN Assent Letter STEM and Social Skills	Written Consent/Assent	21/Apr/2023	3
CLEAN_Background Form (version 3)	Paper Survey	21/Apr/2023	3
CLEAN CHANGES RECRUITMENT (1)	Recruitment Materials	24/Apr/2023	4

Documents Acknowledged:

Document Name	Document Type	Document Date	Document Version

Document Name	Document Type	Document Date	Document Version
2022_S3_Measures Table V1	Supplementary Tables/Figures	22/Dec/2022	1
2022_S3_CR - STEM Curriculum Example	Supplementary Tables/Figures	22/Dec/2022	1
Flow Chart of Recruitment and Data Collection	Supplementary Tables/Figures	13/Mar/2023	1
S3 Week Camp Schedule FULL	Supplementary Tables/Figures	13/Mar/2023	1
Circuit_ Accepting a Compliment mp4	Supplementary Tables/Figures	13/Mar/2023	1
Maintaining a conversation	Supplementary Tables/Figures	13/Mar/2023	1
Offering assistance	Supplementary Tables/Figures	13/Mar/2023	1
Screening	Screening Form/Questionnaire	13/Mar/2023	2
CLEAN_Social Skills Lesson Plans (Full; version 3)	Supplementary Tables/Figures	21/Apr/2023	3
CLEAN_Awareness Training Lesson Plans (Full)	Supplementary Tables/Figures	21/Apr/2023	2

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris , Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

7.2   Appendix B: Playground Observation of Peer Engagement (Modified)

Observation Data Sheet – Peer Engagement

Time-Interval Behaviour Coding
1. Set timer for 30 seconds
2. Start timer
3. When timer goes off record for 30 seconds if child is:

(S) – Solidarity was defined as playing alone, outside of a three foot range from peers, with no mutual eye gaze.

(O) – Onlooker was defined as watching other children play

(P) – Parallel was defined as child engaging in an activity beside each other, without social interaction (e.g., no verbal communication, no joint engagement, no attempt to engage each other)

(A) – Parallel Aware was defined as peers engaging in an activity beside each other, aware of each other (e.g., smiling, making eye contact)

(J) – Joint Engagement was defined as direct engagement with each other in social behaviours (e.g., having a conversation, smiling at each other)

(G) – Games with Rules was defined as direct engagement in a game with other peers, based on a set of rules (e.g., sports, imaginative play with established characters)

(X) – Adult was defined as direct engagement with a facilitator.

Target Order	Participant 1	Participant 2	Participant 3	Participant 4
Interval	**S O P A J G X**	**S O P A J G X**	**S O P A J G X**	**S O P A J G X**
1	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
2	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
3	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
4	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
5	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
6	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
7	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
8	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
9	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
10	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X

11	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
12	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
13	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
14	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
15	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
16	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
17	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
18	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
19	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
20	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
21	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
22	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
23	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
24	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
25	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
26	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
27	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
28	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
29	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
30	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
31	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
32	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
33	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
34	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
35	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
36	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
37	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
38	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
39	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
40	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
41	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
42	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
43	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
44	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
45	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
46	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
47	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
48	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
49	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X
50	S O P A J G X	S O P A J G X	S O P A J G X	S O P A J G X

7.3 Appendix C: Sample Social Skill Visual Aid

7.4　　　Appendix D: Sample Buddy Chart

Note: The buddy board that was used over the duration of the S3 summer camp is not shown here to protect the identities of participants. This is a sample with fabricated names.

7.5 Appendix E: List of Social Skills and Sample Lesson

List of Social Skills – Ordered Based on Increasing Difficulty

Example Lesson:
1. Stay

All other skills will be taught in the same format:
2. Engage (play)
3. Talk (Trading information / conversation skills)
4. STOP, THINK, GO!
5. Requesting Information
6. Providing Information
7. Requesting Something Tangible
8. Requesting Help / Removal
9. Advocating for Needs / Wants
10. Accepting a compliment
11. Offering Feedback
12. Removing Self from Situation
13. Apologizing
14. Compromising
15. Accepting Criticism
16. Responding to teasing

Lesson One: Stay (with your friend)

Facilitator Notes:
This lesson is designed to teach children how to stay with their peers during an activity. During an activity, children may get distracted and move away from their peers or want to move to another peer to go chat with them. Staying promotes inclusion through reminders that it is important to stay by your partner during an activity and try to engage with them (even if they are different from you). We all have preferred partners and peers but staying helps us meet someone new and possibly make a new friendship.

Lesson Time: 10 – 15 Minutes
Materials:
- Video Model of Staying
- Stay Poster (visual reminder)
- Stay Photo Cards (individualized visual reminder)
- Stickers
- Buddy chart

Introduction:
SAY:

Today we are going to work towards the goal of staying with our buddies. We will be doing a lot of fun activities during camp. When we are doing these activities, we are going to ask you to stay with your buddy for the day. Let's watch a quick video on what staying with your buddy might look like.

SHOW: Video Model – Stay.
(Approximately 3-minute video)

ASK: (Cognitive Rehearsal Component)
In this section, ask the following questions. Remember to write down the campers' responses on a whiteboard or sheet of chart paper. Keep these responses on the board or chart paper around the room as a visual reminder throughout the day.

What are some ways you can make sure to stay with your buddy?
- Pull up a chair next to them
- Pass them a pencil / pen
- Ask them a question instead of someone else in the room
- Work beside them on the activity

Sometimes, your buddy might leave. What are some reasons why they might leave?
- They didn't realize you're trying to play with them
- They need to go to the bathroom
- They want to ask the counsellor a question
- They are interested in doing something else

What should you do if your buddy leaves?
- Ask them to come back and play with you
- Go check out the other activity they are doing

Behavioral Rehearsal:
Now, we're going to practice what staying looks like.
Separate into small groups and practice "staying with your buddy"
While doing the rehearsal, offer feedback to the campers.

Introduce Buddies for the Day:
- Here, you will introduce the buddy system and buddy chart. Each morning, you will pair two peers together by placing their names next to each other on the buddy chart.
- The chart should always be visible throughout the day as a visual reminder of who each camper's buddy is.

Throughout the Day:
- Put up the "Stay" poster next to the buddy chart as a visual reminder to stay
- Offer the smaller "stay" photo cards as a reminder for those who are struggling
- Give verbal recognition when campers are doing a good job of staying together (immediate feedback)

7.6   Appendix F: Social Skills Mastery Criteria

Stay:
- a. Stay within 2 steps of your buddy
- b. Stay for at least 30 seconds

Engage:
- a. Find your buddy
- b. Stay with your buddy
- c. Do the same activity as your buddy

Talk:
- a. Find your buddy'
- b. Stay with your buddy
- c. Engage with your buddy
- d. Talk to your buddy

STOP, THINK, GO
- a. Stop what you're doing
- b. Move forward with following the rules

Requesting Information:
- a. Find a buddy who can help
- b. Ask your question

Providing Information:
- a. Answer your buddy's question
- b. Check in with your buddy

Requesting Something Tangible
- a. Find a buddy with the object
- b. Tell your buddy you need the object
- c. Ask for the object
- d. Wait for your buddy's response
- e. Respond

Requesting Help
- a. Find a buddy who can help you
- b. Ask for help
- c. Provide direction on how buddy can help you
- d. Listen to their answer

Advocating for Needs and Wants
- a. Find a buddy you trust
- b. Explain what you are thinking and feeling
- c. Explain what you need and want

Offering Feedback
- a. Go up to your buddy
- b. Stay within 2 steps of your buddy
- c. Get your buddy's attention
- d. Offer your buddy feedback

Accepting a Compliment
- a. Thank your buddy for the compliment
- b. Make a comment back related to the compliment

Removing Yourself
- a. Tell peer "I need a break"

   b. Find a safe and quiet spot

Apologizing

   a. Say you're sorry and state what you have done wrong

   b. Explain why what you did was hurtful

   c. Tell your partner you'll do better next time

   d. Ask for forgiveness

Compromising

   a. Find a peer

   b. Explain what you want/need

   c. Ask your peer what they want/need

   d. Talk about what you might be able to give up so that your peer can get what they want/need

   e. Ask what your peer might be able to give up so that you can get what you want/need

Accepting Criticism

   a. Look at the person.

   b. Tell them what you will do next time to fix the problem.

   c. Thank your buddy for their feedback.

Responding to Teasing

   a. Act like it does not bother you (neutral face)

   b. Have a short comeback

Show you do not care with body language (shrug shoulders)

7.7 Appendix G: Sample Social Skills Integrity Checklist

STAY – BST PROTOCOL				
Describe behavior—Staying means being close to your buddy the entire time you play together. You should stay within two steps of your buddy.	*Was the target behavior described?* *Y / N*			
Model— Demonstrate what staying close looks like. Play video model	*Was the skill modelled?* *Y / N*			
Cognitive Rehearsal; ASK - What are some ways you can make sure to stay with your buddy? Sometimes, your buddy might leave. What are some reasons why they might leave? What should you do if your buddy leaves?	*Were the cognitive rehearsal questions asked?* *Y / N*			
Role-play— Ask buddies to role play staying close.	*Did each partner take a turn role-playing?* *Y / N* *Y / N* *Y / N* *Y / N*			
Feedback—Provide behavior specific praise (P) if the skill is performed correctly; Provide corrective feedback © if the skill is not performed correctly, then ask the participant to try again.	*Role-play*	Opportunity #		
		1	2	3
	PARTICIPANT			
	P1	*P / C*	*P / C*	*P / C*
	P2	*P / C*	*P / C*	*P / C*
	P3	*P / C*	*P / C*	*P / C*
	P4	*P / C*	*P / C*	*P / C*

Participant Numbers:

Facilitator Notes:

7.8   Appendix H: Sample Daily Agenda of STEM Programming

Lesson Timing and Notes – S³ Day 3			
Coding Block #	Time	Lesson	Notes
	9:00 – 9:30	Sign in/Morning circle	
	9:30 – 10:10	Awareness Lesson	
	10:10 – 10:25	Snack	
1	10:25 – 11:15 <mark>50 min</mark>	Ozobot colour-code pair activity Ozobot open activity period (Activities #: 4 and 21)	
	11:15 – 11:20	Transition to [community room]	
	11:20 – 12:00 40 min	Camp games [community room] • Octopus	
	12:00 – 12:05	Transition to art room	
	12:05 – 12:35	Lunch	
2	12:35 – 1:00 <mark>25 min</mark>	Intro and Drive with Sphero RVR+ (open activity period) (Activity #: 21)	
	1:00 – 1:05	Transition to courtyard	
	1:05 – 1:55	Observation period	
	1:55 – 2:00	Transition to art room	
3	2:00 – 2:30 <mark>30 min</mark>	Using sensors with Sphero RVR+ *extensions with micro:bit and littleBits	

		(Activity #: 12)	
	2:30 – 2:45	Snack	
4	2:45 – 3:30 <mark>45 min</mark>	Using sensors with Sphero RVR+ *extensions with micro:bit and littleBits (Activity #: 12)	
	3:30 – 4:00	Afternoon circle/Reflection/Sign-out	

Curriculum Vitae

Name:	Emily Villani
Post-secondary Education and Degrees:	University of Toronto Toronto, Ontario, Canada 2017 - 2022 B.Sc. (Hons) University of Western Ontario London, Ontario, Canada 2022 - Present M.A. *(In Progress)*
Honours and Awards:	Social Science and Humanities Research Council (SSHRC) Canada Graduate Scholarship – Master's 2023 - 2024 Inclusive Education Award University of Western Ontario 2023 - 2024 Jessica Jean Campbell Coulson Award University of Western Ontario 2023 - 2024
Related Work Experience	Research Assistant University of Toronto – Toronto Early Cognition Lab (TECL) 2021 - 2022 Research Coordinator University of Western Ontario – Neil Lab 2022 - Present

Conference Presentations:

Villani, E., Rose, K., Sommerville, J.A. (2022, January 26). *Parental empathy and its influences on responses to infant's transgressions* [Poster Presentation]. Psychology Graduate Students Association Symposium, University of Toronto. Toronto, ON, Canada.

Villani, E. (Presenter), Neil, N., Liesemer, K., & Brock, B. (2023, November 9-10). *Integrating Friendship and Diversity in an Inclusive Summer Day Camp* [Conference Session]. ONTABACon 2023. Toronto, ON, Canada.