

Summer Treatment Program Professional Development: Impact of a Professional Learning Community

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Abstract

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Children with Attention Deficit Hyperactivity Disorder (ADHD) experience significantly elevated rates of peer rejection and social difficulty compared to typically developing peers, yet the majority of affected youth receive no behavioral treatment, a gap compounded by access barriers that disproportionately burden marginalized families. Summer Treatment Programs (STPs) represent one of the most comprehensive evidence-based behavioral interventions for children with ADHD and related neurodevelopmental disorders, producing reliable gains in prosocial behavior, peer relationships, and intervention adherence. However, despite staff serving as the primary mechanism through which STP outcomes are delivered, no studies to date have systematically examined how structured in-program professional development influences staff implementation quality or youth social outcomes.

The present research examined the impact of integrating a structured Professional Learning Community (PLC) into an STP as an in-program professional development practice, using a convergent mixed methods design to evaluate effects on staff perceptions, staff outcomes, and youth social

experiences. Quantitative data were collected via staff surveys at three timepoints, structured staff observations, and weekly student surveys assessing social functioning. Qualitative data were gathered through semi-structured post-program interviews with a stratified random sample of 12 staff members. Desimone's Core Conceptual Framework guided both the PLC design and the outcome measurement framework.

Findings indicated that PLC participation was associated with significant growth in staff knowledge and skills, application of learned skills, and observed implementation fidelity, while professional attitudes remained high and stable, with qualitative data suggesting the PLC sustained and deepened pre-existing professional dispositions rather than transforming them. PLC group membership emerged as the most consequential moderator of outcomes, and observed implementation fidelity, not staff self-report, was the most proximal cross-level link between staff professional learning and student social outcomes, with mutual peer relationships increasing across all groups and belongingness trajectories diverging meaningfully by group. Implications for PLC design, STP professional development practice, and future research are discussed.

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Summer Treatment Program Professional Development: Impact of a Professional Learning Community**Introduction**

Attention Deficit Hyperactive Disorder (ADHD) is a one of the most prevalent neurodevelopmental disorders found in children (Loe & Feldman, 2007). ADHD is characterized by frequent symptoms of hyperactivity, impulsiveness, and/or difficulty with attention that appear in multiple environments, last for over six months, interfere with academic, social, or work-related functioning, and exceed what is typical for a child's developmental stage (American Psychiatric Association, 2013). There are several challenges children with ADHD face as a result of their disorder. As it pertains to the social challenges of this demographic, it has been found that between 50-60% of ADHD children have dealt with rejection from their peers (Barkley, 1990). This figure marks a stark difference to the average child, as only 13-16% of elementary students have been discovered to have faced social rejection (Terry & Coie, 1991). Some of the characteristics of ADHD children that have led to these higher rejection figures include being controlling, stubborn, not respecting boundaries, hyper-emotional, argumentative, irritable, and inattentive during play time (Pelham et al., 1990; Taylor, 1994).

Unfortunately, while ADHD is growing in prevalence and the negative outcomes associated with it become clearer, most children with ADHD are not receiving adequate treatment to support their development. One cross-sectional study of over 11,000 children that had been diagnosed with ADHD found that only 12.9% of the parent-reported sample identified currently taking ADHD medications and only 26.2% of children with ADHD had ever engaged with mental health care (Olfosn et al., 2023). Some barriers that have been reported for accessing treatment for children with ADHD, specifically amongst marginalized populations, include limited resources, cultural stigma, lack of access to care, distrust of the healthcare system, and lack of knowledge about ADHD diagnosis and treatment (Guevara et al., 2005; Kamimura-Nishimura et al., 2022; Kamimura-Nishimura et al., 2023).

One way to address the treatment gap is to provide more evidence-based practices (EBPs) for children with ADHD. Dunst et al. (2002) define evidence-based practices as treatments in which the features and effects of environmental variables are scientifically demonstrated, and this evidence directly guides practitioners in achieving a desired outcome. For children with ADHD, manualized interventions are considered an evidence-based practice because they, provide structured, repeatable protocols for managing behaviors and teaching skills, allow for systematic evaluation of effectiveness across different populations, increase treatment fidelity, and support training of providers (Evans et al., 2013). EBPs have been shown to produce measurable reductions in disruptive behaviors for children with ADHD, with token economies, positive reinforcement, and praise consistently demonstrating medium to large effect sizes across multiple programs (Chronis et al., 2004; Leijten et al., 2019). While psychotropic stimulant medications have proven effective in reducing symptoms, they do not comprehensively address children's behavioral and social functioning in real-world settings, underscoring the need for behavioral EBPs as a complement or alternative (Merrill et al., 2023; Owens et al., 2003). Sustaining treatment effects over time remains a key challenge, as disruptive behaviors can return once interventions are removed, with long-term outcomes strongest when booster sessions and cross-setting reinforcement strategies are incorporated (Chronis et al., 2004; van Aar et al., 2017).

One such manualized EBP that has been proven to be effective for children with ADHD is the Summer Treatment Program (STP; Pelham et al., 1997), which is a summer camp for children with ADHD between the ages of 5-16 years old and has been demonstrated to significantly reduce maladaptive behaviors and improve prosocial interactions (Chronis et al., 2004; Mrug & Hodgins, 2008). STPs are based on applied behavior analytic (ABA) approach while also utilizing operant conditioning as well as social learning theory (Martin & Pear, 2010; O'Leary & O'Leary, 1972). Research on the STP suggests it can effectively enhance behavioral and social functioning in children with ADHD, as well as those with ASD or co-occurring ADHD and ASD. Studies have reported gains in prosocial behavior and peer

relationships, improvements in attention and rule-following during activities, and increased participation in group discussions (Mitchell et al., 2015; Mrug & Hodgens, 2008; Wymbs et al., 2005). There are currently 15 running STPs across the United States and Japan, with most running out of academic settings (i.e., the University of Pittsburgh Medical Center and Florida International University). However, STP's can also be organized through non-profit organizations (Advancing Neurodevelopment for Youth) and community health centers (Alternative Community Resource Program) (The STP Special Interest Group, n.d.).

While STPs have been demonstrated to improve the outcomes of children with ADHD, there are several barriers with executing an STP such as a high degree of difficulty with maintaining adherence to the STP manual, and high demands placed on staff training including a small staff to child ratio, long hours, and an intense training period (Tannenbaum et al., 2022). Studies have also highlighted the need for further staff support in both the training and in-program periods (Obee et al., 2024). To address these challenges with STP implementation, training staff using a structured professional development (PD) process is recommended. Given the importance of STP staff in the intervention implementation, and the high demands they are tasked with, an examination of an additional professional development opportunity may provide more information on how to better support STP staff and, in turn, improve the execution of the manualized intervention.

The current study seeks to expand on the existing literature base by examining the impact of implementing a structured Professional Learning Community (PLC) as an in-program professional development practice within a Summer Treatment Program. This project will explore the impact of a PLC on staffs' experience and implementation practices as well as any impact on youth outcomes at the STP. Findings may inform best practices for embedding professional development in short-term early childhood programs. By linking staff learning to youth outcomes, the study contributes to the limited research on PLCs in non-traditional educational settings. Results could guide future policy and practice in

early childhood education, particularly in programs serving children with behavioral and social-emotional needs.

Literature Review

This chapter reviews key areas relevant to the proposed study. It begins by outlining foundational principles of professional development (PD) and introduces a conceptual framework commonly used in educational settings. It then highlights core features of effective PDs and examines the role and effectiveness of Professional Learning Communities (PLCs), including factors that may influence their success. The section also provides an overview of the Summer Treatment Program (STP), detailing its structure, effectiveness, and the importance of staff training. Finally, it identifies gaps in current PD practices within STPs and presents the purpose of the proposed study along with the guiding research questions.

Professional Development

Professional development (PD) plays a critical role in equipping education professionals with the skills and strategies needed to implement evidence-based practices (EBPs) with fidelity (Donath et al., 2023). High-quality PD frameworks are essential for bridging the gap between research and practice, particularly in manualized intervention programs like the Summer Treatment Program, designed to support children with behavioral challenges.

PD is a broad category that covers a wide range of activities, fields, and contains various goals. Given PD is a core component of this study, it is important to define PD, specifically within educational and clinical settings. Sancar et al. (2021) described professional development as the process of gaining relevant skills, knowledge, and core values that enables educators to adapt and grow within their role and the education system at large. These areas for growth can span from enhancing teacher instructional delivery, to their problem-solving skills, to their classroom management strategies. The PD process begins with a teacher's experience in college and spans the course of their career, requiring constant updates to what they are teaching and how they are teaching it (Sancar et al., 2021).

Professional development can take many forms, including through co-teaching, mentorship from co-

staff or administrators (Schifter & Fosnot, 1993), group discussions within professional learning communities, and observation and reflective sessions conducted by supervisors, amongst other activities (Ball & Cohen, 1999; Greenleaf et al., 2001).

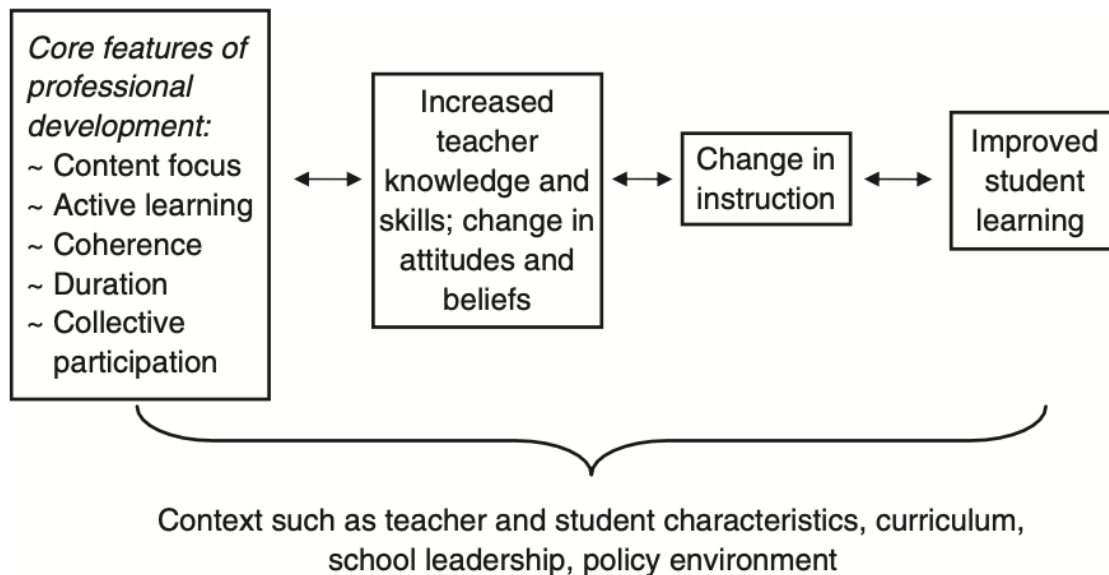
Professional Development Framework for Educational Settings

The Core Conceptual Framework (CCF) is a model that conceptualizes the effects of PD on educators and students (Desimone, 2009). The model illustrates the progression of an ideal professional development experience (seen in Figure 1), where the teacher receives beneficial skills from a PD, which leads to enhanced teacher skills, attitudes, and beliefs, which is used to improve their content delivery and/or classroom management strategies and results in creating a positive effect for student academic performance (Desimone, 2009).

The core features of the Core Conceptual Framework are Content-Focus (i.e., importance of subject matter for professional learner growth (Desimone, 2009; Garet et al., 2001)), Active Learning (i.e., learners actively engage in PD through methods like observing and receiving feedback, role-plays, and participating in discussions (Borko, 2004; Desimone, 2009)), Coherence (i.e., PDs must align with learners' existing knowledge, beliefs, and values (Desimone, 2009; Elmore & Burney, 1997)), Duration (i.e., PDs are most effective when they span over a sufficient number of activity hours to allow for meaningful growth, for most programs the goal is at least 20 hours of contact time (Cohen & Hill, 2001; Desimone, 2009)), and Collective Participation (i.e., PD is improved when all impacted learners and supervisors engage in the program together to promote collaboration and shared experiences (Borko, 2004; Desimone, 2009)).

Figure 1

Core Conceptual Framework



Note. From “Improving impact studies of teachers’ professional development: Toward better conceptualizations and measures” by L.M. Desimone, 2009, *Educational Researcher Review*, 38(3).

<https://doi.org/10.3102/0013189X08331140>.

The progression that is displayed from one stage to the next is exemplified in a Franke et al. (2001) study which found that educators’ perception of the PD they engaged in played a large role in their professional growth. Educators that personalized the information gathered from the PD practice, as opposed to viewing it as distal research knowledge, were the ones that were able to create new practices and adapt current ones (Franke et al., 2001). This often took the form of educators questioning how their students engaged in problem-solving, and educators testing and adapting the knowledge they had gained from PDs (Franke et al., 2001). From this finding, we can see the importance of a key guiding principle of PD, active learning. Active learning differs from lecture-based learning by providing educators with interactive role-plays that bring the learning to life in real-world contexts (Greenleaf et al., 2011). The ability for these educators to be self-reflective and engage in perspective taking allowed them to progress from PD program content to an increase in their own knowledge application in their

professional context, to making concrete instructional changes, and finally to improved student outcomes.

Context is also an important consideration within the Core Conceptual Framework, as the model considers the mediating and moderating variables of teacher and student characteristics, school environment, school policy, and required curriculum across all four steps of the framework (Cohen, 1990; Desimone et al., 2002; Desimone, 2009).

This framework is backed by studies that have linked PD to improved teacher capabilities (Heck et al., 2008; Jeanpierre et al., 2005; Supovitz & Turner, 2000) and improved student academic outcomes (Hill et al., 2008; Phelps & Schilling, 2004). Additionally, a comprehensive literature review was conducted that analyzed 35 professional development studies in order to identify commonly utilized guiding principles within effective PDs (Darling-Hammond et al., 2017). The findings revealed seven features that had a strong overlap with the core features of the Core Conceptual Framework. Common features of the successful PDs included content focus, active learning, collaboration, use of modeling, coaching and expert support, feedback and reflection, and taking place over an extended period of time (Darling-Hammond et al., 2017).

This study will use the Core Conceptual Framework (Desimone, 2009) as a foundation for structuring its professional development activities and assessing its impact. Specifically, all five core features (content focus, active learning, coherence, duration, and collective participation) of the CCF will be incorporated into the recommended PD activity and the progression that stems from those core features will be used as constructs to assess the PD activity (STP knowledge and skills, professional attitudes, PLC satisfaction, application of skills within their implementation, and youth outcomes).

Professional Development Impact in Educational Settings

The importance of professional development impacts not just teachers, but also their students. One study found that effective PD over a sustained period can have a significant impact on teachers'

knowledge, teachers' skills, teachers' beliefs, and student behaviors (Donath et al., 2023). PD has also been demonstrated to impact student academic outcomes and has been identified as an essential mediator in the relationship between educational policy and teaching practice (Desimone et al., 2005). On a larger scale, continued development of teacher skills and knowledge has been noted to be one of the key factors for improving U.S. education on a structural level (Borko & Putnam, 1995; Darling-Hammond, 1993; Talbert & McLaughlin, 1993). Creating opportunities for educators to reflect on their practices, to remain up-to-date on current evidence-based interventions, and to brainstorm and collaborate with peers on creating inclusive and engaging learning environments can not only improve teacher self-efficacy, but also improve teacher job satisfaction and burnout rates (Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2007; Yoo, 2016).

Common Features of Effective Professional Development Practice

While there are several Professional Development Frameworks in the literature, a review of three, the Core Conceptual Framework (Desimone, 2009), Learning Forward's Standards for Professional Learning (SPL, 2024), and the Cognitive Apprenticeship Model (Collins et al., 1991) highlight several common features that contribute to effective PD practices. These overlapping elements can be synthesized into four key themes: active learning, collaboration, long-term practice, and contextual relevance and equity.

Active learning promotes engaging, hands-on learning over passive instruction, ensuring educators can practice, reflect, and adapt their skills in real-world contexts. All three frameworks detail strategies for active learning, such as through role-playing, observation, scaffolding, and coaching (Collins et al., 1991; Desimone, 2009; SPL, 2024). Collaboration encourages professional learners to learn from peers, supervisors, and real-world interactions rather than working in isolation. Enhanced knowledge acquisition and problem-solving skills have resulted from organizational support that creates collective participation and empowers educators (Collins et al., 1991; Desimone, 2009; SPL, 2024).

Another common element, long-term practice highlights that PDs are most effective when they are ongoing, iterative, and incorporate reflections and PD adaptations. The ability to gradually build expertise by offering long-term supports and sustained professional learning through iterative cycles of feedback and refinement are key elements that feature in all the above PD frameworks and are necessary for an efficacious PD program (Collins et al., 1991; Desimone, 2009; SPL, 2024). Finally, contextual relevance and equity are additional common elements of all three PD frameworks that reveal that effective PDs must be relevant to educators' contexts, consider diversity and equity, and be adaptable to various educational settings (Collins et al., 1991; Desimone, 2009; SPL, 2024). These frameworks highlight the importance of considering environmental factors and promoting culturally responsive practices that service all professional learners when designing PDs (Collins et al., 1991; Desimone, 2009; SPL, 2024).

By synthesizing these three PD frameworks, we can conclude that effective professional learning is active, collaborative, sustained over time, and contextually relevant. These shared principles provide a strong foundation for designing professional development initiatives that improve both educator effectiveness and student outcomes.

Professional Learning Communities (PLCs)

An example of a professional learning practice that incorporates all four of the common elements of an effective PD (active, collaborative, sustained over time, contextually relevant) is a professional learning community (PLC). PLCs were chosen for this study because traditional training approaches such as manualized protocols or didactic workshops have been found to yield only modest improvements in practice when used alone (Bearman et al., 2017; Sholomskas et al., 2005). While long-term growth and practice change have resulted from ongoing consultation or coaching (Sholomskas et al., 2005; Walters et al., 2005). Even then, the positive effects of such training may diminish over time once consultation is withdrawn (Chambers & Azrin, 2013; Stirman et al., 2012). These findings point to

the need for more effective and sustainable models of training and support that can promote enduring changes in clinical practice. PLCs not only meet the agreed upon elements of an effective PD, but also meet the call to establish an ongoing PD practice that provides space for consultation and coaching.

In addition, PLCs can serve as a foundation for a positive work environment that values collaboration among educators, and a structured space for sharing experiences, strategies, and challenges (Stoll et al., 2006). A definition of PLCs synthesized from Hord (1997), Louis et al. (1996), Leithwood and Louis, (1998), McLaughlin and Talbert (2001) and Sigurdardo'ttir (2010) is that a *professional learning community* is a group of educators united by shared goals who engage in ongoing, collaborative learning aimed at improving their professional practices. Learning is integrated into daily responsibilities, as teachers acquire new knowledge, apply it in real contexts, reflect on their experiences, and continue to grow through peer collaboration. This continuous learning cycle is shaped by key influences: (a) structural conditions that either support or limit collaboration, (b) cultural norms and beliefs that guide behavior, and (c) leadership approaches that significantly impact both the school's culture and organizational structure. This definition aligns with the Newmann et al. (1996) five defining characteristics of PLCs in educational settings, shared values and norms, focus on student learning, reflective dialogue (engaging in constant discussions about student growth, curriculum, and instructional strategies), de-privatizing practice (making practices more transparent and collaborative), and collaboration (promote equitable and effective practices through interdependence).

Effectiveness of PLCs in Educational Settings

PLCs have been shown to have a positive impact on teacher morale, enhanced professional strategies, and improving student academic performance (Bolam et al., 2005). One study found that educators' perception of the PLC they participated in was predictive of a school's effectiveness, defined by student performance on standardized tests (Sigurdardo'ttir, 2010). This means that schools where educators reported higher levels of PLC characteristics (i.e. shared leadership, collaborative learning,

satisfaction and commitment, etc.) tended to be more effective in educating their students based on standardized test scores (Sigurdardo' ttir, 2010).

Studies have also been conducted to highlight the impact of PLCs on educator experiences. PLCs have been illustrated to directly improve educator creativity (Liu et al., 2022), enhance educator practices (Dogan & Adams, 2018; Vescio et al., 2008), leadership amongst educators (Lee & Ip, 2021), and overall satisfaction within their educator role (Zhang & Yuan, 2020). Liu et al. (2022) conducted a study to determine why educator outcomes improved when engaging in a PLC. The authors administered surveys to over 3,400 educators dispersed across 61 schools in China. Findings from the study indicated that PLC's improved educators' creative self-efficacy (belief in their own ability to be creative and implement innovative instructional practices) (Liu et al., 2022). The growth in this area was discovered to be related to enhanced exposure to a wide range of perspectives, reflective dialogue, collaboration with peers, and general professional support (Liu et al., 2022). By enhancing educators' creative self-efficacy, it was also revealed that PLCs improved educators' resilience and motivation, even when faced with challenging situations (Liu et al., 2022). Results highlighted that PLCs encourage educator innovativeness via promotion of creative self-efficacy, and outcomes were even more pronounced when the school was reported as having a supportive climate (Liu et al., 2022).

Other positive outcomes for educators associated with participation in PLCs include a strong belief in students' ability to succeed academically, an environment of collaboration and feeling valued in the decision-making process, an atmosphere of continual professional growth, and creating shared values of supporting student learning (Sigurdardo' ttir, 2010). Teachers have reported having high levels of satisfaction from participating in PLCs due to collaboration with educators outside of their current work network and self-reported positive gains from the PLCs in areas such as acquired knowledge and skills and application of those skills to their practice (Prenger et al., 2018).

Moderating Factors of PLCs

There are several features of PLCs that make the professional development practice more or less likely to have positive outcomes. One such factor is that PLCs have been found to be more effective when conversations have been structured around research findings of best practices and had a discussion leader to guide the group and keep them on track (Gersten et al., 2010). This is indicative of the need for intentionality and planning for each PLC meeting to ensure topics are relevant with data to back-up the validity of any innovative strategies discussed. Additionally, Schaap and de Bruijn (2018) conducted a mixed-methods study across four schools that were each implementing uniquely structured PLCs to determine what factors impacted the development of PLCs within each school. The three elements that were found to have a significant impact on the PLC development and perceptions of the PLC from school staff were beliefs about alignment, ownership, and socialization. Beliefs about alignment refer to the overlap between teacher needs, organizational needs, and how these are addressed within the PLC (Schaap & de Bruijn, 2018). Reports from teachers noted that PLCs are not inherently beneficial, they must first consider what are the needs of the school and its educators before structuring the PLC, highlighting the need for intentionality and planning (Schaap & de Bruijn, 2018).

Ownership refers to the degree to which educators feel that the PLC is “theirs” and how much autonomy they have over influencing certain PLC initiatives (Palinscar et al., 1998). The authors also describe ownership as the ability to enact innovative practices and alter administrative processes within their schools (Desimone, 2009; Fullan, 2009; Kooy & Van Veen, 2012). The level of ownership educators feel over the PLC has a strong impact on outcomes. For example, it was demonstrated that overly hierarchical approaches to teacher PD fail to account for the contextual and interactive nature of how educators learn (Clarke & Hollingsworth, 2002) and may weaken their sense of ownership and limit the overall success of initiatives like PLCs (Guskey & Sparks, 2004; Wayne et al., 2008). Evidence indicates that such top-down models can lead to negative outcomes such as decreased teacher engagement, limited buy-in, and diminished student academic outcomes (King, 2013; Stoll et al., 2006). This approach

can also undermine teachers' professional autonomy (Scribner et al., 2007) and their confidence in their ability to learn and grow (Visscher & Witziers, 2004).

Finally, socialization refers to how well educators are able to apply their new knowledge from PLCs into their real-world school context (Schaap & de Bruijn, 2018). An example of this socialization can be creating specific instructional materials, implementing innovative teaching strategies, or changing evaluation practices (Schaap & de Bruijn, 2018). In essence, socialization is the extent to which educators feel there is actual changes that are coming out of the PLC and impacting their teaching experience. Within the Schaap and de Bruijn study (2018) the school that was found to have the most impactful PLC was the one where the reflective dialogues were reported as being relevant and useful, the principal had a positive disposition about the PLC and made an intentional effort to link the PLC discussions to the larger school environment, and provided its educators with the highest level of perceived ownership in the PLC.

Furthermore, school climate was found to be a moderating variable between engagement in PLCs and educator outcomes. While Liu et al. (2022) illustrated how PLC participation improved educators' creative self-efficacy, this relationship was significantly stronger within schools that were rated as having a more "innovative climate". An innovative climate was defined as one where the staff had common values and beliefs around changing practices, and acceptance of imperfection, and an open-mindedness around novel strategies (Liu et al., 2022). Variables that have been shown to diminish teacher satisfaction with PLC participation include organizational factors such as time management and PLC structure and the volatile levels of participation by PLC members (Prenger et al., 2018).

Summer Treatment Program

The Summer Treatment Program (Pelham et al., 1997) is a manualized evidence-based practice designed for children with ADHD with the goal of improving their social skills and peer relationships while reducing disruptive behaviors (Chronis et al., 2004; Pelham et al., 1997; Pelham & Hoza, 1996).

STPs are based on applied behavior analytic (ABA) approach while also utilizing operant conditioning as well as social learning theory (Martin & Pear, 2010; O’Leary & O’Leary, 1972). What sets the STP apart from other summer programs that are designed to treat various youth needs is its highly intensive format. Pelham’s STP (1997) is designed so that youth are receiving clinical instruction or feedback throughout the entire camp day, meaning over the course of just one summer, youth receive 150 to 300 hours of structured support (Mitchell et al., 2015). Comparatively, weekly hour-long sessions would take three to six years to receive the same treatment dosage.

For the 15 STP’s that utilize Pelham’s (1997) manual, treatment ranges in duration from five to nine weeks for children from the ages of 5-16 years old (Fabiano et al., 2014). Within the manualized program, children are grouped into bunks, or groups, of 12-15 students. These groups are kept the same all summer to promote students developing and maintaining friendships, allowing time for providers to develop meaningful relationships, and creating space for children to engage with the program as a dynamic group (Fabiano et al., 2014).

Key Components of the Summer Treatment Program

There is a manual that exists for STPs that seeks to improve implementation fidelity by providing operational definitions for categories such as prosocial and maladaptive behaviors and outlining a clear structure on the format of each day (Pelham et al., 1997). The manual provides clear instruction on several areas, such as how to run a group discussion, the structure for providing real-time behavioral feedback for students, how to set up effective Daily Report Cards (DRC’s; Pelham et al., 1997), and how to provide meaningful praise for prosocial behaviors, amongst several other program areas (Pelham et al., 1997). Key characteristics of the STP are that it operates within the setting of a summer day camp, and children are assigned groups at the beginning of the camp that remain constant throughout the program to encourage relationship growth amongst groupmates and allowing time for children to gain comfortability with their group leaders that are implementing the program (Fabiano et al., 2014). This is

particularly important, as each group is predominantly receiving the program treatment from the same program providers all summer, so the implementation fidelity within each individual group can play a large role in the outcomes for the children when measured throughout the camp.

One of the distinguishing factors of the STP is that it is designed to be implemented within the context of a summer camp. The STP involves standard camp activities such as games and group-bonding, while simultaneously integrating evidence-based practices such as a token economy, social skills instruction, parent training, positive reinforcement, and daily report cards (DRCs; Pelham et al., 2012). Another key feature of the STP is real-time feedback from clinical staff towards the STP students for both prosocial and maladaptive behaviors that are accompanied by giving or taking “points” within a token economy system based on the behavior displayed (Pelham et al., 2012). Behavioral tracking data is collected at STP’s through real-time direct observations across the entire camp day. Part of the counselors training prior to the program is focused on both program implementation and accurate behavioral data collection. Counselors record behaviors during all camp activities on paper. Throughout the day, there is always one counselor who is tasked with entering data, while all other counselors monitor and report behaviors to the designated point sheet counselor. To maintain data quality and reduce fatigue, responsibilities for data entry are rotated systematically throughout the day. At the end of each day, behavior counts are calculated across various behavioral categories. Negative behaviors tracked include intentional and unintentional aggression (toward staff or peers), property destruction, not following directions, not participating in an ongoing activity, making verbal threats, whining, disrupting during group discussions, and name-calling peers. Positive behaviors include helping or sharing with peers, contributing to group discussions, ignoring negative stimuli, and complying with commands (Pelham et al., 2012). The points children earn through their behavior can be turned into privileges at camp and home rewards (Pelham et al., 2012). Public praise is also a foundational piece of the STP to create an environment of celebrating peers and highlighting model behaviors.

Social skills psychoeducation provided by trained STP staff is taught in groups at the beginning of each day to highlight an important component of developing relationships, such as communication, participation, validation, and cooperation. These discussions often are designed to provide instruction, modelling the target social skill, allowing time for role-playing, and then concluding with a reflective group discussion (Pelham et al. (2012). The STP is also very flexible. When the standardized program outlined in the manual is not landing with a particular child there are structured procedures for making data-based decisions to individualize and modify the treatment as needed (Fabiano et al., 2014).

Another key component of the STP is the weekly behavioral parent trainings (BPT) that share with caregivers' language and expectations that are being taught within the camp as well as effective parenting strategies for impulsive children to help families generalize the skills their child is learning within the program in other settings (Thorell, 2009).

Finally, staff structure, training, and maintenance are critical to the STPs success. While STP staff can be from any number of backgrounds, including undergraduate or graduate students, teachers, counselors, or social workers, they are always supervised by senior clinical staff (often with advanced degrees) that have ample experience within STPs. Staff are intensively trained over a multi-week period that provides background knowledge on neurodevelopmental children, role plays to simulate the typical daily activities at camp, practice identifying behaviors that fit the manual's definition of prosocial or maladaptive behaviors and applying the token economy system based on the respective behavior, and finally team-bonding amongst counselor groups and preparation once counselor teams are assigned (Pelham et al., 2012). Implementation fidelity is maintained throughout the program through the use of weekly "fidelity checks" that provides a checklist of treatment procedures for the supervisor to rate the quality with which counselors are following the manualized program (Pelham et al., 2012). After each fidelity check, supervisors follow up by reviewing their observations with the counselor group and

provide praise and constructive feedback based on how well the group followed the manualized activity (Pelham et al., 2012).

Program Effectiveness of the Summer Treatment Program

Studies have been done across several child demographics measuring the impact of the STP. Chronis et al. (2004) conducted a single-case research study to determine the efficacy of the program for children with ADHD. The study, in the format of a BAB structure, found that once the behavioral treatment components were removed, maladaptive behaviors for the child increased significantly, while staff reported worsening interactions with their students and higher stress levels. Specific child behaviors that were noted as worsening with the removal of the behavioral treatment techniques were noncompliance, interruption, complaining, and conduct problems such as physical aggression and property destruction (Chronis et al., 2004). Once the behavioral system was reintegrated, the dependent measures of child behaviors returned to baseline levels, indicating the causal relationship between the STP practices and the frequency of disruptive behaviors. Another study that measured how the STP impacted children with Aspergers (APA, 1994) found that children that participated in the program demonstrated significant increases in prosocial interactions with peers and adults, improved attention, and enhanced compliance (Mrug & Hodgins, 2008). Finally, a qualitative study of 22 adolescents and their parents found that participation in the STP resulted in improved self-awareness and self-efficacy for the adolescents (Yeguez et al., 2022). Children noted an increase in their perceived abilities in both academic and athletic activities after going through the program. Results also showed an improvement in self-esteem, autonomy, and belongingness due to being a part of the STP (Yeguez et al., 2022).

Moderators of STP Treatment Outcomes

Most studies that have examined mediating and moderating variables that impact STP outcomes have revolved around examining the camp participants data. Overall, findings illustrate that the benefits of the STP remain stable across a range of demographic characteristics, diagnostic profiles (such as ADHD

subtypes and comorbid internalizing or externalizing disorders), and socioeconomic conditions (including household composition and income level) (Chronis et al., 2006; Mikami et al., 2010; Pelham et al., 2000; Pelham & Fabiano, 2008). However, a notable limitation of this body of research is that many of the large-scale randomized controlled trials involving the STP included supplementary behavioral or pharmacological components, which complicates efforts to determine which factors specifically moderate the effects of the STP itself (MTA Cooperative Group, 1999; Owens et al., 2003).

There are a few variables that been demonstrated to be significant moderators between student STP participation and behavioral outcomes. Bansal et al. (2018) discovered that the intensity of the STP was particularly suited for students with high levels of conduct disorder and emotion regulation challenges. The study found that the manualized program had a stronger impact on students that exhibited higher rates of disruptive behaviors at the outset of the camp according to both parent and teacher reports (Bansal et al., 2018). Similarly, an unpublished dissertation from Phillips (2021) discovered that student returner status, student diagnosis, and the interaction between these variables were strong predictors of observed behaviors at baseline as well as change throughout the program. Specifically, students that were returners to the STP and had been diagnosed with ADHD exhibited higher baseline levels of challenging behaviors as well as the most improvement by the end of the STP (Phillips, 2021). On the other hand, it was highlighted that student gender and level of attentiveness were not strong predictors for neither baseline levels of challenging behaviors nor improvement over time (Phillips, 2021).

While numerous studies have examined moderating variables among children attending STPs, including factors such as age, gender, child diagnosis, comorbid diagnoses, and socioeconomic status, there is a noticeable gap in the literature when it comes to exploring moderators related to staff. Existing research has established that student outcomes are relatively stable across various child-level characteristics, however, no studies to date have systematically investigated how staff-level variables,

such as experience, education level, self-efficacy, or professional development opportunities, might influence the fidelity of implementation or the overall effectiveness of the program for youth. This lack of focus on staff-related moderators presents a critical limitation, given the central role that staff play in delivering interventions and maintaining program quality. Understanding how staff characteristics impact outcomes could provide valuable insights for optimizing training and support systems within STPs.

Importance of Supporting Summer Treatment Program Staff

Some of the biggest barriers to STP implementation involve the roles and responsibilities of STP staff. STPs are highly reliant on their staff and setting up and executing an STP requires several steps before the program even begins, including recruiting, hiring, and training staff that often do not have experience with executing EBPs in a treatment setting (Tannenbaum et al. 2022). Given there are a notable lack of available practitioners that have been trained in implementing EBPs (DuPaul et al., 2020; Fairburn & Patel, 2014; Kazdin & Rabbitt, 2013; McLeod et al., 2018) and there are few opportunities for undergraduate students to gain direct experience working with neurodiverse youth in a clinical setting (Obee et al., 2024), there is a high need for quality training and supervision to adequately prepare STP staff and ensure quality STP implementation. By providing this opportunity to aspiring mental health providers, this can also have the downstream impact of shaping staff's career trajectories and creating practitioners that gain valuable skills early in their career that can be transferred to a variety of settings (Obee et al., 2024).

A way in which STP staff can become more skilled and confident with implementing the STP is through the practice of professional development. PD has been found to be a key support and to play a critical role in equipping education professionals with the skills and strategies needed to implement evidence-based EBPs with fidelity (Donath et al., 2023). High-quality PD frameworks are essential for bridging the gap between research and practice, particularly in structured intervention programs like the STP.

Current Professional Development Practices in STPs

While training principles and strategies are outlined in the STP manual (Pelham et al., 2012), to date, there has been very limited research on staff's impressions of the training and supervision they are receiving. Only Obee et al. (2024) has investigated how STP staff have viewed current PD practices within the STP structure and how it impacted their implementation fidelity and experience.

Training. A core PD practice for the STP is a pre-camp training program for all staff (Pelham et al., 2012). In Obee et al. (2024) study, a two-week training before camp tasked STP staff with familiarizing themselves with the manual prior to training and were then asked to pass a test on procedures and demonstrate proficiency in specific skills, such as crisis management and timeout protocols, to clinical supervisors (Obee et al., 2024). During the training period, PD practices included incorporating informational lectures and interactive activities, skill practice in small groups, and role-playing daily activities like morning meetings, all under supervisor guidance (Obee et al., 2024). During these role plays, clinical supervisors are tasked with observing each of the training groups and completing a Treatment Integrity and Fidelity assessment (Pelham et al., 2012) to determine areas of strength and growth as it pertains to implementation fidelity. After each role-play, in-depth corrective feedback sessions are conducted to reflect on the experience (Pelham et al., 2012). Additionally, team-building exercises and camp preparation were integral parts of the training process (Obee et al., 2024).

Strengths of STP Training. As it is currently implemented, the STP PD practice of pre-camp training has many strengths that align it with evidence-based PD frameworks. By including all staff in pre-camp training, even returning staff, the STP PD is falling in line with the Core Conceptual Framework feature of Collective Participation which has shown to be a strong predictor of instructional change amongst professional learners (Garet et al., 2001). The didactic portion of the training that provides STP staff with the manual and tests their knowledge aligns with the Standards for Professional Learning's Rigorous Content for Each Learner category (Learning Forward, 2024). Specifically, testing staff for proficiency in

specific implementation skills ensures Professional Expertise which highlights the importance of utilizing empirical studies (Learning Forward, 2024).

Additionally, when Obee et al. (2024) surveyed and interviewed STP staff on their training experience, they reported that role-plays, feedback from supervisors, and opportunities to practice specific skills to be most helpful. This finding falls in line with both the Core Conceptual Framework (Desimone, 2009) and the Cognitive Apprenticeship Model (Collins et al., 1991). Active learning components as described above have resulted in higher levels of PLC satisfaction amongst educators compared to traditional PD activities such as lecturing in a workshop (Darling-Hammond et al., 2017).

Gaps in STP Training. While there are many strengths within the manualized description of the STP pre-camp training, there are also several areas where the current training falls short of best practices for PD programs. One particular area that is not operationalized in the STP manual (Pelham et al., 2012) or mentioned in the Obee et al. (2024) study is one of the Cognitive Apprenticeship's model core method, exploration (Collins et al., 1991). Exploration is the step that tasks learners with using problem-solving skills to resolve novel tasks independently while being able to identify their processes and reasoning (Collins et al., 1991). The ability to engage in this method greatly improves the probability of staff internalizing the skills learned in training (Choi & Hannafin, 1995). The importance of this ability within the STP is emphasized by a study that identified a common barrier of staff implementation to be the uncertainty of how to respond during crisis situations and the inability to effectively implement individualized student programs (Schwartz, 2024). Obee et al. (2024) identified similar challenges, as STP staff consistently reported feeling anxious due to a lack of confidence with accurately implementing all STP intervention components and uncertainty over their ability to build meaningful relationships with the children. These findings highlight the importance of the STP staff being able to apply skills learned in their PD to specific situations throughout the manualized program.

Furthermore, while the components of training are outlined in the STP manual (Pelham et al., 2012), there is a lack of information on how to effectively communicate key aspects or how much time to attend to a given area. Results from Obee et al. (2024) corroborate this statement, as one of the largest barriers for staff in terms of learning, supervision, and support, was the way in which training was organized and structured, with thirty-six percent of staff interviewed identifying it as a major challenge. However, more information was not provided in this study about what exactly staff viewed as a barrier with the training structure or how they would choose to change it. Furthermore, in the Obee et al. (2024) study, staff felt overloaded, with half of the surveyed group voicing that the amount of information they were asked to learn was too much.

Another key gap in the training process of STPs is the lack of identified equity-based considerations for STP staff. While the STP manual addresses adequate risks and treatments for working with children with neurodevelopmental disorders such as ADHD (Pelham et al., 2012), the manual does not cover similar information for working with children from marginalized backgrounds. Without a manualized section on culturally responsive practices, the Summer Treatment Program is not providing its staff with the proper supports for how to communicate and adapt the manualized program depending on a student's background. Given the demands of working with a diverse population of children within the STP context, there is a high need to both create an inclusive training experience for staff from different backgrounds and to teach STP staff how to integrate culturally responsive practices into the STP manualized program while maintaining implementation fidelity.

In-Program Supports. The STP manual identifies several in-program supports (PD practices that take place during the behavioral intervention program) to build upon the skills and knowledge introduced in the training period (Pelham et al., 2012). Most of the current in-program supports revolve around providing supervision to STP staff and providing adequate supports as needed (Pelham et al., 2012). Supervisors within the STP are experts with multiple years of experience implementing the manualized

program. These supervisors are tasked with providing ongoing PD support during the program such as through weekly formal supervision meetings to discuss areas of focus, and parent training topics (Obee et al., 2024). Supervisors also frequently observe groups throughout the day and conduct fidelity assessments using materials that detail the intervention protocol and rating sheets for each activity type throughout the day that measures treatment quality provided by the staff (Pelham et al., 2012). These fidelity assessments measure things like staff engagement, child engagement, the utilization of positive reinforcement, and effectiveness of social coaching (Pelham et al., 1997). These materials include the Treatment Integrity and Fidelity (TIF) sheet, which is a manualized assessment to measure adherence to the STP manual for each respective daily activity (Pelham et al., 2012). Furthermore, to prevent treatment drift, knowledge is designed to be tested weekly using Treatment Reliability Quizzes (TRQs) and Classroom Reliability Quizzes (CRQs) (Pelham et al., 2012). Supervisors will also occasionally model specific skills such as executing time-outs to enhance staff skills (Obee et al., 2024). Intermittent evaluations are conducted during the program to provide structured feedback and the chance to set goals for each counselor in their clinical growth (Obee et al., 2024). Finally, the standard end-of-day structure for each group includes completing Daily Report Cards for each student, planning activities for the next day, and triaging any ongoing student's that require extra attention with their respective Head Counselor. All these mechanisms are considered in-program supports as they take place during the behavioral intervention and support staff by monitoring implementation fidelity and providing various opportunities for consultation and coaching.

Strengths in STP In-Program Supports. For in-program supports, it was discovered that staff in the Obee et al. (2024) study found one-on-one feedback, staff availability, and team supervision to be most helpful. These components are aligned with the three previously identified frameworks. One-on-one feedback falls in line with the Leadership domain in the Cognitive Apprenticeship Model which states the need for PDs to incorporate shared goals and a process for supervisor observations and feedback

sessions to monitor progress towards these identified goals (Learning Forward, 2024). The Obee et al. (2024) study highlighted this strength as STP staff consistently mentioned the supportive environment of the STP and the culture of transparency and helpful feedback as key facilitators for implementation. Certain STP supervision aspects are aligned with the socialization component of the Cognitive Apprenticeship Model, which are environmental variables essential to improving skill acquisition and application (Collins et al., 1991). Staff availability and the willingness to take time to model certain STP components demonstrated the value of Community of Practice within the socialization domain (Collins et al., 1991) and one of the guiding principles of professional development, providing coaching and expert support (Darling-Hammond et al., 2017). Furthermore, structured team supervision is similar to the Exploiting Cooperation domain within socialization that promotes collaboration and shared knowledge (Collins et al., 1991). By collecting crucial assessment information from the TIF, TRQ, and CRQ, STPs are utilizing data-based decision making to inform their PD practices and assess impact which is discussed in the Evidence domain of the Standard's for Professional Learning framework (Learning Forward, 2024). Finally, by intentionally structuring in PD practices such as supervision throughout the program, STPs are structuring in PD practices similar to the Core Conceptual Framework feature of Duration (Desimone, 2009), and Standard for Professional Learning's domain of Implementation (Learning Forward, 2024) which both emphasize the importance of maintaining learned PD practices through long-term support for professional learners.

Gaps in STP In-Program Supports. Even with the in-program supports outlined in the STP manual (Pelham et al., 2012), there exists several gaps in terms of how supervision is implemented and where it falls short compared to existing PD frameworks. One area that has been noted to be a challenge, is the quality and delivery of supervision within the STP structure. 29 percent of staff in the Obee et al. (2024) study did not like the way feedback was provided, specifically mentioning a lack of positive reinforcement in supervision sessions. This finding is especially important given that constructive

feedback is one of the most effective ways to transfer skills (Kraft et al., 2018; Sailors & Shanklin, 2010). Coaching is a key method in the Cognitive Apprenticeship Model, and states that one of the ways in which knowledge is gained by the learner is through the expert observing a task and providing quality feedback to help the learner grow their skills (Collins et al., 1991). However, one study noted that feedback is an important moderator for self-efficacy, and lack of feedback, or poorly delivered feedback, can reduce learner self-efficacy, and by extension, skill growth (Beattie et al., 2016).

The quantity of in-program supports, specifically feedback and supervision, were also found to be a problem in the Obee et al. (2024) study, as over half of the staff surveyed mentioned wanting more access to feedback from supervisors. All the identified training and supervision methods depend significantly on supervisors' availability and the staff's access to supervisors for regular feedback. This can be especially demanding for STP supervisors, who often juggle other professional roles in addition to their work at the STP and are responsible for administrative duties such as handling parent communication during the day and managing student medication schedules (Obee et al., 2024). There is also very limited time to refresh on skills developed in training, as most feedback and consultation with supervisors during the program revolve around triaging specific students and behaviors that are appearing throughout each camp day. Overall, the gaps within current STP in-program supports include the lack of access to sufficient coaching and supervision, and critical feedback from supervisors (Obee et al., 2024).

Professional Development and STP Summary

Overall, the STP currently has several structured PD practices in place in hopes of training and supporting staff to most effectively implement the program. The current PD practices demonstrate notable strengths but also significant gaps. The pre-camp training, outlined in the STP manual and studied by Obee et al. (2024), incorporates evidence-based approaches such as role-playing, feedback, and team-building exercises that align with frameworks like the Core Conceptual Framework (Desimone,

2009) and Cognitive Apprenticeship Model (Collins et al., 1991). Role-playing and supervisor feedback are particularly helpful for developing implementation fidelity. However, gaps remain in key areas, including the lack of structured opportunities for independent problem-solving, unclear training priorities, and insufficient attention to equity and cultural responsiveness (Obee et al., 2024). Similarly, STP in-program supports includes strengths like individualized feedback, team supervision, and data-based decision-making, which foster a supportive learning environment. Nonetheless, challenges with inconsistent feedback quality, insufficient positive reinforcement, and limited access to supervisors are reported. Studies show that STP staff prefer consistent feedback structures that are strengths-based in nature. These gaps highlight the need for improved coaching structures, feedback delivery, and attention to diversity to optimize STP training and in-program supports.

Limitations of Research on the STP

There are several gaps to the existing research surrounding the STP. As it relates to its impact on behavior, no randomized control trials have been run comparing STPs to an active treatment control. As a result, causality has been difficult to prove regarding the strength of STP impact on children's behavioral changes after engaging in the program. Additionally, there have been no studies conducted on staff interactions and training as a moderating factor in STP implementation and youth outcomes. Manos et al. (2024) highlighted strategies to modify staff training for STP staff, however no data was collected to detail how these changes impacted staff experiences or STP efficacy. Obee et al. (2024) evaluated STP staff perceptions of their training and supervision as well as understanding of their role within the STP implementation. While their study provides helpful insight into staff perceptions on the various training experiences, it does not measure how these specific training components impacted staff knowledge and skills, intervention delivery, nor how this impacted youth outcomes.

Purpose of the Current Study

There is an existing gap in the literature examining moderators of professional development impact within STPs. More research is needed to examine whether current STP professional development practices are effective for staff, and whether the presence of additional supports during the program is linked to variations in treatment outcomes across different groups.

While there have been several studies conducted on the outcomes of children that participate in the STP and articles that share recommendations for structuring STP professional development practices (Manos et al., 2024; Tannenbaum et al., 2022), there is a lack of research on the STP staff experience and how to best support them in intervention implementation. Given the importance of STP staff in the intervention implementation, and the high demands they are tasked with, an examination of an additional professional development opportunity may provide more information on how to better support STP staff and, in turn, improve the execution and outcomes of the manualized intervention.

Current STP PD practices have some noted strengths of incorporating evidence-based approaches such as role-playing, feedback, and team-building exercises during the pre-camp training period to prepare staff (Obee et al., 2024). However, there have also been gaps that have been found within the STP. It has been reported by STP staff that in-program supports, specifically quality and quantity of feedback and supervision, lack of structured opportunities for independent problem-solving, unclear training priorities, and insufficient attention to equity and cultural responsiveness were areas for improvement within the existing PD structure (Obee et al., 2024).

The purpose of this study is to investigate how integrating a structured Professional Learning Community (PLC) into a Summer Treatment Program functions as a targeted professional development strategy. Specifically, the study will explore how the PLC is perceived by STP staff, as well as its impact on staffs' STP knowledge and skills, professional attitudes, application of skills, and student outcomes.

Research Questions

1. How do STP staff perceive their satisfaction with the Professional Learning Community (PLC), key facilitators and barriers to effectiveness of the PLC and their engagement within the activity?
 - a. How did STP staff rate their satisfaction with the PLC, and did satisfaction vary by staff demographic characteristics?
 - b. What did STP staff perceive to be key facilitators and barriers of PLC effectiveness?
2. To what extent are student and staff outcomes impacted after the implementation of a Professional Learning Community in an STP setting?
 - a. To what extent does time, as a function of PLC participation, predict changes in staff-reported knowledge and skills across three timepoints (pre-program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their knowledge and skills?
 - b. To what extent does time, as a function of PLC participation, predict changes in staff-reported professional attitudes across three timepoints (pre-program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their professional attitudes?
 - c. To what extent does time, as a function of PLC participation, predict changes in staff-reported application of learned skills and staffing groups' adherence to the STP manual across three timepoints (pre-program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their implementation fidelity and application of learned skills?
 - d. To what extent does time, as a function of PLC participation, predict changes in students' overall self-reported mean ratings of student-staff relationship quality,

perceived sense of belongingness, and quantity of mutual peer relationships, and how did STP staff perceive the impact of the PLC on changes in student outcomes?

3. Are there significant associations within and between staff-reported PLC outcomes (knowledge, professional attitudes, application of learned skills, and implementation fidelity) and students' self-reported social experiences (student-staff relationship quality, sense of belongingness, and quantity of mutual peer relationships) at the group level, and how do co-occurring qualitative codes across staff-reported PLC constructs further inform the nature of these associations?
4. How does the integration of statistically significant changes in STP staff knowledge and skills, professional attitudes, student outcomes, and staff's adherence to the STP manual with qualitative insights from staff perceptions, analyzed through a joint display matrix, help determine the impact of the Professional Learning Community on staff experiences and student outcomes?

Methods

Data was gathered during the summer of 2025 within an adapted version of the Summer Treatment Program (Phillips, 2021). The following section outlines the research design, study setting, adjustments made to the current STP professional development practices, participant characteristics, the outcome measures employed, and the approach taken for data analysis.

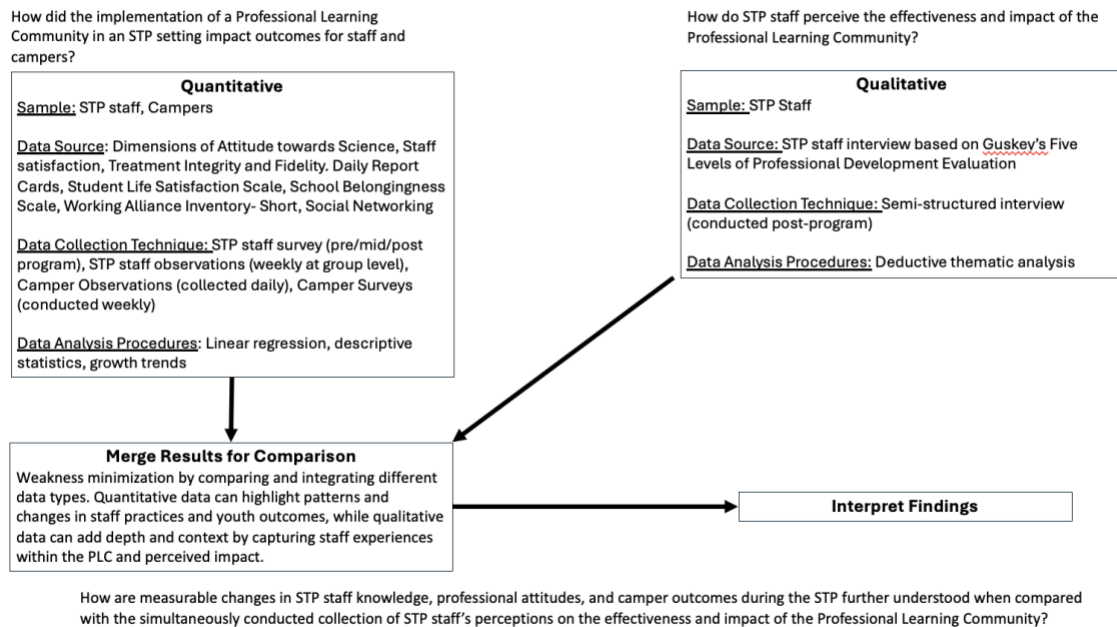
Research Design

A convergent mixed methods design was used for this descriptive study because it allows for the simultaneous collection and analysis of quantitative and qualitative data, providing a more comprehensive understanding of the impact of the PLC within the Summer Treatment Program. This approach is particularly appropriate given the absence of a control group, as it enables the triangulation of findings, which strengthens the validity of results by comparing and integrating different data types (Ahmed et al., 2024; Fetters et al., 2013). Quantitative data can highlight patterns and changes in staff practices and youth outcomes, while qualitative data can add depth and context by capturing staff perceptions and experiences. By leveraging the strengths of both methods and minimizing their individual weaknesses, the convergent design enhances the study's ability to describe complex, real-world phenomena in a naturalistic setting with meaningful validity (Fetters et al., 2013). A visual representation of this research design can be seen in Figure 2.

Figure 2

Convergent Mixed Methods Research Design

RESEARCH DESIGN: *Convergent Mixed Methods Design*



Setting

The setting for the current study was at Camp ANDY (Advance Autism ADHD and Neurodevelopment for Youth), a modified version of the STP located in Seattle, Washington. Camp ANDY is run through the non-profit organization, also named *Advance Autism, ADHD, and Neurodevelopment for Youth*.

Camp ANDY

Camp ANDY is an adaptation of the Summer Treatment Program with a few differences in terms of program structure and populations served (Phillips, 2021). One of the main differences between Camp ANDY and other STPs is that it is not limited to serving children with ADHD, as the program also services children with autism spectrum disorder (ASD) as well children with undiagnosed social and behavioral challenges. Camp ANDY is also a slightly shorter program than the typical STP. Camp ANDY's schedule includes a two-week training period to prepare staff and a five-week programming period for youth between the ages of six and twelve years that lasts for six hours per day, five days per week. To

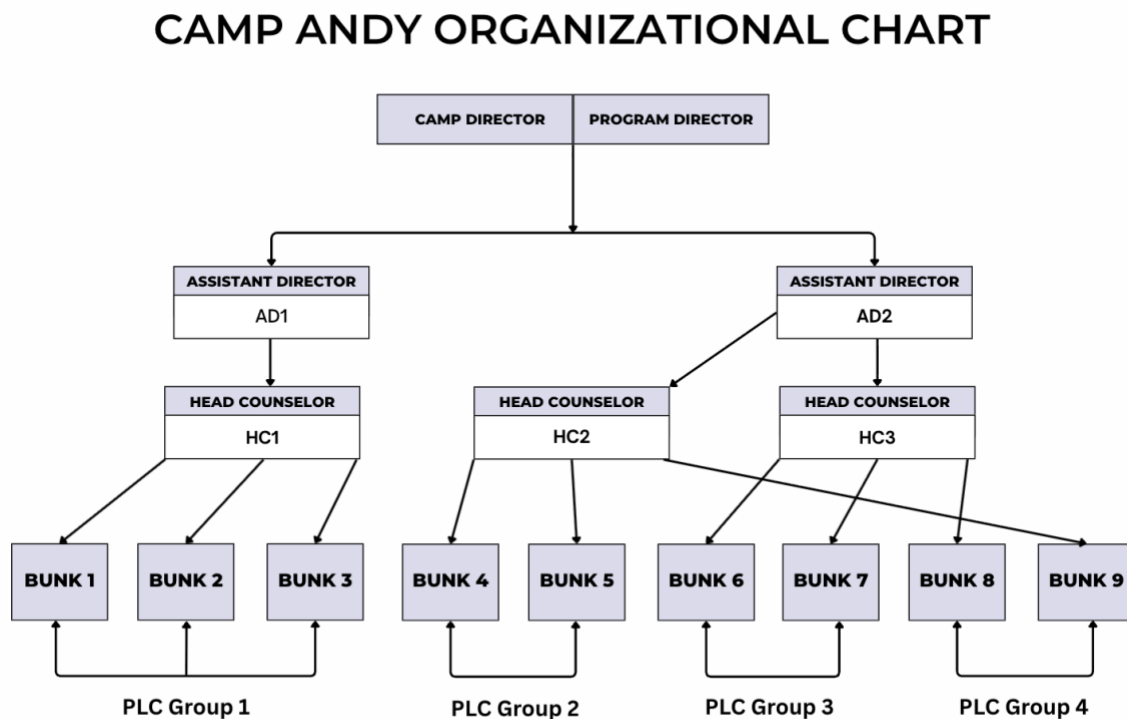
determine eligibility for the program, clinical staff at *Advance Autism, ADHD, and Neurodevelopment for Youth* screen youth for neurodevelopmental disabilities such as Attention-Deficit/Hyperactivity Disorder (ADHD), autism spectrum disorder (ASD), Oppositional Defiant Disorder (ODD), or other diagnosed or undiagnosed behavioral challenges. Children are eligible to participate in the program if they are between the ages of 6-12 years old, and have a diagnosis of ADHD, ASD, ODD or other diagnosed or undiagnosed behavioral challenges. Children with low cognitive abilities and/or receptive language skills, or who do not have ADHD, ASD, or other diagnosed or undiagnosed behavioral challenges are excluded from participating in the Camp ANDY program (Phillips, 2021). The reason for this exclusion criteria is because of the high frequency of verbal instructions and feedback that exist within the STP structure. Students are placed in bunks based on age, with the program including nine separate bunks of 12 to 15 students each.

The staff structure at Camp ANDY in the Summer of 2025 included 5-7 “Counselors” implementing the STP within each of the nine bunks. Counselors are primarily responsible for implementing the token economy system, running the daily STP activities, filling out data sheets, entering data, and maintaining tracking forms (Pelham et al., 2012). Of those counselors, one is designated a “Lead Counselor” who is responsible for making the daily schedule, overseeing the planning of each day’s activities, ensuring accuracy and completion of data tracking, and is typically the point-person for consulting on a student’s behavioral challenges and any additional supports that were needed (Pelham et al., 2012). Above the Lead Counselor are “Head Counselors”, who are supervisors with multiple years of experience implementing the STP and often contain advanced degrees. There were three Head Counselors in the summer of 2025, each supervising three bunks. Head Counselors are responsible for conducting “fidelity checks” to ensure adherence to the manualized program, providing praise and constructive feedback for counselors based on observations during the fidelity check, assisting with major behavioral escalations, and consulting on specific students that require

individualization of the behavioral intervention to meet their needs. Overseeing the Head Counselors are “Assistant Directors”. Two Assistant Directors were put in place to support the Head Counselors and assisted in consulting on unique behavioral challenges that were appearing in the camp, to provide counselor support to help specific staff with improving their implementation and relationship-building skills with students, and to communicate with parents to discuss student’s progress or create incentives at home for prosocial behavior while at camp. Finally, there were two “Directors” who conducted parent trainings, planned and executed daily staff meetings, and made executive decisions pertaining to staff placement and student supports when needed. A complete organizational flow chart can be seen in Figure 3.

Figure 3

Camp ANDY Organizational Flow Chart



Each bunk (1-9) contains 5-7 counselors, with one counselor designated as the Lead Counselor

Another difference between Camp ANDY and other STPs is that academic instruction is not included in the Camp ANDY program, distinguishing it from the traditional STP model which typically incorporates an Academic Learning Center (ALC). This exclusion was based on both logistical constraints, such as a shorter camp day (six hours versus the standard nine) and less resources like specialized staff and dedicated classroom space, and the program's emphasis on addressing social-emotional needs. Since academic sessions are uncommon in most summer camps and does not align with Camp ANDY's primary focus on fostering social development, the ALC component was intentionally not included.

The two-week Camp ANDY staff training period included information sessions on relevant diagnoses such as ASD, ADHD, and Oppositional Defiant Disorder (ODD). Staff also participated in role-play exercises designed to mirror typical daily camp activities such as group discussions, sports instruction, and social skills sessions. These simulations helped staff practice implementing the token economy system and managing behavioral escalations, including the use of time-out procedures. During training, staff listened to scripted examples of student behavior and are asked to classify the behaviors based on criteria outlined in the STP manual. Afterward, coding decisions were reviewed and discussed collectively to promote consistency and accuracy. As training progressed, staff were expected to complete behavior coding more independently and received corrective feedback as needed.

During the two-week training period Head Counselors were also trained in the facilitation of the PLC sessions by members of the director team. Trainings emphasized the five core features of PD as illustrated in the CCF (Desimone, 2009) (content focus, active learning, coherence, duration, and collective participation) and the five defining characteristics of PLCs as identified by Newmann et al. (1996) (1) shared values and norms, 2) focus on student learning, 3) reflective dialogue (engaging in constant discussions about student growth, curriculum, and instructional strategies), 4) de-privatizing practice (making practices more transparent and collaborative), and 5) collaboration (promote equitable and effective practices through interdependence).

Furthermore, one Research Counselor was selected from each staffing group (nine total). Research Counselors were standard Counselors within a group with the added responsibility of administering the weekly student surveys. Research Counselors received training from a director, both during the two-week pre-camp training period and throughout the program. The training focused on administering an adaptation of the School Belongingness Scale (SBS), adapted Working Alliance Inventory- Short Revised (WAI-S), and conducting social network mapping. This included learning and practicing scripted language used during measure administration. To build familiarity with the procedures, researchers watched instructional videos demonstrating the scripts and then engaged in peer role-playing exercises to refine their delivery and receive feedback (Courshon, 2023). The group's competency was assessed through observations from a Head Counselor and direct feedback sessions. Additionally, researchers were instructed on how to accurately score and input collected data.

Each PLC group also had one assigned Research Coordinator. PLC Research Coordinators received similar training to the group Research Coordinator, except they were oriented to track the quality of implementation of each PLC session using the PLC Implementation Fidelity Checklist (see Appendix A). To ensure accurate and reliable data collection, the PLC Research Coordinator underwent a brief but targeted training prior to the start of the program. This training included a review of the PLC protocol, item-by-item instruction on how to complete the fidelity checklist, and examples of varying levels of implementation. The training also emphasized maintaining objectivity, consistency, and a non-evaluative stance during observations to support the psychological safety of staff and the developmental goals of the PLC.

Ongoing supervision was maintained throughout the program via weekly fidelity observations, regular check-ins with Head Counselors, and triage meetings focused on supporting students with elevated needs (Phillips, 2021). Weekly fidelity checks took place during the STP manualized activities, such as sports games, meanwhile consultation occurred each day after camp once the students

departed. Consultation took place between a group's staff and a member of the leadership staff (Head Counselors, Assistant Directors, and/or Directors).

Finally, three Research Assistants (RAs) were trained by the principal investigator of this study to conduct semi-structured interviews through a one-hour session that included an overview of the interview protocol, role-playing practice, and a review of ethical considerations such as confidentiality, neutrality, and active listening. Research Assistants were current graduate students that had previously served in an STP but were currently unaffiliated with Camp ANDY or any other Summer Treatment Program to avoid bias. Following data collection, RAs were introduced to deductive thematic analysis using Jason et al.'s (2016) structured, six-step approach and aided in the qualitative data analysis.

Participants

Camp ANDY employs primarily undergraduate and graduate students representing diverse academic backgrounds such as medicine, education, psychology, nursing, speech-language pathology, occupational therapy, and related disciplines.

Inclusion Criteria

Participants eligible for this study included current staff members at the Counselor and Lead Counselor positions at Camp ANDY's STP during the study period of summer 2025. This decision was made because Counselor's and Lead Counselors would be the main participants of the Professional Learning Community and including leadership staff with years of STP experience would skew the overall staff data. For the purposes of this paper, the terms "staff member" and "counselor" are used interchangeably and refer to the same population of Counselor and Lead Counselor position holders unless otherwise specified.

To participate in the study, staff were required to be 18 years of age or older to ensure legal capacity to provide informed consent. Eligible individuals were willing and able to provide informed consent for all components of the research, including participation in surveys, interviews, and

observations related to PLC involvement and program implementation. Staff who were unable to consent were excluded from the study. This inclusion framework ensured the study captured relevant insights from those most directly influenced and enacted the program's core components. For the first phase of the study, 57 participants were recruited, 100% of the Camp ANDY staff, that met inclusion criteria and agreed to be part of the current study. The current study received approval from the University of Washington's Institutional Review Board (IRB ID #22899), qualifying for exempt status.

This research study does not include children as direct participants. The project involved a secondary analysis of de-identified child outcome data already approved by the University of Washington's IRB (IRB ID#22785). The child surveys were a part of routine Summer Treatment Program assessments. No new data was collected from children for the purposes of this study, and no changes were made to their camp experience or programming. All data involving children were collected for programmatic and/or previously approved research purposes and was used in this study solely to explore potential relationships between staff-level variables (e.g., participation in a professional learning community) and existing child outcome data. As such, the children were not considered participants in this study, and no additional assent or parental permission was required.

Procedures

Outcomes measured for the current study align with the Core Conceptual Framework's theory of progression (Desimone, 2009) from professional development to youth outcomes: staff satisfaction with the professional development, staff knowledge and skills, staff attitude, staff application of learned skills, and youth outcomes. The following section will discuss the recruitment and incentives for obtaining study participants, identify the sampling frame for each section of the study, detail the PLC implementation process, and describe the various data collection methods and how these were used to gather information pertaining to outcomes for each of the constructs.

Recruitment and Incentives

Participants from this study were recruited from the Camp ANDY STP in the summer of 2025. Staff at Camp ANDY were recruited from across the country and encompassed several disciplines including healthcare, education, and psychology. During the two-week training period before the program, staff were made aware of the opportunity to participate in the present study. During the consent process, staff were informed that STP supervisors may only access deidentified data at the conclusion of the program. They were assured that their participation and responses had no effect on their current job status or future employment opportunities.

Research has indicated that providing a small incentive, or the possibility of receiving one, can boost participation in survey-based studies. Social Exchange Theory backs these findings as it states that people seek equal cost-benefit relationships, so by offering a token of appreciation, that person was more likely to comply with requests that are placed on them (Dillman et al., 2009). To implement this approach, a raffle was held in which 12 staff participants were selected at random to receive a \$30 gift card from a retailer of their choosing. To qualify for the raffle, staff needed to complete all three staff surveys (pre-program, mid-program, and end of program). Winners were chosen using a random selection process in Microsoft Excel, which assigned each participant a unique identifier and applied a uniform random number function to determine the recipients. This process occurred in the last week of the program after the final survey was completed.

Sampling Frame

All students and staff at Camp ANDY who signed informed consent documents during the summer of 2025 were used as a sampling frame. A 100% participation rate amongst Counselors and Lead Counselors was achieved during the first survey timepoint, while an 89% participation rate was achieved for timepoints two and three. Quantitative measures encompassed the entirety of the sampling frame while the qualitative data collection utilized stratified random sampling. Staff were divided into two subgroups, one group that had prior experience with an STP, and one group of staff

who were new to implementing the STP in 2025. This distinction was made for two reasons, the first is that staff that had previously implemented the manualized STP had a baseline reference of what the program was like without the PLC. Research shows that educators that choose to return are more likely to have had a high job satisfaction the previous year (Lei et al., 2024), indicating a possible differentiating variable from new STP staff.

Six Counselors or Lead Counselors from each of the two respective sub-groups were then randomly selected to participate in the post-program interview, totaling 12 interviews within the study. This number was chosen because for most applied research aiming to understand common perceptions among a similar group of people, 12 interviews was found to be the number required to meet saturation within a research study (Guest et al., 2006).

PLC Implementation

During the five-week STP at Camp ANDY, participating STP staff engaged in a weekly PLC. The PLCs were divided by the nine age-determined student bunks that staff were assigned to at the beginning of the program. There were between five and seven counselors assigned to each student group, which remained consistent throughout the program. Additionally, there were three “Head Counselors” that supervised three of the bunks. Within this study there were four PLCs that were grouped based on the age of the students in the group. So, bunks 1-3 were paired together (PLC Group 1), bunks 4 and 5 were together (PLC Group 2), bunks 6 and 7 were together (PLC Group 3), and bunks 8 and 9 were paired together (PLC Group 4). PLCs took place once per week, for at least 30 minutes, and was supplementary to the existing end-of-day routine for counselor bunks which included completing Daily Report Cards for each student, triaging student concerns, and preparing for the following day. All four PLCs began week 1 of the program.

PLC discussion topics were informed by multiple sources. One such source is previous studies of STP staff that identified gaps in current STP PD practices, such as a lack of focus on equitable practices,

not enough opportunities to strengthen problem-solving skills, and insufficient feedback/coaching from supervisors (Obee et al., 2024). Additionally, PLC discussion topics stemmed from staff feedback, whether that be in the form of a request at the previous PLC session, a comment during the camp day, or an anonymous suggestion posted to counselor forum that the Head Counselors and Directors review. Finally, PLC topics derived from observations that were made by the leadership team (Head Counselors and Directors) throughout the camp week where staff seem to be struggling, or standardization was lacking. In general, topics discussed at these sessions ranged from specific practice with components of the STP manual (e.g. how to run a timeout properly or lead an effective bathroom transition), to how to handle situations not explicitly stated in the STP manual (e.g. escalated behaviors and how to facilitate peer relationships amongst students), to more general professional development skills (e.g. how to self-advocate effectively with a supervisor, how to seek, and respond to, feedback). Each week, a suggested PLC topic was presented to Head Counselors based on the above input. A full breakdown of the PLC topics recommended each week in each of the groups is listed in Table 1 below.

Table 1*Recommended PLC Discussion Topics*

Week 1	Week 2	Week 3	Week 4	Week 5
Reflecting on start of camp; being strong teammates	Executing the point system with fidelity	Supporting peer relationships and prosocial behavior	Professional development + Professionalism	Seeking, Receiving, and Implementing Feedback

To ensure the PLC intervention was delivered systematically and consistently across all groups, sessions followed a structured checklist developed in advance (see Appendix B for the complete PLC Checklist). Each PLC session was preceded by key leadership roles being assigned by the Head Counselor. Table 2 identifies these roles and each of their responsibilities.

Table 2

PLC Leadership Roles

Role	Responsibilities
<i>Facilitator</i>	• Collaborates to decide on PLC discussion topic and interactive activity • Guides conversation, keeps the group focused and on time • Encourages participation and redirects when needed. • Facilitator is the Head Counselor of each PLC
<i>PLC Liaison</i>	• Communicates needs of group staff and any topics they would like discussed in upcoming PLC sessions. • Appointed by Head Counselor at the beginning of the program. • One PLC Liaison per counselor group. Remains the same all summer.
<i>Note Taker</i>	• Takes summary notes of the discussion, capturing key points and strategies • Shares notes with the group or uploads to a shared folder for reflection or continuity • Appointed by Head Counselor each week. • One Note Taker per session. Rotates each week.
<i>PLC Research Coordinator</i>	• Completes Implementation Fidelity Checklist each week • Appointed by Head Counselor at the beginning of the program. • One PLC Research Coordinator per PLC group. Remains the same all summer.

Sessions followed a standardized structure to maintain fidelity, beginning with an introduction and counselor check-in, followed by a topic presentation by the Facilitator. An interactive activity aligned with the topic (e.g., discussion, role play, journaling, mindfulness) typically formed the core of the session, and the meeting concluded with a group check-out and co-staff shout-outs. To ensure fidelity to the model, the PLC Research Coordinator completed a weekly Implementation Fidelity Checklist during each session (see Appendix A for detailed checklist), documenting adherence to the protocol and the quality of delivery. This checklist guided staff facilitators through the planning, delivery, and reflection of each PLC session by clearly outlining essential responsibilities and session components such as assigning roles, introducing the topic, leading interactive activities, and facilitating closure. By completing the checklist, facilitators helped ensure consistency across PLC groups, support shared leadership, and contribute valuable insights for the ongoing refinement of PLC practices and staff development. Sessions were continuously adapted in response to staff feedback and observed group

dynamics, while maintaining core elements that upheld psychological safety, structure, and developmental relevance.

Data Collection

Staff Survey. A web-based survey instrument employing Microsoft Forms software was developed using items adapted from a previous pilot study (Prenger et al., 2018) in order to collect information on four of the identified constructs: staff satisfaction with the PLC, STP knowledge and skills, professional attitude, and staff application of learned skills. Additionally, demographics were collected. The staff survey was administered via email at three different time points, the end of staff training prior to the start of the STP program, during the third week of the program, and during the final week of the five-week program. For the pre-program survey (see Appendix C), data was collected on staff demographics, STP knowledge and skills, professional attitude, and application of learned skills (for returning staff only). The mid-program and post-program surveys (see Appendix D) collected data on all four constructs in addition to demographics. The decision to administer the “post-program” survey during the final week of the STP was done to ensure an adequate response rate before staff left the Camp ANDY setting at the conclusion of the camp.

To strengthen the validity and clarity of the assessment tool, the survey was piloted prior to full implementation. A small group of current Head Counselors within Camp ANDY was invited to complete the draft survey to provide feedback on item clarity, relevance, and flow. Revisions were made based on their input to improve question wording, reduce ambiguity, and ensure alignment with the study’s research questions.

To ensure confidentiality while enabling longitudinal data tracking, each staff member was assigned a unique, randomly generated identification number at the beginning of the study. These ID numbers were used across all data collection timepoints (pre-program, mid-program, and post-program) to match individual responses without collecting identifiable information. This method allowed for

secure linkage of staff survey data over time while protecting participant anonymity and minimizing potential bias.

All participants received reminder emails after initial surveys were sent out leading up to the survey deadline. If staff did not complete the survey by the designated time point, a reminder email was sent out within 48 hours of the original deadline. These follow-ups were conducted in a respectful manner to encourage participation while maintaining voluntary consent.

Staff Observations. Group observations of staff were conducted to assess staff's application of learned skills. Assessment for this construct resulted from monitoring adherence to the intervention protocols. Each age-based group was observed in-person approximately once per week for one hour by one of Camp ANDY's Head Counselors or Assistant Directors during designated activity sessions (such as a sports activity). Observations were conducted one group at a time, and the same observer did not necessarily assess the same group each week. After each observation, the corresponding staff team (counselors and Lead counselor for each group) received structured feedback.

Student Surveys. Another means to collect information on the construct of youth outcomes was via student surveys conducted on a weekly basis. This is part of the typical Camp ANDY data collection measures but was utilized in this study to inform the impact of staff experiences and measures on student outcome data. Throughout the five-week STP, students met one-on-one with the same trained researcher each week to complete self-report assessments on perceived sense of belongingness, student-staff relationship quality, and quantity of mutual peer relationships. The sessions were conducted in a calm, isolated space away from the main group while board game activities were underway. To ensure all participants received the same instructions, Research Counselors were in each session with a prewritten, consistent script (e.g., "Hi, my name is ___, and I'm going to ask you a few questions so I can get to know you better") and were also prepared to respond to questions or comments using predetermined phrases (e.g., "These questions help us understand how you're

experiencing camp”). Children were allowed to either speak their answers aloud or point to them, and Research Counselors documented each response accordingly (see Appendix E for the full student questionnaire). Each session lasted approximately five minutes. If a child missed their scheduled assessment (e.g., due to being absent), Research Counselors attempted to complete it the following day. If the child was unavailable for two days in a row, the data for that week was not collected. Parents were asked to provide demographic information prior to the start of the program for each student, so that data was not collected during the weekly survey.

Staff Interviews. To gain further information and additional context on the impact of the PLCs on staff experience, a semi-structured interview protocol was collected at the conclusion of the program by one of the Research Assistants. 12 staff interviews, by stratified random sample, was conducted, each of which lasted approximately 30 minutes. Staff were divided into two groups, new staff (1st year STP staff) and returning staff (2+ years of being STP staff). Six members from each group were randomly selected using a random number selector in Microsoft Excel based on staff’s unique, randomly generated identification number from the beginning of the study. All three surveys had to have been completed by staff to be eligible to be selected for the staff interview. Staff randomly selected to participate in the interview were notified in the final week of the program by the research assistant, and a time was scheduled within three weeks of the last day of the camp. The interviews explored staff perceptions of their PLC experience, including elements that aided and detracted from engagement with the format, knowledge and skills gained from the PLCs, challenges in implementation, observed effects of the PLC on student behavior, and overall satisfaction. Responses were audio-recorded and transcribed for thematic analysis. The open-ended nature of the questions allowed for in-depth exploration of individual experiences while also ensuring consistency across interviews for comparative analysis.

Similar to the staff survey, pilot interviews were conducted with former STP staff to ensure validity of this qualitative measure. A mock interview was held with research assistants to provide feedback on relevance of interview questions, length of the interview, and general flow. Revisions were made based on their input to improve question wording, reduce ambiguity, and ensure alignment with the study's research questions. This piloting process helped to ensure that the interview accurately captured staff experiences and perceptions related to the PLC.

Measures

The measures of the study are designed to explore the staff participant experiences as part of the PLC across a variety of dimensions, they include the staff demographic questionnaire, Faculty Self-Reported Assessment Survey (FRAS), Dimensions of Attitude towards Science (DAS), Teacher Professional Development (TPD), Camp ANDY Treatment Integrity and Fidelity (TIF) Measure, Implementation Fidelity Checklist, Guskey's Five Levels of Professional Development Evaluation, School Belongingness Scale (SBS), Working Alliance Inventory (WAI), and Social Network Mapping.

Camp ANDY Staff Survey

Staff background variables, in addition to perceptions of PLC satisfaction, STP knowledge and skills, professional attitudes, and application of learned skills were measured via staff survey at three points throughout the STP. The survey incorporated items from various validated assessment tools that align with the constructs of interest listed above. See Appendices C and D for the complete staff questionnaire.

Staff Demographic Questionnaire. Demographic information was collected from staff prior to the start of the program to provide contextual background and support analysis of potential group differences. Demographic variables included gender, ethnicity, educational background, prior experience working with neurodiverse youth, professional role (e.g., lead counselor, head counselor), and length of employment within the STP. The Demographic Questionnaire is included in Appendix F.

Faculty Self-Reported Assessment Survey (FRAS). The domains of *staff knowledge and skills and application of learned skills* both utilized the Faculty Self-Reported Assessment Survey (FRAS; Hanauer & Baurle, 2015). The FRAS is a comprehensive self-report instrument developed to measure STEM faculty members' knowledge, confidence, attitudes, and frequency of engagement with educational assessment practices (Hanauer & Baurle, 2015). Its primary purpose is to assess faculty familiarity with assessment terminology, their self-efficacy in applying assessment strategies, the frequency of their use, and their attitudes toward assessment (Hanauer & Baurle, 2015). The FRAS comprises four sections: (1) assessment vocabulary familiarity, (2) frequency of assessment activities (e.g., developing assessment plans, using formative feedback), (3) confidence in conducting assessment tasks (e.g., designing formative assessments, assessing students), and (4) attitudes toward assessment (e.g., perceived usefulness and comfort) (Hanauer & Baurle, 2015). Participants respond using five-point Likert-type scales tailored to each section, with higher scores reflecting greater familiarity, confidence, frequency, or positivity (Hanauer & Baurle, 2015). The two scales that were used in this study were the *confidence in conducting assessment activities* and the *frequency of assessment practice*. The confidence in conducting assessment activities ranges from 1 (strongly disagree) to 5 (strongly agree) while the frequency of assessment practice uses a five-point Likert scale from 1 (never) to 5 (always) (Hanauer & Baurle, 2015).

The psychometric properties of the confidence in conducting assessment activities and frequency of assessment practice sub-scales within the FRAS demonstrate strong reliability and validity for differentiating faculty expertise levels (Hanauer & Baurle, 2015). The confidence sub-scale exhibited excellent internal consistency (Cronbach's $\alpha = 0.93$) with all items retained based on item-total correlations, and successfully distinguished between advanced and novice faculty groups, with 11 of 13 items showing statistically significant differences at $p < .05$ and advanced faculty reporting higher confidence levels (Hanauer & Baurle, 2015). Similarly, the frequency of assessment practice sub-scale

demonstrated high internal consistency (Cronbach's $\alpha = 0.91$) following removal of one item that reduced overall reliability and exhibited known-groups validity with five of seven items significantly differentiating advanced from novice faculty at $p < .05$, particularly in areas like providing formative feedback (Hanauer & Baurle, 2015). The authors noted that while both sub-scales are psychometrically sound for monitoring faculty progress and identifying professional development needs, they measure self-reported awareness and attitudes rather than direct assessment of actual practice quality (Hanauer & Baurle, 2015).

The FRAS demonstrated strong psychometric properties across two validation studies: one assessing internal consistency and dimensionality, and another comparing known faculty groups (Hanauer & Baurle, 2015). Reliability was high, with Cronbach's alpha ranging from 0.91 to 0.96 across all sections, and item-total correlations also indicating strong internal consistency (Hanauer & Baurle, 2015). Principal components analysis of the vocabulary section revealed two distinct factors, program/instrument design and validation, which explained 53.6% of the variance, with faculty reporting the least familiarity with validation terms (Hanauer & Baurle, 2015). Known-groups validation further supported construct validity, as advanced faculty showed significantly higher scores than novices in assessment knowledge, practice frequency, confidence, and attitudes (Hanauer & Baurle, 2015). These results suggest the FRAS is a reliable and valid tool for assessing faculty members' self-reported assessment knowledge and engagement.

For the domain of *knowledge and skills*, six items were included based on the FRAS subsection *confidence in conducting assessment activities*, such as, "I am able to express care about my campers even when they do something that upsets me." Scored on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). For the domain of *application of learned skills*, 11 items were included based on the subsection *frequency of assessment practice*, for examples, "I have helped plan a social skills lesson." Scored on a five-point Likert scale from 1 (never) to 5 (always).

Dimensions of Attitude towards Science (DAS). *Staff professional attitudes* were measured using seven items that are adapted from the validated Dimensions of Attitude towards Science (DAS) scale developed by van Aalderen-Smeets and Walma van der Molen (2013). The items are on a five-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree”. This scale categorizes professional attitudes into three domains: cognitive beliefs, affective states, and perceived control and seven subscales (perceived relevance, perceived difficulty, gender beliefs, enjoyment, anxiety, self-efficacy, and context dependency). Confirmatory factor analysis with a large sample of 556 pre-service and in-service teachers confirmed the hypothesized seven subscale structure, with items loading cleanly onto their intended factors, demonstrating strong construct validity (Wang & Berlin, 2010). High internal consistency ($\alpha = .74-.93$) and strong intraclass correlation coefficients (ICCs) ($r = .44-.85$) further support the instrument's reliability and convergent validity (Wang & Berlin, 2010). For this study, items were selected to focus on the enjoyment subscale within affective states (e.g., “I enjoy working at Camp ANDY.”), the self-efficacy subscale within perceived control (e.g., “I can effectively self-advocate to a supervisor.”), the perceived relevance subscale within cognitive beliefs (e.g., “I think that the STP is a useful tool to aid in neurodiverse youth's development of social skills”), and the perceived difficulty subscale within cognitive beliefs (reverse scored), (e.g., “I think that most counselors at Camp ANDY find it difficult to implement the STP”).

Teacher Professional Development (TPD). *Staff PLC satisfaction* was assessed with nine items that are informed by the Teacher Professional Development (TPD) Monitor's (Richter & Richter, 2024) four domains (clarity and structure, cognitive activation, collaboration and practical relevance). The items are on a five-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree”.

The TPD Monitor is an 18-item measure created to examine the effectiveness of formal professional development activities, including workshops and training sessions, intended for general education teachers at all grade levels (Richter & Richter, 2024). All 18 items are scored on a four-point

Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree) (Richter & Richter, 2024). An example item is, “The aspects addressed in the PD course were relevant to my current professional practice.” The validation study involved a comprehensive investigation with a sample of 2314 in-service teachers participating in 173 unique TPD courses. The study demonstrated strong psychometric properties. Construct validity was supported through multilevel confirmatory factor analysis, confirming a four-factor structure, clarity and structure, practical relevance, cognitive activation, and collaboration, which outperformed a single-factor model (Richter & Richter, 2024). External validity was evidenced by significant positive associations between each quality dimension and participants’ behavioral engagement (Richter & Richter, 2024). The instrument also demonstrated strong internal consistency, with McDonald’s Omega ranging from .80 to .95 across levels, and high reliability for distinguishing course-level differences, as shown by ICC1 values (.26–.38) and ICC2 values (.82–.89). The range of .80 to .95 for McDonald’s Omega indicates good to excellent internal consistency across the different quality dimensions (clarity and structure, practical relevance, cognitive activation, collaboration) at both participant and course levels. This is interpreted similarly to Cronbach’s alpha ranges, but the values are likely more trustworthy because Omega doesn’t assume all items are equally weighted. Acceptable factor loadings at both participant and course levels further supported the tool’s reliability and validity in evaluating the quality of PD experiences (Richter & Richter, 2024). For this study, items were selected to focus on the clarity and structure dimension (e.g., “Our PLC uses our meeting time efficiently”), the practical relevance domain (e.g., “Our PLC produces high-quality strategies for our daily implementation of the STP”), the cognitive activation domain (e.g., “Our PLC incorporates elements of active learning (e.g., participated in role plays, received feedback, engaged in group discussions)”), and the collaboration domain, (e.g., “Our PLC encourages participation from all staff within the group”).

Camp ANDY Staff Observations

Staff observations were conducted to measure implementation fidelity of the STP staff.

Implementation fidelity is the level at which a program, curriculum, or intervention is executed as planned by its designers (Dane & Schneider, 1998; Dusenbury et al., 2003; Sundell et al., 2015). The goal of implementation fidelity is to make sure that the treatment effects remain consistent across various participant demographics and settings as variables change (Dane & Schneider, 1998; Dusenbury et al., 2003; Sundell et al., 2015). Establishing measures of implementation fidelity allows educators and clinicians to ensure causal relationships between an evidence-based practice and its outcomes (internal validity), that the practice is being executed as intended (construct validity), and the opportunity to improve generalizability by pinpointing crucial elements that make an evidence-based practice effective (Moncher & Prinz, 1991; O'Donnell, 2008; Stains & Vickrey, 2017).

Camp ANDY Treatment Integrity and Fidelity (TIF) Measure. The Camp ANDY Treatment Integrity and Fidelity (TIF) measure served as an observational tool to assess the degree to which staff adhered to the manualized STP protocol during intervention implementation. Within the context of this study, fidelity represented the behavioral manifestation of staff's application of learned skills, that is, the extent to which staff successfully translated knowledge and strategies gained through PLC participation into actual, observable practice with students. The PLC functioned as the professional development mechanism designed to enhance staff knowledge, skills, and attitudes related to evidence-based practices outlined in the STP manual. Application of learned skills, as measured by the TIF, thus served as the critical link between PLC-based learning and adherent implementation of the intervention protocol.

In this study, STP implementation fidelity was assessed through observations of staff at the group level during intervention implementation. While individual staff observations would lead to more rich findings, the staff resources at the supervisor level were too scarce to conduct such precise data collection. However, the group-level treatment integrity data collected in this study was still in

alignment with best practices detailed in Gearing et al. (2011). In their study, Gearing et al. (2011) identified the monitoring of intervention delivery as the core component of fidelity. Accordingly, adequate fidelity assessments include tracking how often specific behaviors or techniques are used during sessions (Moncher & Prinz, 1991; Waltz et al., 1993), noting whether or not critical intervention behaviors occurred (Waltz et al., 1993), and documenting the amount of intervention content provided to participants through checklists completed by facilitators (Dusenbury et al., 2003). Furthermore, practitioner competence, which reflects the proficiency with which a provider delivers the intervention, is an important component of implementation quality (Moncher & Prinz, 1991; Waltz et al., 1993). It is also crucial to consider aspects beyond adherence to technical procedures and include broader interpersonal and contextual skills within intervention monitoring. For example, determining the practitioner's ability to convey warmth and empathy (Bellg et al., 2004; Borelli et al., 2005), establish meaningful engagement with participants (Santacroce et al., 2004), and apply treatment protocols with appropriate nuance and responsiveness to participant needs (Perepletchikova et al., 2007) should be assessed. The Camp ANDY TIF measure addresses all of these necessary assessment components.

Observations were conducted using the Camp ANDY TIF measure, which is an adapted fidelity checklist based on the TIF developed by Pelham et al. (2012). The TIF Assessment for the Summer Treatment Program is a structured checklist developed to evaluate counselors' adherence to each core component of the STP manual, targeted behavioral interventions, group processes, reinforcement systems, and social skills support (Pelham et al., 2012). The scale includes 20 fidelity checklists (one for each program activity), which are designed to be completed by a supervisor weekly to assess how accurately staff implement manualized procedures (Pelham et al., 2012). An example of the TIF assessment is the observer rating the frequency of instruction/feedback provided in the activity on a scale from 1 (superior) to 7 (inadequate) (Pelham et al. 2012).

While the TIF checklists are integral to the STP's operation, specific psychometric properties, such as reliability coefficients or validity indices, of these checklists have not been reported on in peer-reviewed literature. Camp ANDY's version of the TIF differs from Pelham's manual (2012) in that it assesses more elements than the original TIF. For example, during game play the original TIF (Pelham et al., 2012) asks the observer to determine if the "Sport Leader monitored ongoing game to ensure that all children received proper instruction." The Camp ANDY version of the TIF includes specific elements of this responsibility, such as "Sport leader narrated game and made note of camper's performance," "Sports leader modeled enthusiasm," and "Sports leader had appropriate voice level." Additionally, the Camp ANDY version of the TIF tracks each counselor's quantity and quality of social reinforcement, which the original TIF does not use as an assessment measure. The inclusion of this component addresses the importance of staff's ability to go beyond the protocol procedure and convey warmth while establishing meaningful engagement with participants (Bellg et al., 2004; Borelli et al., 2005; Santacroce et al., 2004). The entire revised TIF can be found in Appendix E.

The TIF tool includes assessments of how well the activity lead led the group discussions, as well as the frequency and quality of positive reinforcement and skills-related feedback (Pelham et al., 2012). All elements of the activity are scored to determine treatment adherence to a specific activity as it is outlined in the STP manual (Pelham et al., 2012). For example, the timing of when the activity is supposed to start is graded on a 0-3 scale, with 3 points for being on time, 2 points for being 5-6 minutes late, 1 point for being 7-10 minutes late, and 0 points for being more than 10 minutes late to start the activity. Another example is in the pre-activity discussion assessment; one point is given for each required element of the discussion (i.e. reviewing recreational activity rules and discussing the social skill and how it can be used in the game). The pre-activity discussion contains seven elements, meaning bunks can score between 0-7 points for this section of the TIF. In total the bunk can earn up to 100 points. Bunk procedural fidelity for this study was calculated by adding up all points earned based on the

various assessment categories, dividing that number by the total possible points (100) and multiplying by 100. Strong integrity levels are noted to be between 80% and 100%, whereas levels below 50% are viewed as weak (Pereplechikova & Kazdin, 2005).

Implementation Fidelity Checklist. To assess the degree to which the PLC was being implemented as intended, a structured PLC Implementation Fidelity Checklist was used based on the structure highlighted in Golden et al. (2025) (see Appendix A for the complete checklist). This tool, which is completely separate from the TIF, includes key components of the PLC protocol, such as topic relevance and role assignment, session structure (e.g., introduction, staff check-in, exemplar sharing, interactive activities, and shout-outs), and elements of supportive group culture (e.g., psychological safety, distributed leadership, and staff engagement). Observers (e.g., trained research staff) will complete the checklist during or immediately following each PLC session. Each item was rated on a 3-point scale: 0 = Not Implemented, 1 = Partially Implemented or Inconsistent, and 2 = Fully Implemented. Items not applicable to a specific session was marked “N/A.”

Total fidelity scores were calculated by summing the ratings of all applicable items and dividing by the total possible points, allowing for the tracking of fidelity over time and across bunks. Checklist data was reviewed weekly to ensure consistency across facilitators and to provide feedback to PLC leaders if key components are missed or need improvement. Observational data also informed adjustments to PLC content or delivery based on observed implementation gaps.

Guskey’s Five Levels of Professional Development Evaluation

STP staff perceptions of the PLC impact were assessed via semi-structured interviews that were developed based on Guskey’s Five Levels of Professional Development Evaluation (2000). The interview protocol was designed to capture rich, descriptive data about staff experiences, learning, implementation, and perceptions of the effects of PLC participation on youth outcomes. The interview included 11 open-ended questions aligned with the five levels: participant reactions, participant

learning, organizational support and change, use of new knowledge and skills, and student learning outcomes. The chronology of the interview questions was informed by Guskey (2000), who found that the Five Levels of Professional Development Evaluation are structured hierarchically, meaning positive impact at the lowest level (participant reactions) is typically necessary to see positive impact at subsequent levels (Guskey, 2000). An additional sixth level, social validity, was included to include an additional complimentary way to assess the perceived relevance, usefulness, and satisfaction with the PLC experience (see Appendix F for the full interview protocol).

Student Surveys

School Belongingness Scale (SBS). Student perceived sense of belongingness was assessed using adapted items from the School Belongingness Scale (SBS) (Arslan & Duru, 2016). The SBS is a 10-item self-assessment measure that captures feelings of being accepted, supported, and included by peers and teachers (Arslan & Duru, 2016). The assessment contains half positively worded items (e.g., “I can really be myself at school”) and half negatively worded items (e.g., “I feel myself excluded in this school”) (Arslan & Duru, 2016). Responses are rated on a 4-point Likert scale from “almost never” to “almost always”, with reverse scoring for the negatively worded items (Arslan & Duru, 2016). The Camp ANDY belongingness subscale includes five of the ten items from the full scale that are exclusively positively worded and based on the SBS items (e.g., “I am accepted at Camp ANDY”). The SBS assessment tool has demonstrated strong psychometric properties across both middle and primary school populations, though with some variation in factor structure and validity strength (Canublat et al., 2020; Direcki et al., 2020). SBS contains two 5-item subscales: social inclusion and social acceptance (Arslan & Duru, 2016).

The SBS assessment tool has demonstrated strong psychometric properties across contexts. In one study that evaluated the psychometric properties of the SBS with 324 Iranian students aged 12–18 demonstrated strong validity and acceptable reliability (Arslan et al., 2022). Confirmatory factor analysis supported a two-factor model, school inclusion and school exclusion, as indicators of a higher-order

construct of school belongingness, showing acceptable fit (e.g., CFI = .92, RMSEA = .072) (Arslan et al., 2022). Factor loadings ranged from .40 to .61 (Arslan et al., 2022). Concurrent validity was established through significant, moderate-to-large negative correlations between school belonging and emotional, behavioral, and peer-related problems (e.g., $r = -.42$ to $-.51$), and positive correlations with prosocial behavior ($r = .43$) and academic achievement ($r = .35$) (Arslan et al., 2022). Internal consistency reliability was adequate, with Cronbach's alpha values ranging from .62 to .73 for subscales and .73 for the overall scale (Arslan et al., 2022). Previous research on the original SBS reported reliability coefficients between .70 and .86 (Arslan & Duru, 2016), affirming the scale's consistency across contexts. The full student survey can be found in Appendix D.

Working Alliance Inventory (WAI). Student-staff relationships were assessed through student survey items from the Working Alliance Inventory- Short (WAI-S) (Tracey & Kokotovich, 1989). The Working Alliance Inventory (WAI) (Horvath & Greenberg, 1989) is the most prevalent assessment of practitioner-client relationships (Paap et al., 2022). Bordin's framework (1979) informs both the WAI and WAI-S, which views the therapeutic alliance as a cooperative partnership between therapist and patient, grounded in shared goals and a strong emotional connection. The WAI-S consists of 12 items, divided into task, goal, and bond dimensions, and is rated on a 5-point Likert scale from 1 (never) to 5 (always) (van Benthem et al., 2024). An example item from the task domain is, "What I do in this treatment gives me more insight into my problems.", an example item from the goal domain is, "The therapist and I work on treatment goals we both agreed upon.", and an example item from the bond domain is, "I believe the therapist likes me." (van Benthem et al., 2024).

Previous studies of the WAI and WAI-S failed to identify three-dimensional structure in working alliance when it came to youth populations. Van Benthem et al. (2024) resolved these issues by utilizing multilevel confirmatory factor analyses to account for the hierarchical structure as well as changing the wording of certain items to go from being negatively worded to positively worded. The findings revealed

that the traditional three-factor model could not be reliably estimated for youth. Instead, a two-factor model of combining Task and Goal items into a single Collaboration factor was found to be the best fit (van Benthem et al., 2024). In terms of internal consistency, as measured by Cronbach's alpha, the WAI-S demonstrated acceptable to strong reliability (van Benthem et al., 2024). For the youth-report version during the initial session, alpha coefficients were 0.73 for the Task subscale, 0.71 for Goal, 0.76 for Bond, 0.84 for the combined Collaboration factor, and 0.88 for the total scale. The modified two-factor model also showed good goodness-of-fit. The latent variable correlation between Bond and Collaboration factors was 0.62 at first session and 0.61 at two months, indicating they are related yet distinguishable (van Benthem et al., 2024). This finding of a two-dimensional construct for youth suggests youth may distinguish between relational and collaborative aspects of alliance, possibly due to utilizing exclusively positively worded items, as is utilized in the Camp ANDY student survey.

Within the Camp ANDY student survey, items that were administered were informed by both the collaboration domain, (e.g., "I am confident in my counselor's ability to help me.") and the bond domain, (e.g., "My counselors and I trust one another."). The full student survey can be found in Appendix D.

Social Network Mapping. In the current study, the quantity of student's peer relationships was assessed as a youth outcome measure. This is because facilitating peer relationships was a focus of various PLC sessions, and it has been demonstrated that children with ADHD face a significantly higher level of social rejection compared to their peers (Barkley, 1990). Student's peer relationships were assessed by counting the number of mutual friendship nominations students received each week during the STP. Rather than focusing on one-sided nominations (either given or received), only reciprocal nominations were considered, offering a better representation of established, two-way peer connections. This method is grounded in the social network mapping approach, a widely accepted tool for examining peer perceptions, social reciprocity, and experiences of peer exclusion among children

(Anderson et al., 2016; Blachman & Hinshaw, 2002; Chamberlain et al., 2007; Kasari et al., 2012; Locke et al., 2010; Marton et al., 2015). Social network mapping has been effective in assessing the peer relationships of children with ASD and ADHD, as well as to monitor social progress in youth participating in the STP (Mikami et al., 2010; Pelham et al., 2000). In line with established procedures (Chamberlain et al., 2007; Kasari et al., 2012; Locke et al., 2010), students were asked to freely list peers from their bunk with whom they enjoyed spending time. There was no minimum or limit on the number of peers they can name. Mutual friendships were identified when a student's nomination was also returned by the peer they listed. Only nominations involving peers within the same student bunk were counted for this study. This study utilized weekly mutual friendships as a frequency count to determine trend patterns week over week. The student peer relationship table can be located in the Camp ANDY Student Questionnaire (Appendix D).

Data Analysis

In this mixed methods study, quantitative analyses utilized multilevel modeling to examine changes over time in staff and student outcomes, accounting for nested and repeated measures. Qualitative analysis explored staff perceptions of the PLC, focusing on facilitators, barriers, and perceived impacts on practice and student outcomes. Finally, a convergent mixed methods approach integrated findings across data sources using a joint display matrix to provide a more comprehensive understanding of PLC implementation and its influence on staff development and student experiences.

Quantitative Data Analysis

To address research questions 1A, 2A, 2B, 2C, and 2D descriptive statistics and multiple linear regression were utilized. This method accounts for the hierarchical structure and repeated measurements within the data, including: three repeated assessments of staff satisfaction, staff professional attitudes, and student-staff relationships (Level 1) nested within 57 STP staff members (Level 2), as well as five repeated evaluations of student belongingness and student-staff relationships

(Level 1) nested within 9 student groups (Level 2). For research question 3, correlational analysis was deployed.

Staff outcomes were measured at three timepoints corresponding to key program phases: pre-program (Week 0, before the PLC began), mid-program (Week 3, during active PLC implementation), and post-program (Week 5, after PLC completion). Timepoints were coded categorically rather than as continuous weeks for several methodological and theoretical reasons. First, categorical coding aligns with the conceptual framework of professional development evaluation, which emphasizes meaningful program milestones rather than linear time progression (Desimone, 2009; Guskey, 2002). Second, this approach facilitated alignment across multiple data sources (staff surveys, fidelity observations, and camper outcomes) that were collected on different schedules throughout the five-week program. Third, categorical specification allowed for testing of non-linear growth patterns, as change during the active learning phase (Weeks 0-3) was expected to differ from consolidation during the latter phase (Weeks 3-5). Finally, this coding methodology enabled direct comparison of specific program phases (e.g., Pre vs. Post) without assuming equal intervals or inserting unobserved timepoints, which is consistent with standard practices in professional development research.

Multiple models were tested to identify the most appropriate trajectory of change over time. After establishing the best-fitting time model, predictors influencing the growth parameters were introduced. Both linear and quadratic growth terms were examined, and model selection was guided by comparisons of Bayesian Information Criterion (BIC) scores alongside likelihood-ratio tests. Additionally, PLC group membership was incorporated as a Level 2 predictor to better account for baseline dependencies (i.e., at the program's first week).

The multilevel analysis approach offers two advantages over other modeling choices. First, use of random, rather than fixed, effects for clustering variables allows for decomposition of lower-level effects into separate variance components between and within providers. Second, it enables the

predictor effects to be tested with (a) correct degrees of freedom and (b) at their appropriate levels.

An alpha of .05, 2-tailed, was used for all statistical tests. To assess the overall model performance, classification accuracy was reported. Last, data visualization of model-predicted values were implemented using the 'ggplot2' package (Wickham, 2016); interaction term predicted values were extracted with the 'effects' package (Fox & Weisberg, 2019). Finally, descriptive statistics such as interclass correlations (ICCs), means, standard deviations, and zero-order correlations were calculated and reported for all variables.

Research Question 1A, How did STP staff rate their satisfaction with the PLC, and did satisfaction vary by staff demographic characteristics? For this research question, the dependent variable is STP staff satisfaction with the PLC, measured as a mean composite score at the mid-program and post-program timepoints across nine relevant items on the staff survey (each rated on a five-point Likert scale). Independent variables include staff demographic characteristics such as education level, ethnicity, gender, as well as contextual factors such as STP experience, experience with neurodiverse youth, and PLC group assignment. Descriptive statistics will first be computed to summarize central tendencies and distributions of all study variables.

To examine differences in staff satisfaction across demographic characteristics and PLC group membership, a series of between-group comparisons were conducted. Specifically, Welch's independent samples t-tests were used to compare mean satisfaction scores between binary demographic groups, including gender (female vs. non-female), ethnicity (White vs. non-White), education level (high school vs. undergraduate and above), and STP experience (new vs. returning staff). To examine whether satisfaction changed significantly across the two timepoints within each subgroup, paired samples t-tests were conducted separately for each demographic group. To examine differences across the four PLC groups, a one-way ANOVA was conducted at the overall, mid-program, and post-program levels. Where statistically significant group differences were identified, follow-up paired samples t-tests were

conducted within each PLC group to evaluate within-group change across timepoints. Model assumptions, including normality of residuals and homogeneity of variance, were evaluated prior to interpretation, with Welch's corrections applied where appropriate to account for unequal variances across groups.

Research Questions 2A-2C, To what extent does time, as a function of PLC participation, predict changes in staff-reported knowledge and skills, professional attitudes, application of learned skills, and staffing groups' adherence to the STP manual across three timepoints (pre-program, mid-program, and post-program)? To analyze this question, a descriptive statistics and linear multilevel modeling approach was used. The dependent variables include staff-reported mean scores on STP knowledge and skills, professional attitudes, and application of learned skills, measured at three timepoints, pre-program, mid-program, and post-program. Staff-reported outcomes were measured as mean composite scores across relevant survey items at each timepoint, while observed adherence to the STP manual was assessed by a member of the program leadership team using the TIF checklist, scored on a 100-point scale. The independent variable is time, treated as a fixed effect, while staff ID was included as a random effect to account for the repeated measures nested within individual participants. For implementation fidelity, multilevel modeling additionally accounted for the nesting of individual staff members within bunks, where each bunk shares the same observed fidelity score.

Linear multilevel modeling is well-suited for analyzing longitudinal data with repeated observations, as it handles unbalanced data and missing responses more flexibly than traditional repeated measures ANOVA. It also allows for modeling individual variability in responses over time. Fixed effects were used to examine overall trends in staff outcomes across the three timepoints, while random intercepts will control for baseline differences between individuals, such as staff being nested within different bunks and different PLC groups. Prior to interpreting model results, the intraclass correlation coefficient (ICC) was examined for each outcome to evaluate the degree to which

variability in scores was attributable to between-person versus within-person differences, and to confirm the appropriateness of the multilevel modeling framework. Across all three constructs, timepoint remained the primary fixed effect, and including additional predictors such as PLC group and demographic variables did not significantly improve model fit, yielding parsimonious models that captured longitudinal trends while accounting for individual differences. For implementation fidelity, model comparisons were conducted using likelihood ratio tests to evaluate whether the addition of a PLC group by timepoint interaction term significantly improved model fit beyond a time-only model, allowing for examination of whether fidelity trajectories differed meaningfully across PLC groups. The formulas for each model were as follows.

$$\text{Knowledge}_{ij} = \gamma_{00} + \gamma_{10}(\text{Timepoint})_{ij} + U_{0j} + r_{ij}$$

$$\text{Application}_{ij} = \gamma_{00} + \gamma_{10}(\text{Timepoint})_{ij} + U_{0j} + r_{ij}$$

$$\text{Beliefs}_{ij} = \gamma_{00} + \gamma_{10}(\text{Timepoint})_{ij} + U_{0j} + r_{ij}$$

Additionally, between-group comparisons were conducted across staff demographic characteristics, including gender, ethnicity, education level, and STP experience, using Welch's independent samples t-tests to examine whether mean scores on each outcome differed significantly across subgroups. One-way ANOVAs were conducted to examine differences across the four PLC groups, with Tukey's HSD post-hoc comparisons applied where overall group differences were statistically significant. Descriptive statistics, including means, standard deviations, and ranges, were reported for each outcome at each timepoint to support interpretation of findings and to summarize staff responses across demographic characteristics and PLC group membership.

Research Question 2D, to what extent does time, as a function of PLC participation, predict changes in students' overall self-reported mean ratings of student-staff relationship quality, perceived sense of belongingness, and quantity of mutual peer relationships, and are there significant associations among these overall mean scores? To answer this research question linear multilevel

modeling was used. This question utilized secondary analysis of de-identified child outcome data from routine STP assessments. This method is appropriate given the repeated-measures nature of the data, with student surveys collected weekly over the five-week program. Descriptive statistics (means, standard deviations, and ranges) were first calculated to provide an overview of the distribution and central tendency of the key variables at each program phase. These summaries aid in detecting any outliers and inform the interpretation of subsequent analyses. Three student-reported outcome variables served as the dependent variables in this analysis. Student-staff relationship quality, referred to throughout as alliance, was measured weekly across five items rated on a five-point Likert scale, with higher scores reflecting stronger perceived connections between students and staff. Perceived sense of belongingness was similarly measured weekly across four items rated on a five-point Likert scale, with higher scores indicating a greater sense of inclusion and connection within the STP community. Notably, due to age-based recommendations for the survey instruments, alliance and belongingness data were collected only from students in Bunks 4–9, corresponding to PLC Groups 2–4, students in younger bunks were excluded from these two measures. Quantity of mutual peer relationships was assessed weekly through an open-ended nomination procedure in which students listed their current friends. Mutual friendships were operationally defined as instances in which a student's nomination was reciprocated by the peer they identified, providing an objective behavioral indicator of students' social integration within the program. Although data for all three outcomes were collected on a weekly basis, weekly observations were collapsed into three program phases to align with the measurement schedule used for other study variables. Weeks 1–2 were classified as pre-program, Weeks 3–4 as mid-program, and Week 5 as post-program. Additionally, individual student-level findings were aggregated to the bunk level, with results summarized across PLC Groups to facilitate comparison with other program-level outcomes.

Linear multilevel modeling accounts for the within-subject correlation of responses over time,

as well as the nesting of repeated bunk-level observations within bunks across timepoints. Program phase was operationalized as a numeric fixed effect to examine linear change across the program. For each outcome, a time-only model was first estimated to assess the main effect of program phase, followed by a full model incorporating a Time $\times$ PLC Group interaction term to test whether trajectories of change differed as a function of PLC Group membership. The two models were subsequently compared via likelihood ratio tests to evaluate the extent to which PLC Group membership improved the explanation of outcome trajectories beyond time alone. Bunk was included as a random intercept to account for the clustering of repeated observations within the same bunk across timepoints. Student demographic variables were not included as covariates in the primary analyses, as data were aggregated to the bunk level and individual-level demographic information was not available in the de-identified secondary dataset.

Research Question 3, are there significant associations within and between staff-reported PLC outcomes (knowledge, professional attitudes, application of learned skills, and implementation fidelity) and students' self-reported social experiences (student-staff relationship quality, sense of belongingness, and quantity of mutual peer relationships) at the group level, and how do co-occurring qualitative codes across staff-reported PLC constructs further inform the nature of these associations?

To address this question, correlational and regression analyses were conducted at two levels of analysis. Within-staff associations were examined at the individual level using post-program data from 51 staff members to evaluate the degree to which staff-reported knowledge, professional attitudes, and application of learned skills were correlated at the conclusion of the program. Associations within student-reported social experiences were similarly examined at the post-program timepoint using correlational analyses to characterize how alliance, belongingness, and peer relationships related to one another within the student sample. It is important to note that correlations were only able to be calculated with staff and students from PLC Groups 2-4 given the appropriateness of the alliance and

belongingness scales. Associations between staff and student outcomes were examined using data averaged at the group level to account for the different units at which staff and student data were collected, with correlational analyses conducted first to characterize the direction and magnitude of associations, followed by regression analyses to evaluate the extent to which staff-reported PLC outcomes predicted student social experiences. This approach is appropriate given the aggregated nature of the group-level data and the small sample size, which limits the feasibility of more complex multilevel modeling. Prior to analysis, descriptive statistics were calculated for all key variables to summarize central tendencies and variability across staff and student outcome measures.

The independent variables in the cross-level analyses include staff self-reported knowledge and skills, professional attitudes, application of learned skills, and observed adherence to the STP manual (fidelity), each averaged at the group level across timepoints. The dependent variables are students' bunk-level mean ratings of student-staff relationship quality (alliance), perceived sense of belongingness, and quantity of mutual peer relationships, averaged across timepoints for each bunk. This analytic strategy will allow the identification of associations between staff characteristics and student outcomes while acknowledging the limitations of sample size and aggregated data.

Qualitative Data Analysis

Within this study, qualitative data analysis was used to answer the research question 1B, "What did STP staff perceive to be key facilitators and barriers of PLC effectiveness?", as well as throughout question 2 which looks to answer questions regarding how STP staff perceived the impact of the PLC on the different construct variables (Knowledge and Skills, Professional Attitude, Application of learned Skills, and Student Outcomes).

Qualitative data were derived from semi-structured post-program interviews conducted with a subset of STP staff at the conclusion of the program. A total of 12 staff members were selected for interviews using a purposive sampling strategy designed to ensure representation across prior STP

experience. Purposive sampling was employed rather than random selection to maximize the diversity of perspectives captured across the sample and to ensure that the qualitative data reflected the range of experiences present across the four PLC groups. All participants provided informed consent prior to participation, and interviews were audio-recorded and subsequently transcribed verbatim to facilitate systematic analysis.

Thematic analysis was used to answer these questions by interpreting interview transcripts through the identification of common themes or patterns throughout the dataset. Analysis of this nature does not begin until all data has been collected (Jason et al., 2016). Themes can include implicit or explicit ideas that come from various components of the data. A theme must encapsulate a significant aspect relevant to the research question and resonate with multiple participants' experiences. The qualitative data analysis process initiates with coding the raw text and progresses to identifying important aspects of the text, recognizing recurring concepts, and subsequently organizing them into thematic clusters. Finally, the process moves towards theoretical construction (Jason et al., 2016). Jason et al. (2016) breaks down thematic analysis into six steps as listed below, with this study's planned application of this process noted under each stage:

Stage 1. The participants of the qualitative data analysis were the three Research Assistants (RAs) and the principal investigator (PI) of this study. They are referred to as the *research team* from this point forward. In this stage, the research team transcribed interviews and read transcripts repeatedly while taking notes on potential coding categories. For stage 1 analyses, the research team were each assigned three transcripts to read through and independently take notes on during this process.

Stage 2: Generating initial codes. At this stage, the research team noted as many potential codes as possible. At this point, the research team individually identified common words and phrases in the transcripts as they pertained to the identified constructs. After reviewing common phrasing, the research team independently identified initial codes, then collaborated to resolve any discrepancies and

reach consensus. This process is backed by O'Connor and Joffe (2020), who emphasized training at least two coders, having them work independently, and then using dialogue and consensus to resolve disagreements. After this process, the research team operationally defined each code and included 1-2 examples from the transcripts to help with the placement of each item into a specific coding categorization to aid in analysis.

Stage 3: Searching for themes. In this stage, the research team solidified the existing codebook through iterative deliberations, clarifying any ambiguous definitions or getting rid of redundant codes. They then considered how different codes fit together into broader themes. Codes were developed using deductive thematic analysis, using the identified constructs that stem from the Core Conceptual Framework (STP staff's perception of facilitators and barriers of the PLC, and impact of the PLC on staffs' knowledge and skills of the STP, staffs' professional attitudes, staffs' application of learned skills, and student outcomes). As patterns emerged in the data set, the thematic construction utilized more deductive reasoning. The research team analyzed the codebook as well as the CCF framework to identify overarching themes that emerged from the data and aligned with the CCF framework.

Stage 4: Reviewing themes. Once each coder independently reviewed each transcript and item response to label the code(s) that applied to each data point, the research team convened to garner consensus on the codes of each response using the same methodology as when the initial codes were created. Code definitions were updated at this point to reflect the distinctions made during this process. Additionally, the themes were reviewed at the conclusion of this process once the prevalence of each code was established.

Stage 5: Defining and naming themes. Further refinement of the themes. Themes were solidified and defined at this point in the study by incorporating the finalized version of certain code definitions while also factoring in CCF framework and definitions of its core elements.

Stage 6: Producing the report. The reliability of the thematic analysis was supported using a collaborative codebook and double-coding procedures. The research team first independently reviewed a sample of responses to identify preliminary codes and then worked together to develop a finalized codebook with clear definitions and examples for each thematic code. Using this codebook, all transcripts were double coded by two members of the research team. Coders then met to compare and discuss any discrepancies, and consensus was reached through discussion guided by the codebook. This process ensured consistency in code application before the remaining transcripts were coded individually. After coding was complete, the final themes were mapped onto the corresponding CCF core concepts to support analysis and interpretation.

After coding was completed, themes were analyzed to determine their relative prevalence within and across the major constructs. This analytical approach reflects an intentional use of quantitizing, the numerical transformation of qualitative data into quantitative form, as a strategy for enhancing the interpretability of qualitative findings within the broader mixed methods design (Sandelowski et al., 2009). Quantitizing specifically aids with mixed methods research by allowing for the blending of qualitative and quantitative data sets, moving beyond surface level comparisons toward meaningful integration (Sandelowski et al., 2009). Quantitizing was used not to replace the qualitative analysis, but to strengthen it, helping to identify patterns across themes that might be difficult to detect through narrative review alone (Halevi Hochwald et al., 2023). Consistent with these principles, the most frequently endorsed themes within each construct were identified by calculating total references and the number of participants who endorsed each theme. Endorsement patterns were then examined across the four PLC groups to identify group-level variation, as well as descriptor discrepancies such as ethnicity and prior STP experience that appeared to influence how staff discussed particular concepts. Notable quotes were selected to illustrate key findings and provide representative examples of each theme, ensuring that the qualitative analysis captured both the breadth and depth of staff perspectives

and that the richness of narrative data was incorporated alongside the quantifying analysis (Sandelowski et al., 2009).

Mixed Methods Data Analysis

Mixed methods analysis was used to analyze and integrate quantitative and qualitative data collected from STP staff and students using a convergent mixed methods design. Quantitative data from staff surveys, student surveys, and observed adherence to the STP manual were analyzed using descriptive statistics, linear regression, correlational analysis, and linear multilevel modeling to identify trends and predictors over time for staff and student outcomes during the manualized STP summer camp. Qualitative data from post-camp staff interviews was analyzed thematically to identify STP staff perceptions of their satisfaction with the PLC, key facilitators and barriers to effectiveness of the PLC, and the perceived PLC impact on their growth as practitioners.

To integrate findings, a joint display matrix was used to visually and narratively connect qualitative themes with corresponding quantitative results. For instance, themes related to staff perceptions of PLC usefulness and support were aligned with satisfaction ratings and observed fidelity scores to determine how perceptions relate to implementation quality. Student outcomes were interpreted alongside staff implementation trends, allowing for a more comprehensive understanding of how changes in staff practice influence student experiences. This integration strategy supports triangulation, identifies areas of convergence or divergence, and provides key contextual insight into the ways in which PLC participation may influence both staff development and student well-being. Differences between the quantitative and qualitative datasets were treated as opportunities for deeper inquiry rather than inconsistencies to be resolved. Divergent findings reflect important contextual factors in individual experiences that aren't fully explained by one method.

Results

This chapter presents the quantitative and qualitative results from the data collected during the summer of 2025 at Camp ANDY. Analyses examined satisfaction with the Professional Learning Community (PLC), as well as what made it more or less effective, changes in staff knowledge, attitudes, and application of learned skills following participation in the PLC, in addition to associations between staff and student outcomes. Demographic information is presented first, followed by a breakdown of each construct (PLC Satisfaction and Effectiveness, Knowledge and Skills, Professional Attitude, Application of Learned Skills, and Student Outcomes), including significant quantitative results and qualitative themes that provide context and deeper insight into those findings.

Survey Participants

Overall, demographic characteristics, including gender, education level, ethnicity, and experience, remained consistent across timepoints, suggesting stable participation and representativeness throughout the program. For more detailed sociodemographic information, see Table 3. All staff members (N = 57) were invited to participate in the study, with all 57 responding to the pre-camp survey, and 51 participants completing both the mid-camp and post-camp surveys (89.5% response rate). Across all timepoints, most participants identified as cis-female (pre: 73.7%; mid: 72.5%; post: 74.5%), with smaller proportions identifying as cis-male (pre: 15.8%; mid: 15.7%; post: 17.6%), non-binary (pre: 7.0%; mid: 7.8%; post: 5.9%), trans-male (pre: 1.75%; mid: 1.96%; post: 0.0%) or preferred not to disclose (pre: 1.75%; mid: 1.96%; post: 1.96%). In terms of education, most participants had completed high school (pre: 52.6%; mid: 49.0%; post: 49.0%) or had an undergraduate degree (pre: 42.1%; mid: 43.1%; post: 43.1%), with a smaller number reporting a completed master's degree (pre: 5.3%; mid: 7.8%; post: 7.8%).

Participants represented diverse racial and ethnic backgrounds. Roughly half identified as White (pre: 47.4%; mid: 45.1%; post: 47.4%), while others identified as Asian/Pacific Islander (pre: 24.6%; mid:

25.5%; post: 24.6%), Multiracial (pre: 14.0%; mid: 15.7%; post: 14.0%), Hispanic or Latino (pre: 5.3%; mid: 7.8%; post: 5.3%), or Black/African American (pre: 3.5%; mid: 3.9%; post: 3.5%), with small proportions identifying as American Indian, Alaskan Native, or Native Hawaiian (pre: 1.8%; mid: 2.0%; post: 0.0%) or other (pre: 3.5%; mid: 0.0%; post: 0.0%). Most staff reported prior experience working with neurodiverse youth (pre: 70.2%; mid: 70.6%; post: 64.7%), and most were first-time employees of the Summer Treatment Program (pre: 78.9%; mid: 78.4%; post: 78.4%).

Table 3*Demographics of Study Sample*

Measure	<i>Pre-Camp N (%)</i>	<i>Mid-Camp N (%)</i>	<i>Post-Camp N (%)</i>	<i>Interview Participants N (%)</i>
<i>Total staff (n = 57)</i>	57 (100%)	51 (89.5%)	51 (89.5%)	12 (21.1%)
<i>Gender</i>				
Number of cis-females (%)	73.7	72.5	74.5	66.7
Number of cis-males (%)	15.8	15.7	17.6	16.7
Number of non-binary (%)	7.0	7.8	5.9	8.3
Number of trans-males (%)	1.75	1.96	0.0	0.0
Number who prefer not to disclose (%)	1.75	1.96	1.96	8.3
<i>Ethnicity</i>				
Number of Whites (%)	47.4	45.1	47.4	50.0
Number of Asian/Pacific Islanders (%)	24.6	25.5	24.6	8.3
Number of Multiracial (%)	14.0	15.7	14.0	33.3
Number of Hispanic or Latino (%)	5.3	7.8	5.3	0.0
Number of Black/African Americans (%)	3.5	3.9	3.5	8.3
Number of Indigenous (%)	1.8	2.0	0.0	0.0
Number of other (%)	3.5	0.0	0.0	0.0
<i>Experience</i>				

Number with prior neurodiverse youth experience (%)	70.2	70.6	64.7	N/A
Number of first-time STP employees (%)	78.9	78.4	78.4	50.0
<i>Education</i>				
Number with high school diploma (%)	52.6	49.0	49.0	33.3
Number with undergraduate degree (%)	42.1	43.1	43.1	66.7
Number with master's degree (%)	5.3	7.8	7.8	0.0

Note. Indigenous = American Indian, Alaskan Native, or Native Hawaiian. STP = Summer Treatment Program.

Interview Participants

Qualitative data collection utilized stratified random sampling to ensure representation from both experienced and new staff. Participants were divided into two subgroups: those with prior experience working in an STP (n = 6, 50.0%) and those implementing the program for the first time in 2025 (n = 6, 50.0%). A total of 12 staff participated in the semi-structured interviews, representing all four PLC groups: PLC Group 1 (n = 3), PLC Group 2 (n = 3), PLC Group 3 (n = 4), and PLC Group 4 (n = 2). This distribution provided balanced representation across groups, allowing for diverse perspectives on PLC functioning and staff experiences. The 12 interview participants represented 21.1% of the 57 total STP staff (Table 3).

Interview participants reflected a range of demographic backgrounds and educational experiences. Two-thirds identified as cis-female (66.7%, n = 8), while the remaining participants identified as cis-male (16.7%, n = 2), non-binary (8.3%, n = 1), or preferred not to disclose (8.3%, n = 1). Half of participants identified as White (50.0%, n = 6), one-third as Multiracial (33.3%, n = 4), and smaller proportions as Asian/Pacific Islander (8.3%, n = 1) or Black/African American (8.3%, n = 1). No participants identified as Hispanic/Latino, American Indian, or Native Hawaiian. In terms of education, most participants had

completed some undergraduate coursework (66.7%, $n = 8$), while a smaller proportion had completed high school (33.3%, $n = 4$) (Table 3). Overall, the interview sample represented a balanced cross-section of the broader staff population, with diversity across experience level, PLC group, gender, and ethnicity.

To protect participant confidentiality, all participant names used in this study are pseudonyms. The 12 staff members who participated in post-program interviews included three participants from PLC Group 1, Maggie and Carly, both new female staff members, and Kerry, a returning female staff member, three participants from PLC Group 2, Jacob, a new male staff member, and Kennedy, a returning non-binary staff member, and Lincoln, a returning female staff member, four participants from PLC Group 3, Adam, a new male staff member, Paula, a new staff member who preferred not to disclose their gender, and Heather and Charlotte, both returning female staff members, and two participants from PLC Group 4, Laura, a new female staff member, and Oakley, a returning female staff member. Participant demographics are summarized below in Table 4.

Table 4

Interview Participant Demographics

<i>Participant</i>	<i>PLC Group</i>	<i>Gender</i>	<i>Ethnicity</i>	<i>STP Experience</i>
<i>Maggie</i>	1	Female	White	New
<i>Carly</i>	1	Female	White	New
<i>Kerry</i>	1	Female	Asian / Pacific Islander	Returning
<i>Jacob</i>	2	Male	White	New
<i>Kennedy</i>	2	Non-binary	Multiracial	Returning
<i>Lincoln</i>	2	Female	Hispanic and Latino American	Returning
<i>Adam</i>	3	Male	White	New
<i>Paula</i>	3	Prefer not to disclose	Multiracial	New
<i>Heather</i>	3	Female	White	Returning
<i>Charlotte</i>	3	Female	Multiracial	Returning
<i>Laura</i>	4	Female	White	New

Oakley	4	Female	Multiracial	Returning
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Note. All participant names are pseudonyms to protect confidentiality. STP Experience refers to whether the participant was new to the Summer Treatment Program or a returning staff member.

PLC Satisfaction and Effectiveness Quantitative Findings

The following section will answer research Question 1A, how did STP staff rate their satisfaction with the PLC, and did satisfaction vary by staff demographic characteristics? To determine how staff rated their satisfaction with PLCs, descriptive statistics, paired samples t-tests, and a series of between-group comparisons were conducted across demographic characteristics and PLC group membership. Results indicated that satisfaction remained statistically stable between the two timepoints, with staff reporting comparable mean satisfaction at mid-program ($M = 3.64, SD = 0.72$) and post-program ($M = 3.61, SD = 0.80$), suggesting that overall PLC satisfaction did not significantly increase or decrease over the course of the program. While mean satisfaction was generally high overall ($M = 3.62, SD = 0.76$), demographic analyses revealed meaningful variation at the subgroup level. Gender emerged as the most notable source of differential satisfaction, with female staff reporting significantly higher satisfaction than non-female staff overall, $t(41.05) = 3.34, p = .002$, and at both mid- and post-program assessments with the gap between groups widening slightly over time. In contrast, satisfaction was largely equivalent across ethnicity, education level, and STP experience, with mean differences of less than 0.10 scale points across all subgroups. Differences were more pronounced between PLC groups, with a one-way ANOVA revealing significantly different overall satisfaction scores across the four groups, $F(3, 98) = 5.96, p < .001$, with Group 1 reporting the highest satisfaction ($M = 3.95, SD = 0.69$) and Group 3 reporting the lowest ($M = 3.23, SD = 0.66$), underscoring the role of group-level factors in shaping staff experiences of the PLC (see Table 5 below). Detailed analyses for each demographic characteristic and PLC group are presented in the paragraphs that follow.

PLC Satisfaction Descriptive Statistics by Demographic Characteristic and Timepoint

Characteristic	Overall			Mid-Program			Post-Program			t or F	p
	M	SD	N	M	SD	N	M	SD	N		
Overall	3.62	0.76	102	3.64	0.72	51	3.61	0.80	51	t = 0.617	.540
Gender											
Female (0)	3.78	0.69	117	3.78	0.70	37	3.77	0.69	38	t = 3.34	.002**
Mid→Post paired t										t = 1.08	.288
Non-Female (1)	3.20	0.79	42	3.27	0.67	14	3.13	0.93	13		
Mid→Post paired t										t = -0.37	.716
Ethnicity											
White (0)	3.63	0.78	75	3.67	0.76	23	3.60	0.81	25		
Mid→Post paired t										t = 0.53	.604
Non-White (1)	3.62	0.75	84	3.62	0.70	28	3.62	0.81	26		
Mid→Post paired t										t = 0.33	.743
Education											

High School (0)	3.60	0.77	77	3.60	0.77	22	3.61	0.79	25	t = - 0.26	.794
Mid→Post paired t										t = 1.43	.169
Undergraduate+ (1)	3.64	0.76	82	3.67	0.70	29	3.61	0.82	26		
Mid→Post paired t										t = - 0.72	.478
STP Experience											
New (0)	3.61	0.73	125	3.61	0.70	40	3.61	0.76	40	t = - 0.26	.797
Mid→Post paired t										t = 0.67	.508
Returning (1)	3.67	0.89	34	3.74	0.84	11	3.60	0.97	11		
Mid→Post paired t										t = - 0.13	.899
PLC Group										F(3,98) = 5.96	< .001***
Mid-Program ANOVA										F(3,47) = 2.46	.074†
Post-Program ANOVA										F(3,47) = 3.91	.014*
Group 1	3.95	0.69	59	3.98	0.77	18	3.93	0.63	20	t = 0.661	.518
Group 2	3.42	0.77	36	3.37	0.67	12	3.49	0.90	11	t = - 0.557	.590

Group 3	3.23	0.66	36	3.41	0.56	12	3.05	0.72	12	t = 0.944	.368
Group 4	3.72	0.73	28	3.64	0.71	9	3.80	0.78	8	t = - 0.279	.790

Note. Satisfaction measured as mean composite score across nine items on a 5-point Likert scale (1 = Very Dissatisfied to 5 = Very Satisfied). No satisfaction data were collected at pre-program; Overall N reflects combined mid- and post-program observations. Gender coded 0 = Female, 1 = Non-Female. Ethnicity coded 0 = White, 1 = Non-White. Education coded 0 = High School, 1 = Undergraduate and above. STP Experience coded 0 = New, 1 = Returning. t-values in the main group rows for Gender, Education, and STP Experience reflect Welch's independent samples t-tests comparing overall mean satisfaction between groups. Mid→Post paired t rows reflect within-group paired samples t-tests comparing mid- to post-program satisfaction within each demographic subgroup. t-values reported for each PLC Group reflect within-group paired samples t-tests comparing mid- to post-program satisfaction for that group. Mid- and Post-Program ANOVA F-values reflect timepoint-specific one-way ANOVAs testing between-group differences across PLC Groups. Overall ANOVA F-value tests between-group differences across all timepoints combined. Ethnicity between-group independent samples t-test not conducted. † p < .10, * p < .05, ** p < .01, *** p < .001.

Staff members reported generally high satisfaction with the PLC, with a mean satisfaction score of 3.62 ($SD = 0.85$) on a 5-point scale (1 = very dissatisfied, 5 = very satisfied). Scores ranged from 1.56 to 5.00, indicating some variability across individuals. When examined by PLC timepoint, average satisfaction was 3.64 ($SD = 0.72$) at mid-program and 3.61 ($SD = 0.80$) at post-program (see Table 5 on p. 82). A paired samples t-test confirmed that this difference was not statistically significant, $t(46) = 0.62$, $p = .54$, with a mean difference of only 0.04 scale points and a 95% confidence interval spanning zero $[-0.10, 0.19]$. These findings indicate that staff satisfaction with the PLC remained stable across the program, with no meaningful change observed between mid- and post-program assessments (Table 5).

Descriptive analyses revealed variation in satisfaction across staff demographic characteristics and group levels. For gender, a Welch's independent samples t-test was conducted to examine whether mean PLC satisfaction scores differed significantly between female (coded 0) and non-female (coded 1) staff members. The test revealed a statistically significant difference between groups, $t(41.05) = 3.34$, $p = .002$, with female staff reporting meaningfully higher satisfaction ($M = 3.78$, $SD = 0.69$) than non-female staff ($M = 3.20$, $SD = 0.79$). The 95% confidence interval for the difference in means $[0.23, 0.92]$ did not include zero, further supporting the conclusion that the observed difference is unlikely to be attributable to chance (Table 5).

When examined by timepoint, this pattern was consistent across both mid- and post-program assessments. At mid-program, female staff ($M = 3.78$, $SD = 0.70$, $n = 37$) continued to report higher satisfaction than non-female staff ($M = 3.27$, $SD = 0.67$, $n = 14$), a difference of 0.51 scale points. At post-program, this gap widened slightly, with female staff ($M = 3.77$, $SD = 0.69$, $n = 38$) reporting notably higher satisfaction than non-female staff ($M = 3.13$, $SD = 0.93$, $n = 13$), a difference of 0.64 scale points. Notably, while female staff maintained a stable level of satisfaction across both timepoints ($M = 3.78$ at mid-program; $M = 3.77$ at post-program), non-female staff reported a slight decline in satisfaction from mid- to post-program ($M = 3.27$ to $M = 3.13$), suggesting that the gender gap in PLC satisfaction may

have widened as the program progressed (see Table 5 on p. 82). Taken together, these findings suggest that gender was consistently associated with differential experiences of PLC satisfaction, with non-female staff reporting notably lower satisfaction at both timepoints across the program.

To further examine whether satisfaction changed significantly between mid- and post-program within each gender group, paired samples t-tests were conducted separately for female and non-female staff. For female staff (Gender_dum = 0), satisfaction scores did not differ significantly between mid-program ($M = 3.78$, $SD = 0.70$, $n = 37$) and post-program ($M = 3.77$, $SD = 0.69$, $n = 38$), $t(34) = 1.08$, $p = .29$, with a mean difference of 0.08 scale points and a 95% confidence interval spanning zero $[-0.07, 0.24]$. Similarly, non-female staff (Gender_dum = 1) showed no significant change in satisfaction from mid-program ($M = 3.27$, $SD = 0.67$, $n = 14$) to post-program ($M = 3.13$, $SD = 0.93$, $n = 13$), $t(11) = -0.37$, $p = .72$, with a negligible mean difference of -0.07 scale points and a 95% confidence interval also spanning zero $[-0.45, 0.32]$ (Table 5). These findings indicate that while gender was significantly associated with overall levels of PLC satisfaction, with female staff reporting consistently higher satisfaction than non-female staff, satisfaction within each gender group remained stable from mid- to post-program, with no meaningful within-group change observed over the course of the program.

In contrast, satisfaction was largely consistent across other staff demographic characteristics. Mean satisfaction was nearly identical across ethnicity (White: $M = 3.63$, $SD = 0.78$; Non-White: $M = 3.62$, $SD = 0.75$). This pattern held when satisfaction was examined by ethnicity across timepoints. At mid-program, White staff ($M = 3.67$, $SD = 0.76$) and non-White staff ($M = 3.62$, $SD = 0.70$) reported comparable levels of satisfaction, a difference of 0.05 scale points. At post-program, this difference narrowed further, with White staff ($M = 3.60$, $SD = 0.81$) and non-White staff ($M = 3.62$, $SD = 0.81$) reporting nearly equivalent satisfaction, a difference of only 0.02 scale points and a reversal in the direction of the gap (Table 5).

To further examine whether satisfaction changed significantly between mid- and post-program within each ethnicity group, paired samples t-tests were conducted separately for White and Non-White staff. For White staff (Ethnicity_dum = 0), satisfaction scores did not differ significantly between mid-program ($M = 3.67$, $SD = 0.76$, $n = 23$) and post-program ($M = 3.60$, $SD = 0.81$, $n = 25$), $t(21) = 0.53$, $p = .60$, with a mean difference of 0.06 scale points and a 95% confidence interval spanning zero $[-0.18, 0.29]$ (see Table 5 on p. 82). Similarly, Non-White staff (Ethnicity_dum = 1) showed no significant change in satisfaction from mid-program ($M = 3.62$, $SD = 0.70$, $n = 28$) to post-program ($M = 3.62$, $SD = 0.81$, $n = 26$), $t(24) = 0.33$, $p = .74$, with a negligible mean difference of 0.03 scale points and a 95% confidence interval also spanning zero $[-0.16, 0.23]$ (Table 5). Notably, both White and Non-White staff showed slight descriptive declines in satisfaction from mid- to post-program, with Non-White staff reporting virtually identical scores across both timepoints and White staff showing a marginally larger decline of 0.07 scale points, resulting in near-equivalent satisfaction levels across both ethnicity groups at post-program (Table 5). Taken together, these findings indicate that ethnicity was not associated with differential levels of PLC satisfaction overall or with meaningful changes in satisfaction across timepoints, with both White and Non-White staff reporting comparably stable satisfaction over the course of the program.

Education level was not associated with meaningful differences in PLC satisfaction at either the overall or timepoint level. A Welch's independent samples t-test was conducted to examine whether mean PLC satisfaction scores differed significantly between staff with a high school degree and staff with undergraduate degrees and above. The test revealed no statistically significant difference between groups, $t(96.96) = -0.26$, $p = .79$, with high school staff reporting a mean satisfaction of 3.60 ($SD = 0.77$) and undergraduate and above staff reporting a mean satisfaction of 3.64 ($SD = 0.76$), a difference of only 0.04 scale points (Table 5). The 95% confidence interval for the difference in means $[-0.34, 0.26]$ spanned zero, further confirming that the observed difference is attributable to chance rather than a

meaningful group difference. Given the non-significant main effect, further interpretation of group-level differences was not pursued.

Similarly, STP experience was not associated with significant differences in PLC satisfaction. A Welch's independent samples t-test was conducted to examine whether mean PLC satisfaction scores differed significantly between new and returning staff members. The test revealed no statistically significant difference between groups, $t(29.17) = -0.26$, $p = .80$, with new staff reporting an overall mean satisfaction of 3.61 ($SD = 0.73$) and returning staff reporting an overall mean satisfaction of 3.67 ($SD = 0.89$), a difference of only 0.05 scale points (see Table 5 on p. 82). The 95% confidence interval for the difference in means $[-0.47, 0.37]$ spanned zero, further confirming that the observed difference is attributable to chance rather than a meaningful group difference. Given the non-significant main effect, further interpretation of group-level differences was not pursued.

There were found to be distinguishable differences between PLC groups. A one-way ANOVA revealed that mean satisfaction scores differed significantly across the four groups overall, $F(3, 98) = 5.96$, $p < .001$, indicating that at least one group differed meaningfully from the others in their reported satisfaction. Group 1 reported the highest satisfaction ($M = 3.95$, $SD = 0.69$), followed by Group 4 ($M = 3.72$, $SD = 0.73$), Group 2 ($M = 3.42$, $SD = 0.77$), and Group 3 reporting the lowest overall satisfaction ($M = 3.23$, $SD = 0.66$) (Table 5). These findings suggest that the experience of the PLC varied meaningfully across groups, with a nearly three-quarter point spread in mean satisfaction between the highest and lowest rated groups, indicating that group-level factors may have played a meaningful role in shaping staff perceptions of the PLC experience.

When examined by timepoint, one-way ANOVAs revealed a pattern of emerging group differentiation across the program. At mid-program, the overall ANOVA approached but did not reach statistical significance, $F(3, 47) = 2.46$, $p = .074$. While this result suggests a possible emerging pattern of group-level differences in satisfaction at mid-program, the finding should be interpreted cautiously

given the marginal p-value and the relatively small within-timepoint sample size. Descriptively, Group 1 reported the highest mid-program satisfaction ($M = 3.98$, $SD = 0.77$, $n = 18$), followed by Group 4 ($M = 3.64$, $SD = 0.71$, $n = 9$), Group 3 ($M = 3.41$, $SD = 0.56$, $n = 12$), and Group 2 ($M = 3.37$, $SD = 0.67$, $n = 12$) (see Table 5 on p. 82). At post-program, group differences became statistically significant, $F(3, 47) = 3.91$, $p = .014$, indicating that at least one PLC group reported meaningfully different satisfaction levels compared to the others. Group 1 again reported the highest satisfaction ($M = 3.93$, $SD = 0.63$, $n = 20$), followed by Group 4 ($M = 3.80$, $SD = 0.78$, $n = 8$) and Group 2 ($M = 3.49$, $SD = 0.90$, $n = 11$), with Group 3 reporting the lowest satisfaction at post-program ($M = 3.05$, $SD = 0.72$, $n = 12$) (Table 5). Tukey HSD post-hoc comparisons were conducted to identify which specific PLC groups drove the significant post-program ANOVA result. The only statistically significant pairwise difference was between Group 1 and Group 3, with Group 1 reporting meaningfully higher satisfaction than Group 3 at post-program (mean difference = 0.89, 95% CI [0.17, 1.61], $p = .010$). No other pairwise comparisons reached statistical significance. These findings indicate that by the end of the program, Group 1 stood out as reporting notably higher satisfaction relative to Group 3, while the remaining group comparisons did not differ in any statistically meaningful way.

To examine whether satisfaction changed significantly within each PLC group from mid- to post-program, paired samples t-tests were conducted separately for each of the four groups. Notably, Group 3 showed the most pronounced decline in satisfaction across timepoints ($M = 3.41$ at mid-program to $M = 3.05$ at post-program), while Group 4 showed the most notable increase ($M = 3.64$ to $M = 3.80$), suggesting that the trajectory of satisfaction across the program varied meaningfully by group membership. However, neither change reached statistical significance (Table 5). Collectively, these results suggest that while meaningful between-group differences in satisfaction existed at the overall and post-program levels, satisfaction within each PLC group remained relatively stable from mid- to post-program, with no group showing a statistically significant within-group change over the course of

the program. These null within-group findings should be interpreted cautiously given the small sample sizes within each group at each timepoint, which substantially limit statistical power to detect true within-group changes even when meaningful differences may exist.

Facilitators and Barriers of PLC Effectiveness

The following section will address research question 1B, What did STP staff perceive to be key facilitators and barriers of PLC effectiveness? Within the context of this study, PLC effectiveness refers to the degree to which the PLC achieved its intended goals as a professional development structure, including fostering staff knowledge, skills, attitudes, and application of learned practices (Desimone, 2009). PLC engagement, by contrast, refers to the degree to which staff were able to actively and meaningfully participate in PLC sessions, encompassing factors such as availability, focus, and willingness to contribute during discussions (Stoll et al., 2006).

To determine how staff perceived the facilitators and barriers of PLC effectiveness, thematic analysis was used to analyze and interpret post-program staff interviews with 12 of the 57 STP staff members. This number of interviews was determined due to previous research that has shown that for applied research aiming to understand common perceptions among a similar group of people, 12 interviews was found to be the number required to meet saturation within a research study (Guest et al., 2006). Results indicated effective PLCs were characterized by strong facilitation, intentional structure, and an inclusive atmosphere that promoted meaningful reflection, collaboration, and professional growth. However, competing staff demands, limited time, and inconsistent session structure often hindered engagement. Inefficient use of time and unclear goals weakened content focus and active learning, while inequitable participation reduced collective collaboration. Notably, interview participants from PLC Group 2 were the only ones to endorse more barriers than facilitators of PLC effectiveness from their experience.

Facilitators of PLC Effectiveness

Staff described multiple factors that contributed to the success and overall effectiveness of the PLC. In qualitative research using thematic analysis, endorsements refer to the number of participants who identified and expressed a given theme within their interview responses, while references refer to the total number of distinct instances in which that theme was coded across interview transcripts (Swygart-Hobaugh, 2019). Across all interviews, the construct of Facilitators of PLC Effectiveness was endorsed by all 12 participants, with a total of 281 coded references, underscoring its centrality to staff development and the consistency with which facilitating factors were identified across participants. References varied across PLC groups. PLC Group 1 contributed 90 total references across 3 interviewed participants, representing 30.9% of total references when adjusted for group size. PLC Group 2 contributed 64 references across 3 interviewed participants, representing 22.0% of total references when population-adjusted. PLC Group 3 contributed 71 references across 4 interviewed participants, representing 18.3% of total references when population-adjusted. PLC Group 4 contributed 56 references across 2 interviewed participants, representing 28.8% of total references when population-adjusted. Notably, despite having the fewest interviewed participants, PLC Group 4 contributed a relatively high population-adjusted proportion of references, while PLC Group 3, despite having the most interviewed participants, contributed the lowest population-adjusted proportion, suggesting meaningful variability in the degree to which facilitating factors were salient across groups. Six primary themes emerged from the qualitative analysis: *Strong Facilitation*, *PLC Structure*, *Follow-Up*, *Logistics*, *Connectivity*, and *Atmosphere*. Together, these themes highlight the interpersonal, structural, and cultural elements that created an environment conducive to professional growth, collaboration, and meaningful reflection.

Strong Facilitation. The most prevalent facilitator theme for PLC effectiveness, strong facilitation, reflected the critical role of PLC leaders in guiding discussion and maintaining productive engagement. This theme was defined as PLC leaders guiding conversations with clarity, flexibility, and accessibility. Participants described concrete conversation topics, ensuring leaders were approachable and available

to staff, and expanding discussions beyond the manualized program when needed. Together, these practices created meaningful and relevant dialogue that supported staff learning. Across all coding, strong facilitation was the most frequently referenced facilitator, with 81 total references identified in the qualitative data and endorsed by 11 of 12 participants. Analyses by PLC Group revealed varied reporting of this theme across groups, with PLC Group 1 contributing 15 references across 3 interviewed participants, PLC Group 2 contributing 17 references across 3 interviewed participants, PLC Group 3 contributing 20 references across 4 interviewed participants, and PLC Group 4 contributing 29 references across 2 interviewed participants.

Maggie (pseudonym) from PLC Group 2 noted, “And I think that the more the more specific questions like actually like started a dialogue in a way that felt more helpful.” Oakley (pseudonym), a returning counselor from PLC Group 4 discussed their appreciation for the opportunity to have discussions that expanded beyond the STP, “I felt like the PLC was a good forum outside of the STP to talk about activities and conversations that can go beyond the standard STP format.”

Code-specific differences revealed meaningful variation by STP experience. The code "concrete conversation topics" was more frequently referenced by new staff, with endorsements from all 6 interviewed new staff contributing 22 references compared to 8 references from the 6 interviewed returning staff, indicating that staff with less prior STP experience were more likely to seek specific guidance on program implementation. In contrast, the code "covering topics outside of the manualized program" was cited far more frequently by returning staff (15 references) than by new staff (1 reference), suggesting that staff who were already comfortable with STP implementation were more likely to value discussion of topics beyond the formal program structure.

Connectivity. The connectivity theme reflects the relational and collaborative exchanges between staff members, emphasizing the value of cross-bunk dialogue, peer input, and group cohesion as mechanisms through which professional relationships were strengthened and a sense of collective

engagement was fostered. Across all coding, connectivity was referenced 66 times, across all 12 participants, making it the second most prevalent facilitator of PLC effectiveness after strong facilitation.

PLC Group-level differences indicated a wide range of references to connectivity, with PLC Group 1 contributing 25 references across three interviewed participants, PLC Group 2 contributing 16 references across three interviewed participants, PLC Group 3 contributing 16 references across four interviewed participants, and PLC Group 4 contributing 9 references across two interviewed participants.

Counselors highlighted how hearing about peers' strategies and approaches expanded their own repertoire and reinforced a sense of shared purpose. One participant, Heather (pseudonym), from PLC Group 3 noted:

But I enjoyed the camaraderie from the groups, just hearing the pros and cons of the day, and hearing stories from other bunks about what they've done to help manage certain issues and problems. When that came up, that that was definitely nice, because it's like- Oh, that's a good thing to keep in mind in my bunk, especially when we were paired with another older bunk.

Kerry (pseudonym), from PLC Group 1 described the value of peer insight within their bunk: "The one that I really appreciated was dedicating time to just discuss ongoing situations or problems in our bunk. It was helpful to hear how other bunks approached similar issues and apply that insight to our own practice."

Regarding prior STP experience, returning staff, representing all six interviewed participants with prior STP experience, contributed 30 references to connectivity, while new staff, representing all six interviewed participants without prior STP experience, contributed 36 references, suggesting that connectivity was similarly salient across both experience groups with only a modest difference in the frequency with which it was referenced.

PLC Structure. The PLC structure theme referred to the intentional structure and tone-setting strategies that outlined each session. PLC structure is defined as the intentional structuring of sessions that helped establish tone and engagement. This included opening with check-ins, incorporating shout-outs to recognize peers, and providing a clear agenda for the PLC meetings. Opening check-ins and shout-outs were particularly valued for building positive energy, fostering engagement, and creating a consistent rhythm across sessions. These brief rituals provided space for counselors to share their emotional state, recognize peer contributions, and mentally transition from their daily routines into reflective learning. Across all coding, PLC structure was referenced 50 times, across 10 of the 12 participants, making it the third most frequently referenced facilitator of PLC effectiveness.

Examination by PLC Group revealed variability in references across groups, with PLC Group 1 contributing 19 references across three interviewed participants, PLC Group 2 contributing 14 references across three interviewed participants, PLC Group 3 contributing 14 references across four interviewed participants, and PLC Group 4 contributing three references across two interviewed participants.

Participants described PLC structure as establishing a supportive and predictable structure that encouraged engagement. Lincoln, from PLC Group 2 shared, “It was a nice format to follow in terms of checking in with my counselors, especially as a lead, and hearing how they were doing and what they were struggling with.” Paula, from PLC Group 3 noted, “I found that the shout-outs were something that I remember the most, and it was just a time to reflect on the positive things that had happened that day...that aspect of the PLCs was helpful for motivation.”

When considering prior STP experience, returning staff, representing all six interviewed participants with prior STP experience, contributed 14 references to this theme, while new staff, representing all six interviewed participants without prior STP experience, contributed 36 references, suggesting that PLC structure was considerably more salient for staff encountering the STP for the first time. Code-specific

differences revealed that "shout-outs" were referenced more frequently by new staff (16 references) compared to returning staff (4 references), indicating that praise and positive reinforcement within the PLC structure may have been particularly meaningful for new staff who were still developing confidence in their role and familiarity with STP implementation.

Logistics. The logistics theme captured practical aspects of PLC participation that influenced effectiveness, including session timing, duration, and group composition. Across all interviews, logistics was referenced 40 times by nine participants, reflecting its moderating role as a facilitator of PLC effectiveness.

PLC Group-level differences indicated variability in the frequency of references across groups, with PLC Group 1 contributing 19 references across three interviewed participants, PLC Group 2 contributing 8 references across three interviewed participants, PLC Group 3 contributing 8 references across four interviewed participants, and PLC Group 4 contributing 5 references across two interviewed participants.

Counselors emphasized the importance of scheduling and group structure in promoting effective PLC sessions. They appreciated when PLCs were held earlier in the week, allowing them to apply discussion takeaways throughout subsequent days. Paula from PLC Group 3 noted, "I did appreciate when it was earlier in the week. I felt like there was more time to focus on this next day or, like, for the rest of the week. Just kind of see- talk about what our bunk wanted to really work on for that entire week." Additionally, being grouped with familiar colleagues and led by their head counselor fostered comfort and openness in sharing, leading to more effective discussions. Carly from PLC Group 1 explained, "It was nice to just be with similar age groups and have our head counselor be the lead of the meeting because it felt more comfortable and familiar."

Code-specific differences revealed that "PLC groupings" were most frequently referenced by returning staff with prior STP experience, whereas "timing" and "length" were referenced exclusively by

new staff without prior STP experience. These differences suggest that prior experience with the STP shaped how staff engaged with and perceived the PLC structure, with returning staff focused more on the dynamics of their PLC groupings, while new staff were more attuned to logistical aspects such as timing and session length. This pattern highlights how familiarity with program content may influence which aspects of implementation staff find most salient or impactful, with newer staff attending more to structural logistics and returning staff attending more to the relational and compositional dimensions of the PLC experience.

Atmosphere. The atmosphere theme described the broader emotional tone and climate of PLC sessions, such as an inclusive and supportive tone of the PLC sessions, emphasis on emotional security, validation, and opportunities for open expression. Among facilitator-related themes, atmosphere was referenced 36 times, across eight participants, making it the fifth most prevalent facilitator of PLC effectiveness. Although referenced less frequently than other facilitator themes, atmosphere was consistently described as foundational to counselors' willingness to engage meaningfully in PLC discussions.

Across PLC groups, references to atmosphere varied minimally, with PLC Group 1 contributing 10 references across three interviewed participants, PLC Group 2 contributing 9 references across three interviewed participants, PLC Group 3 contributing 7 references across four interviewed participants, and PLC Group 4 contributing 10 references across two interviewed participants.

Staff emphasized that emotional security and a nonjudgmental climate encouraged honest dialogue and vulnerability. Adam from PLC Group 3 explained, "Something that made it more meaningful was encouragement from people on leadership, that you can share anything in the space and there's no judgment. That made it more helpful." Similarly, Kerry from PLC Group 1 reflected, "Knowing that we're all here to help and support one another was motivating and reinforced my confidence." These

reflections underscore how a mutually supportive atmosphere with emotional safety allowed counselors to feel validated, heard, and connected to peers across bunks.

Code-specific differences indicated that "inclusive discussions" and "space to share or open up" were primarily referenced by new staff without prior STP experience. Notably, "inclusive discussions" was not referenced at all by returning staff, compared to four references contributed by new staff, suggesting that the inclusive and open qualities of the PLC atmosphere were more explicitly recognized and valued by staff who were newer to the STP environment. These patterns suggest that the supportive climate of the PLCs may have been particularly salient for newer staff, who may have relied more heavily on the welcoming atmosphere of the PLC to feel comfortable engaging openly in a professional learning context with which they were less familiar.

Follow-Up. The follow-up theme captured the reflection and discussion that occurred after PLC sessions, particularly through post-PLC group reflections. This improved PLC effectiveness by allowing staff to process session content, reinforce learning, and consider how discussions could be applied in practice. Across all coding, follow-up was referenced eight times across three of the participants, making it the least prevalent facilitator of PLC effectiveness. Maggie from PLC Group 1 explained:

When we walked away from PLCs, being like, okay, this thing that this person said made me think about how we can help this kid...just a little bit of reflection with my bunk afterwards was really helpful for me, like to help it stick.

Additionally, Adam from PLC Group 3 shared:

I think honestly, just reminders. Like, if we had an all staff meeting before or after the day, and there's a reminder of a certain thing we talked about in the PLCs. I think that would make me more likely to keep that in my head, just because so many different things are happening here...It's easy to forget about things that you talked about in a PLC 2 weeks ago, but if there's continuity and you're reminded of these things-it's just a reminder to employ certain techniques.

PLC Group-level differences indicated variability in references: PLC Group 1 contributed two references, no one representing PLC Group 2 referenced follow-up, PLC Group 3 contributed six references, and no one representing PLC Group 4 referenced follow-up. Regarding prior experience in the STP, staff without experience were the only ones to reference this theme. For example, staff emphasized that reflecting after PLC sessions helped make the content more actionable.

Barriers of PLC Effectiveness

Staff also identified several factors that hindered effectiveness of the PLC. In qualitative research using thematic analysis, endorsements refer to the number of participants who identified and expressed a given theme within their interview responses, while references refer to the total number of distinct instances in which that theme was coded across interview transcripts. To assess the breadth and distribution of perceived barriers across staff, participants were asked during post-program interviews to reflect on what aspects of the PLC hindered the program's effectiveness. Across all interviews, the construct of Barriers of PLC Effectiveness was endorsed by all 12 participants, with a total of 211 references, underscoring the universality of perceived barriers across staff regardless of group membership. References varied across PLC groups. PLC Group 1 contributed 56 total references across three interviewed participants, representing 27.9% of total references when adjusted for group size. PLC Group 2 contributed 34 references across three interviewed participants, representing 16.9% of total references when population-adjusted. PLC Group 3 contributed 94 references across four interviewed participants, representing 35.1% of total references when population-adjusted. PLC Group 4 contributed 27 references across two interviewed participants, representing 20.1% of total references when population-adjusted. Six primary barrier themes emerged from the qualitative analysis: *Other Staff Demands, Length of PLC, Ineffective Structure, Inconsistency, Unhelpful Discussions, and Lack of counselor agency*. Together, these themes reflect structural, temporal, and participatory challenges that limited counselors' ability to get the most out of the PLC experience.

Other Staff Demands. Other staff demands emerged as the most prevalent barrier to PLC effectiveness, with 72 references across 11 of the 12 participants. This theme captured competing responsibilities, end-of-day fatigue, and challenges associated with PLC timing within an already busy camp schedule. Counselors frequently described difficulty sustaining engagement when PLCs occurred after long workdays or when other camp duties felt more pressing. References to other staff demands were relatively consistent across PLC groups, with PLC Group 1 contributing 15 references, PLC Group 2 contributing 11 references, PLC Group 3 contributing 27 references, and PLC Group 4 contributing 19 references.

For Carly, in PLC Group 1, the lack of energy at the end of the day was a large hinderance, indicating that the PLC at the end of the day was hard for staff:

I think the time of day is tough, because, like I said, everyone is very exhausted, and it is sometimes hard when you've already had a long day, and like, probably wanting to like, either check out or like not be there, or leave.

Another staff member, Oakley, from PLC Group 4, noted the difficulty with time management given the large load placed on counselors at the STP, "It's tough, though, because we're already trying to like accomplish a lot in like a short amount of hours."

Differences by prior STP experience were minimal, with counselors with prior experience referencing this theme slightly less often (35 references) than those without prior experience (37 references). Code-specific differences indicated that "competing responsibilities" were more frequently endorsed by counselors with prior STP experience than those without (20 references compared to 12, respectively). These findings suggest that other staff demands represented the most pervasive and systemic barrier to PLC engagement across the program, with near-universal endorsement across participants and consistent distribution across groups and experience levels indicating that end-of-day fatigue and competing responsibilities were shared challenges rather than subgroup-specific ones.

Length of PLC. Length of PLC was the second most prevalent barrier theme, with 38 references endorsed by eight of the twelve participants reflecting limited time to contribute, rushed discussions, and perceptions that PLC length was insufficient for meaningful reflection, hindering PLC effectiveness. Length of PLC concerns varied greatly across PLC groups, with PLC Group 1 referencing this theme 15 times, PLC Group 2 once, PLC Group 3 16 times, and PLC Group 4 six times. Kerry, a PLC Group 1 participant noted, “We don’t have a lot of time to meet in the PLC, so it would be very brief, and sometimes we wouldn’t have a whole lot of time to debrief or share out”. Laura, a PLC Group 4 counselor noted that the short length of the PLC may have impacted participation, “It felt like it was always hard with the time constraints to make sure that everyone who wants to say something is able to share if they want to.”

Counselors without prior STP experience referenced length of PLC concerns more frequently (26 references) than those with prior experience (12 instances), particularly noting a “lack of space or time to contribute during discussions”. Findings from this theme suggest that insufficient PLC length emerged as a meaningful structural barrier to staff participation and reflection, with the disproportionately higher frequency of references among new staff, particularly around limited space and time to contribute, indicating that time constraints may have been especially consequential for staff who were still developing their understanding of the STP and who stood to benefit most from extended opportunities for dialogue.

Ineffective Structure. Ineffective structure pertains to structural and organizational limitations of PLCs that hindered effectiveness, including lack of small group discussions, inefficient use of session time, or a poorly defined PLC structure. Ineffective structure was referenced 33 times across seven of the participants. This theme was most frequently noted by counselors in PLC Group 3 (21 references) and PLC Group 1 (10 references), compared to fewer references in PLC Group 2 (two) and PLC Group 4 (none).

Participants described frustration with activities perceived as overly time-consuming, such as prolonged icebreakers. Adam in PLC Group 3 stated, “It felt like more than 50% was icebreakers and unrelated things... the overall efficiency of it was a little bit frustrating”. Maggie, a new counselor in PLC Group 1 demonstrated frustration over the lack of smaller group discussions, “I would have appreciated some smaller group discussions within the (PLC)...if it’s like, three bunks worth of people, there’s a lot of us just sitting in a really big circle.” The ineffective structure of the PLCs may have been due, in part, to the lack of recommended timing within the PLC implementation checklist, leading to poor time management. While it listed all the components to address in the session, specific timing guidelines were not included for facilitators.

Counselors without prior STP experience referenced ineffective structure more often (19 references) than those with prior experience (14 references), with “inefficient use of PLC time” more commonly noted by new staff compared to returning staff (12 references compared to six, respectively).

Inconsistency. Inconsistency captures staff perceptions that the PLC lacked stability and direction. This included reports of inconsistent facilitation, limited follow-up on discussions, and unclear goals, which together undermined the continuity and focus of the PLC process. Inconsistency was referenced 28 times by five of the participants. References were most common among counselors in PLC Group 3 (20 references), with fewer references in PLC Group 2 (seven references) PLC Group 1 (one reference) and no references in PLC Group 4. Counselors with and without prior STP experience referenced inconsistency at equal rates (14 references each), although “lack of follow-up” was more frequently endorsed by counselors with prior experience (five instances versus one instance from new staff). This pattern suggests that while all counselors recognized inconsistency as a challenge, those with prior STP experience were more sensitive to issues of follow-up and continuity. Their greater familiarity with program expectations may have heightened awareness of gaps in implementation or communication processes. Kerry, from PLC Group 1 explained, “We would discuss something during that PLC, but never

really follow up with it". The lack of goal setting upfront also appeared to be negatively perceived by STP staff. Paula, a new counselor from PLC Group 3 expressed, "We would certainly talk about camp, but it wasn't always the most clear what we were supposed to be getting from a PLC (session)." These quotes suggest that without clear and consistently communicated goals and structured follow-through across sessions, staff were left uncertain about the purpose and direction of the PLC, which likely limited their ability to takeaway meaningful skills and professional growth from their PLC participation.

Unhelpful Discussions. Unhelpful Discussions encompasses PLC conversations that did not contribute to learning or practical application, such as redundant content, discussions that were too general, or topics that failed to address staff needs or program priorities. Unhelpful discussions were references 26 times and endorsed by seven participants throughout the interviews. Analysis by PLC group revealed little variability in references: PLC Group 1 contributed eight references, PLC Group 2 contributed 10 references, PLC Group 3 contributed six references, and PLC Group 4 contributed two references. Maggie from PLC Group 1 reflected, "People had a harder time answering broader questions like, 'What's been going on in your bunk?' It felt less meaningful". Carly, a different counselor from PLC Group 1, perceived certain PLC sessions to be redundant without offering new information or perspective:

Some of it was a little redundant to where it wasn't new content or a new discussion being generated, it felt similar to training, where we were talking about things that we were already very familiar with and practicing throughout the day.

Counselors without prior STP experience endorsed this theme more frequently (17 references) than those with prior experience (nine references), particularly noting "broad discussion topics" and "redundant content". Similar to findings from "concrete conversation topics", new staff's experience with the STP seemed to be largely dependent on how specific and concrete the topics were and how relevant they were to the STP. Taken together, these findings suggest that the perceived value of PLC

discussions was closely tied to their specificity, novelty, and direct relevance to STP implementation, with new staff appearing particularly sensitive to discussions that felt too broad or repetitive to meaningfully support their developing understanding of and confidence within the program.

Lack of counselor agency. Lack of counselor agency highlights staff perceptions that the PLC was ineffective because it failed to adequately recognize or respond to the diverse backgrounds and needs of individual counselors and experiences of forced participation. Together, these experiences left staff feeling that the PLC operated as a one-size-fits-all structure rather than a responsive and differentiated professional learning environment, which led to reduced effectiveness. This included certain discussions that only sought responses from returning staff to the exclusion of new staff. Lack of counselor agency was the least frequently referenced barrier theme, with 14 total references across six participants.

Lack of counselor agency concerns varied minimally across PLC groups, with PLC Group 1 referencing this theme seven times, PLC Group 2 contributing three references, PLC Group 3 contributing four references, and PLC Group 4 did not reference this theme. Kerry, a returning counselor from PLC Group 1 shared:

I remember like there's a few times where they're like specifically like, to returners, it was only like, "what are your insights?" And like, sometimes I like just needed like time to think. So, I think maybe, I would approach that differently in the future.

Lincoln, a returning counselor from PLC Group 2 also noticed the differentiation in PLC participation based on prior STP experience:

The first one (PLC session) was also a little bit weird. I remember feeling like it was only the returning staff that was able to talk. Versus a lot of the newer staff felt like it was too early for them to even process, or, like, answer fully. So I'm almost wondering, maybe the first one (PLC session) could be a different prompt or something more inclusive, slash, just kind of formatted

in a different way, so that everyone could participate equally rather than just the returners giving their advice.

Counselors with prior STP experience referenced this theme much more often, 12 references, than those without prior experience, two references. Staff with prior STP experience specifically noted that “prior experience shaped expectations for participation” (six references). These findings suggest that perceptions of limited agency were more salient among counselors with prior STP experience, likely because their previous involvement informed stronger expectations for participation and influence within the PLC. This indicates that prior experience may heighten sensitivity to perceived gaps between expected and actual opportunities for input or decision-making.

Research Question 1 Summary

Research question 1 sought to answer the question, how do STP staff perceive their satisfaction with the Professional Learning Community (PLC), key facilitators and barriers to effectiveness of the PLC and their engagement within the activity? Findings drew on both quantitative and qualitative data to provide a comprehensive understanding of how STP staff perceived and experienced the PLC across the program. Quantitative analyses indicated that staff reported generally high and stable satisfaction with the PLC, with no statistically significant change observed between mid- and post-program assessments and no meaningful variation across ethnicity, education level, or prior STP experience. However, meaningful variation emerged at the subgroup level, with female staff reporting significantly higher satisfaction than non-female staff, a gap that widened slightly as the program progressed, and PLC group membership emerged as a significant source of variation, with Group 1 consistently reporting the highest PLC satisfaction and Group 3 reporting the lowest overall PLC satisfaction across analyses.

Qualitative analyses contextualized and deepened these quantitative patterns by illuminating the structural, relational, and logistical factors that shaped staff perceptions of PLC effectiveness. When conditions were favorable, the PLC functioned as an engaging and growth-oriented experience, with

strong facilitation, intentional design, and an inclusive and supportive climate creating space for meaningful reflection, peer learning, and practical skill application. However, competing staff demands, limited session time, structural inconsistencies, and a lack of counselor agency frequently constrained engagement and reduced opportunities for active and collaborative learning.

The integration of quantitative and qualitative findings within this convergent mixed methods design reveals that staff perceptions of the PLC were neither uniformly positive nor uniformly negative, but rather were contingent on a combination of group-level, demographic, and contextual factors that shaped the degree to which individual staff members could meaningfully engage in and benefit from the professional learning process. The alignment between quantitative satisfaction differences across PLC groups and qualitative reports of barriers concentrated among certain groups, most notably Group 3, which reported both the lowest satisfaction and the highest proportion of barrier references, suggests that group-level variation in facilitation quality, session structure, and interpersonal dynamics played a central role in determining the overall perceived value of the PLC.

Impact of the PLC on STP Staffs' Knowledge and Skills

This section addresses research question 2A: to what extent does time, as a function of PLC participation, predict changes in staff-reported knowledge and skills across three timepoints (pre-program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their knowledge and skills? To answer the quantitative component a linear multilevel modeling approach alongside descriptive statistics were used to analyze survey data, while thematic analysis of post-program interviews with 12 STP staff members captured staff perceptions of the PLC's influence on their knowledge and skills.

Knowledge and Skills Quantitative Findings

The following portion of the paper will answer the part of research question 2A that asks, to what extent does time, as a function of PLC participation, predict changes in staff-reported knowledge

and skills across three timepoints (pre-program, mid-program, and post-program)? To determine how staff rated their knowledge and skills over time, descriptive statistics and a linear multilevel modeling approach was used. The dependent variable is the level of self-reported knowledge and skills that STP staff report at a given timepoint. This variable is measured as a mean composite score at the pre-program, mid-program, and post-program timepoints across six relevant items on the staff survey (each rated on a five-point Likert scale). Independent variables include time, treated as a fixed effect, while staff ID was included as a random effect to account for the repeated measures nested within individual participants. Descriptive statistics will first be computed to summarize central tendencies and distributions of all study variables.

Results indicated that staff reported high overall self-ratings of knowledge and skills across the duration of the STP. Across all staff and timepoints, the overall mean staff-reported knowledge and skill score was 4.38 ($SD = 0.37$, $N = 159$) on a 5-point scale, indicating generally high levels of self-perceived knowledge and skill confidence among STP staff. Scores ranged from 3.33 to 5.00 (See Table 6 below), suggesting that while most staff reported strong familiarity with STP content and implementation strategies, a subset of staff reported comparatively lower levels of perceived knowledge. The concentration of scores near the upper end of the scale, reflected by the high mean relative to the scale maximum of 5.00, suggests that STP staff entered and progressed through the program with a generally strong foundation of self-perceived knowledge, consistent with the expectation that structured professional learning through the PLC would support and reinforce staff competence across the program. Across the program, mean knowledge and skill ratings increased from pre-program ($M = 4.30$, $SD = 0.40$) to mid-program ($M = 4.39$, $SD = 0.36$) and post-program ($M = 4.45$, $SD = 0.35$) (Table 6).

Table 6

Descriptive Statistics for Staff-Reported Knowledge and Skills, Professional Attitudes, and Application of Learned Skills by Demographic Characteristic and PLC Group

Characteristic	Knowledge & Skills			Professional Attitudes			Application			t or F	p
	M	SD	N	M	SD	N	M	SD	N		
Overall	4.38	0.37	159	4.27	0.34	159	3.50	0.61	114		
By Timepoint											
Pre	4.30	0.40	57	4.30	0.31	57	3.51	0.83	57		
Mid	4.39	0.36	51	4.23	0.35	51	3.41	0.62	51		
Post	4.45	0.35	51	4.27	0.34	51	3.58	0.56	51		
Gender											
Female	4.37	0.38	117	4.29	0.32	117	3.44	0.63	83	Know: t = -0.042	.967
Non-Female	4.38	0.37	42	4.21	0.38	42	3.66	0.56	31	Beliefs: t = 1.20	.235
										App: t = -1.80	.078+
Ethnicity											
White	4.43	0.33	75	4.25	0.35	75	3.68	0.59	53	Know: t = 1.88	.062+
Non-White	4.32	0.40	84	4.29	0.32	84	3.34	0.60	61	Beliefs: t = -0.643	.521
										App: t = 3.01	.003**
Education											
High School	4.39	0.36	77	4.24	0.33	77	3.50	0.50	53	Know:	.542

										t = 0.612	
Undergraduate+	4.36	0.39	82	4.30	0.34	82	3.49	0.70	61	Beliefs: t = -1.11	.269
										App: t = 0.091	.928
STP Experience											
New	4.34	0.37	125	4.22	0.34	125	3.40	0.61	80	Know: t = -2.33	.023*
Returning	4.50	0.35	34	4.44	0.25	34	3.74	0.57	34	Beliefs: t = -4.03	< .001***
										App: t = -2.83	.006**
PLC Group											
ANOVA	F(3,155) = 3.03			F(3,155) = 1.58			F(3,110) = 1.41				
ANOVA p-value	p = .031*			p = .196			p = .243				
Group 1	4.44	0.33	59	4.30	0.34	59	3.42	0.53	38		
Group 2	4.39	0.33	36	4.30	0.35	36	3.42	0.77	25		
Group 3	4.22	0.46	36	4.16	0.28	36	3.51	0.63	27		
Group 4	4.42	0.35	28	4.30	0.37	28	3.75	0.47	24		
Tukey HSD: Group 1 vs. 3	diff = 0.22, p = .023*			n.s.			n.s.				

Note. Knowledge and Skills and Professional Attitudes each measured as mean composite scores on a 5-point Likert scale across six and nine survey items, respectively. Application of Learned Skills measured as mean composite score across ten items on a 5-point Likert scale. T-values reflect Welch's independent samples t-tests for binary demographic comparisons. One-way ANOVAs test between-group differences across PLC Groups; Levene's test indicated violation of homogeneity of variance for Knowledge ($p = .034$), so Tukey HSD results should be interpreted with caution. All remaining pairwise Tukey comparisons were non-significant. Gender coded 0 = Female, 1 = Non-Female. Ethnicity coded 0 = White, 1 = Non-White. Education coded 0 = High School, 1 = Undergraduate and above. STP Experience coded 0 = New, 1 = Returning. n.s. = not significant. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Descriptive analyses revealed variation in satisfaction across some staff demographic characteristics and group levels but not others. For gender, a Welch's independent samples t-test was conducted to examine whether staff-reported knowledge and skills scores differed significantly between female (Gender_dum = 0) and non-female (Gender_dum = 1) staff members. The test revealed no statistically significant difference between groups, $t(74.13) = -0.04$, $p = .967$ (See Table 6 on p. 107), with female staff reporting a mean knowledge and skills score of 4.37 ($SD = 0.38$) and non-female staff reporting a mean knowledge and skills score of 4.38 ($SD = 0.37$), a negligible difference of only 0.003 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.14, 0.13]$ spanned zero, further confirming that the observed difference is attributable to chance rather than a meaningful group difference. Taken together, these findings indicate that gender was not associated with differential levels of self-reported knowledge and skill confidence, with both female and non-female staff reporting comparably high and nearly identical knowledge scores across the program.

Similarly, the self-reported mean knowledge and skills of STP staff were not found to be statistically different based on ethnicity. A Welch's independent samples t-test was conducted to examine whether staff-reported knowledge scores differed significantly between White (Ethnicity_dum = 0) and Non-White (Ethnicity_dum = 1) staff members. The test revealed no statistically significant difference between groups, $t(156.38) = 1.88$, $p = .062$, though the result approached significance (Table 6). White staff reported a mean knowledge score of 4.43 ($SD = 0.33$) and Non-White staff reported a mean knowledge score of 4.32 ($SD = 0.40$), a difference of 0.11 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.006, 0.22]$ marginally spanned zero, suggesting a trend toward higher knowledge scores among White staff that did not meet the threshold for statistical significance. These findings indicate that ethnicity was not significantly associated with differential levels of self-reported knowledge and skill confidence.

A Welch's independent samples t-test was conducted to examine whether staff-reported knowledge and skill scores differed significantly between high school staff ($\text{Education_dum} = 0$) and undergraduate and above staff ($\text{Education_dum} = 1$). The test revealed no statistically significant difference between groups, $t(157) = 0.61$, $p = .542$ (See Table 6 on p. 107), with high school staff reporting an overall mean knowledge and skill score of 4.39 ($SD = 0.36$) and undergraduate and above staff reporting an overall mean knowledge and skill score of 4.36 ($SD = 0.39$), a negligible difference of only 0.04 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.08, 0.15]$ spanned zero, further confirming that the observed difference is attributable to chance rather than a meaningful group difference. Taken together, these findings indicate that education level was not associated with differential levels of self-reported knowledge and skill confidence, with both high school and undergraduate and above staff reporting comparably high and nearly identical knowledge scores across the program.

Mean knowledge and skill scores were found to differ significantly based on prior STP experience. A Welch's independent samples t-test was conducted to examine whether staff-reported knowledge scores differed significantly between new ($\text{STP.Exp} = 0$) and returning ($\text{STP.Exp} = 1$) staff members. The test revealed a statistically significant difference between groups, $t(55.96) = -2.33$, $p = .023$ (Table 6), with returning staff reporting meaningfully higher overall mean knowledge scores across timepoints ($M = 4.50$, $SD = 0.35$) than new staff ($M = 4.34$, $SD = 0.37$), a difference of 0.16 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.29, -0.02]$ did not include zero, further supporting the conclusion that the observed difference is unlikely to be attributable to chance. These findings suggest that prior STP experience was associated with higher levels of self-reported knowledge and skill confidence, which is consistent with the expectation that returning staff would enter the program with a stronger foundation of accumulated knowledge from their previous STP

participation, potentially allowing them to more readily consolidate and build upon new learning within the PLC.

Results from staff-reported knowledge scores across PLC groups revealed modest variability in mean scores. Group 1 reported the highest overall mean knowledge and skill score ($M = 4.44$, $SD = 0.33$), followed closely by Group 4 ($M = 4.42$, $SD = 0.35$) and Group 2 ($M = 4.39$, $SD = 0.33$), with Group 3 reporting the lowest mean knowledge and skill score of the four groups ($M = 4.22$, $SD = 0.46$) (See Table 6 on p. 107). A one-way ANOVA was conducted to examine whether staff-reported knowledge and skill scores differed significantly across the four PLC groups. The overall ANOVA was statistically significant, $F(3, 155) = 3.03$, $p = .031$ (Table 6), indicating that at least one PLC group reported meaningfully different knowledge scores compared to the others.

Prior to conducting post-hoc comparisons, Levene's test was performed to assess the homogeneity of variance assumption. The result was statistically significant, $F(3, 155) = 2.97$, $p = .034$, indicating that the assumption of equal variances across the four PLC groups was violated. However, as Tukey's HSD was the post-hoc test run in the current analysis, results should be interpreted with caution given the violation of the homogeneity of variance assumption. Tukey's HSD post-hoc comparisons revealed that the significant effect was driven primarily by the difference between Group 1 and Group 3, which was the only pairwise comparison to reach statistical significance (mean difference = 0.22, $p = .023$, 95% CI [0.02, 0.42]) (Table 6). All remaining pairwise comparisons were non-significant. These findings indicate that Group 1 reported significantly higher knowledge scores than Group 3, while no other group pairings differed significantly from one another.

Having established the descriptive statistics of staff-reported knowledge and skill scores across demographic characteristics and PLC group membership, the analysis next turns to the primary inferential question underlying research question 2A, to what extent does time, as a function of PLC participation, predict changes in staff-reported knowledge and skills across the three program

timepoints? To address this question, a multilevel modeling approach was employed to account for the nested structure of repeated observations within individual staff members. Prior to interpreting model results, the intraclass correlation coefficient (ICC) was examined to evaluate the degree to which variability in knowledge and skill scores was attributable to between-person versus within-person differences, and to confirm the appropriateness of the multilevel modeling framework.

The ICC indicated that approximately 62% of the variance in Knowledge and Skills scores was attributable to differences between staff members (see Table 7 below), with the remaining variance reflecting within-person fluctuations across timepoints. This suggests that a meaningful proportion of variability in knowledge and skill ratings was due to stable individual differences among staff rather than random measurement error, highlighting the appropriateness of using a multilevel model to account for the nested structure of repeated observations within individuals and justifying the inclusion of staff ID as a random effect in the model.

Table 7

Intraclass Correlation Coefficients for Staff Outcomes

Variable	Between-staff variance	Residual variance	Staff ICC
Knowledge & Skills	0.08	0.05	0.62
Professional Attitude	0.05	0.07	0.42
Application	0.26	0.12	0.69

Note. N = PLC Satisfaction: 102 observations across 55 staff; Knowledge & Skills and Professional Attitude: 160 observations across 57 staff; Application: 114 observations across 56 staff. ICC values represent the proportion of total variance attributable to stable between-staff differences. Higher values indicate greater consistency within individual staff members across timepoints.

The best-fitting multilevel model examined changes in staff knowledge across three timepoints while accounting for repeated observations nested within individual staff members. Results revealed a significant effect of time on staff-reported knowledge, indicating that participation in the PLC was associated with measurable growth over the course of the program. Specifically, knowledge scores increased significantly from pre- to mid-program ($b = 0.10, p = .035$) and again from pre- to post-

program ($b = 0.16$, $p < .001$, Cohen's $d = 0.42$), suggesting a steady upward trajectory in perceived knowledge and skill confidence across the intervention (see Table 8 below). The random effects structure indicated moderate between-person variability in baseline knowledge ($SD = 0.30$) and smaller within-person variability ($SD = 0.22$), suggesting that while staff differed somewhat in their initial knowledge levels, they generally demonstrated consistent positive change over time (Table 8). Overall, these findings show that PLC participation contributed to significant gains in staff knowledge and skill development, underscoring the role of structured, ongoing professional learning in fostering practitioner growth.

Table 8

Multilevel Model Results for Knowledge and Skills

<i>Fixed Effects</i>	M0 (Intercept-Only)					M1 (Final Model)				
	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>(df)</i>	<i>p</i>	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>(df)</i>	<i>p</i>
Intercept	4.37	(0.04)	101.60	(54)	***	4.29	(0.05)	86.35	(92)	***
Timepoint (Mid)						0.10	(0.05)	2.16	(101)	*
Timepoint (Post)						0.16	(0.05)	3.44	(101)	***
<i>Random Effects</i>	<i>Var</i>					<i>Var</i>				
Intercept										
Staff	0.08					0.09				
Residual	0.06					0.05				
<i>Model Information</i>										
No. Params Est	3					5				
AIC	102.2					94.8				
BIC	111.4					110.1				

Note. N = 159 observations across 58 staff members. M0 = Intercept-only (null) model with Staff.ID as random effect, estimated using maximum likelihood (ML). M1 = Final model with Timepoint predictor and Staff as random effect, estimated using ML. Pre-camp timepoint serves as reference category. Knowledge and Skills measured on 5-point Likert scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*). Significant increases observed at both mid-camp and post-camp. AIC and BIC reductions indicate improved model fit with timepoint. * $p < .05$, ** $p < .01$, *** $p < .001$.

Staff Perception of PLC Impact on Knowledge and Skills

The following section will address part of research question 2A, how did STP staff perceive the impact of the PLC on their knowledge and skills? To determine how staff rated their satisfaction with PLCs, thematic analysis was used to analyze and interpret post-program staff interviews with 12 of the 57 STP staff members.

The knowledge and skills theme captured how staff applied learning from the PLC to enhance their professional practice and effectiveness within the STP. Across all interviews, this construct was referenced by all 12 participants, a total of 101 times, underscoring its centrality to staff development. Four interrelated subthemes emerged: *STP Skills*, *Professional Development Skills*, *Teamwork*, and *Attitude Toward Students*. PLC Group 1 contributed 9 references across 3 interviewed participants, representing 8.7% of total theme references when population-adjusted. PLC Group 2 contributed 46 references across 3 interviewed participants, representing 44.6% of total theme references when population-adjusted. PLC Group 3 contributed 28 references across 4 interviewed participants, representing 20.4% of total theme references when population-adjusted. And PLC Group 4 contributed 18 references across 2 interviewed participants, representing 26.2% of total theme references when population-adjusted. These distributions suggest that engagement with knowledge- and skill-building content was broad but varied by group context and focus.

STP Skills. STP skills encompassed practical, program-specific strategies staff gained for managing student behavior and adhering to treatment protocols, including handling group dynamics, teaching pro-social skills, managing sensitive conversations, applying de-escalation strategies, and maintaining fidelity to the STP manual. This theme was the most frequently referenced out of the Knowledge and Skills themes, with 54 references across 11 of 12 participants.

By PLC group, references were highest in PLC Group 2 (24 references), followed by PLC Group 3 (13 references), PLC Group 4 (10 references), and PLC Group 1 (7 references). Charlotte, a returning counselor from PLC Group 3 reflected on facilitating social skills instruction due to PLC participation:

I would say our discussions about pro-social behavior with the students are really helpful and insightful for me...doing some of that teaching and coaching about appropriate communication or contact with friends, how to have conversations if you don't want to be friends with someone. Kennedy a counselor from PLC Group 2 discussed how a PLC meeting helped them address specific camper issues through the STP framework:

We had one meeting where we discussed hygiene issues with our campers, and how we could approach that from a fidelity perspective of the STP, by, like- calling points for violating activity rules for not using materials and possessions appropriately and I found that to be pretty helpful.

Demographic differences were notable, with 77.8% of STP Skills endorsements coming from non-White staff; 78.9% of "awareness of implementation strategies", 100% of "teaching pro-social behaviors", and 77.8% of "adhering to the STP manual" endorsements coming from returning staff.

This theme reflects how the PLC facilitated mastery of program-specific competencies and encouraged hands-on practice and discussion to reinforce understanding and skill transfer. Findings from this theme indicate that the PLC significantly enhanced staff knowledge and application of STP-specific strategies, providing both procedural understanding and practical skills that directly supported effective student management.

Professional Development Skills. Professional development skills theme reflects staff growth in core competencies that extend beyond immediate student interactions, including improved role communication and the development of personal coping strategies for managing the demands of an intensive clinical environment. Across interviews, this theme was referenced 22 times and endorsed by 8 of 12 participants, making it one of the more frequently cited facilitators of PLC effectiveness.

Analysis by PLC group revealed variability in references: PLC Group 1 contributed 2 references, PLC Group 2 contributed 10 references, PLC Group 3 contributed 6 references, and PLC Group 4

contributed 4 references. Adam, a new staff member from PLC Group 3 noted how practice with emotion regulation in their PLC meetings impacted their professional growth:

If we talk in a PLC about how I should think differently when certain students are escalated...that might help me respond better and do a better job of helping de-escalate the student. Or even further removed, if I'm exercising better self-care, I might be more available and present when the students are there.

Additionally, Lincoln, a returning staff member from PLC Group 2 discussed how the PLC helped with emotion regulation for counselors and how that translated to campers:

The PLC- it's kind of like that domino effect. If the PLC is helping counselors learn how to manage their own emotions, while providing emotional coaching then the campers are going to get treated better because their counselors are also more grounded.

Jacob, a new staff member from PLC Group 2 discussed how the PLC aided in how to maintain respect for campers while venting frustrations:

I also think the discussions about what are the appropriate outlets for blowing off steam (were helpful). I think I found that that was useful, and I could see that shift in things in my bunk after the fact. That stands out to me, those aspects of the PLC.

The Professional Development theme promoted skill-building, self-awareness, and the practical application of strategies for staff growth. Participants described PLCs as providing concrete strategies for professional growth that translated directly to student interactions. Overall, these findings indicate that PLC participation helped staff develop transferable professional competencies that enhanced both their immediate performance with students and their broader clinical skills.

Teamwork. The teamwork theme captured staff learning around collaborative functioning, including the ability to work effectively with co-staff, share responsibilities, and provide constructive

feedback to strengthen group cohesion and performance. Teamwork was referenced 13 times by 8 of 12 interview participants.

References by PLC group showed variability: PLC Group 1 did not contribute any references, PLC Group 2 contributed 2 references, PLC Group 3 contributed 7 references, and PLC Group 4 contributed 2 references. Participants highlighted the practical utility of PLC discussions for supporting teamwork in real-time camp activities through improved communication. Paula, a PLC Group 1 staff member reflected,

I think it helped the counselors understand how to communicate better, and that had an impact on the kids. It helped with organization and made things less chaotic. Delegating and figuring out logistics made it seem less chaotic for the students.

Lincoln, a staff member of PLC Group 2 who was the lead counselor in their bunk noted that the PLCs helped them figure out where their staff felt comfortable and the best way to organize their bunk:

I think it gave me a good chance to open up and talk and hear feedback... but it was also very, very insightful to hear where my team was at and see that they were willing to tell everyone else where they were at, too. So that helped so I could slowly pick up on what they felt comfortable with what they didn't feel comfortable with so I could know where should I put this person to lead.

Notably, 88.9% of endorsements for “working as a team” came from non-White staff, indicating demographic differences in emphasis on this aspect of collaborative learning. These findings suggest that the PLC provided a structured opportunity for staff to develop collaborative skills, which in turn supported their capacity to function effectively as a team and to transfer these collaborative strategies to their interactions with students.

Attitude Toward Students. The attitude toward students theme captured staff development of professional interactions that support effective practice, including demonstrating unconditional positive

regard for students and adopting appropriate ways of discussing student behaviors. This theme was referenced least out of all themes in this area (12 references) by 4 of the 12 interview participants.

Across PLC groups, references were highest in PLC Group 2 (8 references), followed by PLC Groups 3 and 4 (2 references each), with no references in PLC Group 1. Lincoln from PLC Group 2 emphasized:

The staff this year was absolutely phenomenal...we learned if there's a really escalated situation it's important to keep the dignity of the student and not talk about the situation in a way that is not professionally appropriate and just kind of focus on all the good moments that the child has. Adam, a new staff member from PLC Group 3 noted that the PLCs helped them keep a positive view of campers even after difficult escalations:

Something we were reminded about is, no matter how difficult it is to deal with something going on with the camper, they are having a more difficult time than you are. That was something that was brought up in training that we were reminded of during the PLC. It helped me reframe the way I look at an escalated camper and how to deal with it. It's not about me, even if I'm being aggressed towards. It's about helping them out of a troubling headspace and how you can help that as opposed to thinking about the effects of what they're doing and how it affects you...I think that changed the way I would interact with an escalated camper.

Demographic differences were pronounced, as 100% of endorsements for "appropriate ways to discuss students' behaviors" came from PLC Group 2 staff. This theme reinforced staff attitudes that are consistent with core program values and ethical expectations, helping ensure that interpersonal and instructional practices are aligned with program goals and professional standards.

Research Question 2A Summary

Research question 2A sought to answer the question, to what extent does time, as a function of PLC participation, predict changes in staff-reported knowledge and skills across three timepoints (pre-

program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their knowledge and skills? Findings drew on both quantitative and qualitative data to provide a comprehensive understanding of how PLC participation shaped staff knowledge and skill development across the program. Quantitative analyses indicated that time was a significant predictor of growth in staff-reported knowledge and skills, with mean scores increasing steadily from pre- to mid- to post-program. Qualitative analyses enriched these quantitative findings by illuminating how staff experienced and made meaning of their knowledge and skill growth through PLC participation. All 12 interviewed participants referenced the knowledge and skills theme a total of 101 times across four subthemes, *STP Skills*, *Professional Development Skills*, *Teamwork*, and *Attitude Toward Students*, indicating the centrality of professional learning to the PLC experience.

The integration of quantitative and qualitative findings within this convergent mixed methods design reveals that PLC participation contributed to meaningful and significant growth in staff-reported knowledge and skills, and that this growth was experienced across multiple dimensions of professional practice. The alignment between quantitative gains over time and qualitative accounts of skill acquisition and application suggests that the PLC served as an effective vehicle for practitioner development within the STP. At the same time, variation across PLC groups and demographic subgroups, observed in both the quantitative and qualitative data, indicates that the degree to which staff benefited from this professional learning was not uniform, but rather was shaped by contextual and individual factors that influenced the quality and depth of engagement across the program.

Impact of the PLC on STP Staffs' Professional Attitude

This section addresses research question 2B: to what extent does time, as a function of PLC participation, predict changes in staff-reported professional attitudes across three timepoints (pre-program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their professional attitudes? To answer the quantitative component, a linear multilevel modeling

approach alongside descriptive statistics were used to analyze survey data, while thematic analysis of post-program interviews with 12 STP staff members captured staff perceptions of the PLC's influence on their professional attitudes.

Professional Attitude Quantitative Findings

The following portion of the paper will answer the part of research question 2B that asks, to what extent does time, as a function of PLC participation, predict changes in staff-reported professional attitudes across three timepoints (pre-program, mid-program, and post-program)? To determine how staff rated their professional attitude over time, descriptive statistics and a linear multilevel modeling approach was used. The dependent variable is the level of self-reported professional attitudes that STP staff report at a given timepoint. This variable is measured as a mean composite score at the pre-program, mid-program, and post-program timepoints across nine relevant items on the staff survey (each rated on a five-point Likert scale). Independent variables include time, treated as a fixed effect, while staff ID was included as a random effect to account for the repeated measures nested within individual participants. Descriptive statistics will first be computed to summarize central tendencies and distributions of all study variables.

Results indicated that staff reported high overall self-ratings of professional attitude throughout the entirety of the STP. Across all staff and timepoints, the overall mean staff-reported professional attitude score was 4.27 ($SD = 0.34$, $N = 159$) on a 5-point scale (See Table 6 on p. 107), indicating generally high levels of self-perceived knowledge and skill confidence among STP staff, with scores ranging from 3.56 to 5.00. The fact that scores started toward the high-end of the Likert scale and remained there throughout, suggests that STP staff entered and progressed through the program with a generally strong foundation of positive professional attitudes, consistent with the expectation that structured professional learning through the PLC would reinforce and sustain staff beliefs about the PLC and STP framework. Unlike the steady upward trajectory observed for knowledge and skills, professional

attitude scores showed a slight dip from pre-program to mid-program before partially recovering by post-program ($M = 4.30, SD = 0.31$; $M = 4.23, SD = 0.35$; $M = 4.27, SD = 0.34$, respectively) (Table 6).

Descriptive analyses revealed little variation in professional attitude scores across staff demographic characteristics and group levels. For gender, a Welch's independent samples t-test was conducted to examine whether staff-reported professional attitude scores differed significantly between female (Gender_dum = 0) and non-female (Gender_dum = 1) staff members. The test revealed no statistically significant difference between groups, $t(63.22) = 1.20, p = .235$ (Table 6), with female staff reporting a mean professional attitude score of 4.29 ($SD = 0.32$) and non-female staff reporting a mean professional attitude score of 4.21 ($SD = 0.38$), a difference of only 0.08 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.05, 0.21]$ further demonstrated the lack of significant difference. Gender was not found to be a significant factor in differential levels of self-reported professional attitudes, with both female and non-female staff reporting comparably high attitude scores across the program.

Similarly, staff-reported professional attitude scores were not found to differ statistically based on ethnicity. A Welch's independent samples t-test was conducted to examine whether professional attitude scores differed significantly between White (Ethnicity_dum = 0) and Non-White (Ethnicity_dum = 1) staff members. The test revealed no statistically significant difference between groups, $t(151.40) = -0.64, p = .521$ (See Table 6 on p. 107), with White staff reporting a mean professional attitude score of 4.25 ($SD = 0.35$) and Non-White staff reporting a mean professional attitude score of 4.29 ($SD = 0.32$), a difference of only 0.03 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.14, 0.07]$ spanned zero, indicating that ethnicity was not significantly associated with differential levels of professional attitude across the program.

Education level was also considered to examine whether professional attitude scores differed significantly between high school staff (Education_dum = 0) and undergraduate and above staff

(Education_dum = 1). A Welch's independent samples t-test revealed no statistically significant difference between groups, $t(157.00) = -1.11$, $p = .269$ (Table 6), with high school staff reporting a mean professional attitude score of 4.24 ($SD = 0.33$) and undergraduate and above staff reporting a mean professional attitude score of 4.30 ($SD = 0.34$), a negligible difference of 0.06 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.16, 0.05]$ spanned zero, further confirming that education level was not associated with differential levels of professional attitude.

Professional attitude scores also differed significantly based on prior STP experience. A Welch's independent samples t-test was conducted to examine whether scores differed significantly between new (STP.Exp = 0) and returning (STP.Exp = 1) staff members. The test revealed a statistically significant difference between groups, $t(71.31) = -4.03$, $p < .001$ (Table 6), with returning staff reporting notably higher overall mean professional attitude scores ($M = 4.44$, $SD = 0.25$) than new staff ($M = 4.22$, $SD = 0.34$), a difference of 0.21 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.31, -0.11]$ did not include zero, supporting the conclusion that this difference is unlikely to be attributable to chance. These findings suggest that prior STP experience was associated with stronger professional attitudes toward the PLC and STP framework, consistent with the expectation that returning staff would bring a more established set of program-aligned beliefs developed through their previous participation and decision to return to the STP setting.

Examination of professional attitude scores across PLC groups revealed relatively modest variability in mean scores. Group 1, Group 2, and Group 4 each reported identical mean professional attitude scores ($M = 4.30$), while Group 3 reported the lowest mean of the four groups ($M = 4.16$, $SD = 0.28$) (See Table 6 on p. 107). A one-way ANOVA indicated that the overall differences across PLC groups were not statistically significant, $F(3, 155) = 1.58$, $p = .196$ (Table 6). These findings indicate that PLC group membership was not significantly associated with differential levels of professional attitude, and

that the modest mean differences observed across groups are likely attributable to chance variation rather than meaningful between-group distinctions.

Having established the descriptive landscape of staff-reported professional attitude scores across demographic characteristics and PLC group membership, the analysis next turns to the primary inferential question underlying research question 2B: to what extent does time, as a function of PLC participation, predict changes in staff-reported professional attitudes across the three program timepoints? Notably, unlike the steady upward trajectory observed for knowledge and skills, the descriptive pattern for professional attitudes suggested relative stability across timepoints, with a slight mid-program dip followed by partial recovery at post-program. To formally test whether these descriptive patterns reflected statistically meaningful change, a multilevel modeling approach was employed to account for the nested structure of repeated observations within individual staff members. Prior to interpreting model results, the intraclass correlation coefficient (ICC) was examined to evaluate the degree to which variability in professional attitude scores was attributable to between-person versus within-person differences and to confirm the appropriateness of the multilevel modeling framework.

The ICC indicated that approximately 42% of the variance in professional attitude scores was attributable to differences between staff members, while the remaining 58% reflected within-person variability across timepoints (see Table 7 on p. 112). This pattern differs notably from the ICC observed for knowledge and skills, where 62% of variance was attributable to between-person differences, suggesting that professional attitudes were comparatively more susceptible to within-person fluctuation across the program than knowledge and skill scores. The moderate ICC value nonetheless supports the inclusion of both fixed and random effects in the model, as it indicates that variability occurred at multiple levels, both between staff members and across repeated measures within individuals, justifying the multilevel modeling approach for examining change in professional attitudes over time.

A linear mixed-effects model was employed to formally address Research Question 2B by examining whether time, as a function of PLC participation, predicted significant changes in staff-reported professional attitudes across the three program timepoints. Contrary to the significant growth trajectory observed for knowledge and skills, results indicated that time was not a significant predictor of professional attitudes, with no significant change observed from pre- to mid-program ($b = -0.08$, $SE = 0.05$, $t(104.29) = -1.56$, $p = .121$) or from pre- to post-program ($b = -0.03$, $SE = 0.05$, $t(104.83) = -0.66$, $p = .508$), suggesting that mean professional attitude scores remained stable throughout the program. The random intercept variance for staff was modest ($SD = 0.22$), indicating limited between-person variability in baseline professional attitudes, while residual variance ($SD = 0.25$) reflected comparable within-person variability across timepoints (see Table 9 below). Directly addressing Research Question 2B, these findings indicate that time, as a function of PLC participation, did not significantly predict changes in staff-reported professional attitudes across the three program timepoints. Rather than facilitating growth in professional attitudes, the PLC appeared to maintain the already high levels of program-aligned beliefs that staff brought to the program, suggesting that the PLC served a sustaining rather than transformative function with respect to staff professional attitudes across the duration of the STP.

Table 9

Multilevel Model Results for Professional Attitude

<i>Fixed Effects</i>	M0 (Intercept-Only)					M1 (Final Model)				
	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>(df)</i>	<i>p</i>	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>(df)</i>	<i>p</i>
Intercept	4.27	(0.03)	122.00	(56)	***	4.30	(0.04)	97.47	(121)	***
Timepoint (Mid)						-0.08	(0.05)	-1.56	(104)	
Timepoint (Post)						-0.03	(0.05)	-0.66	(105)	
<i>Random Effects</i>	<i>Var</i>					<i>Var</i>				
Intercept										
Staff	0.05					0.05				
Residual	0.07					0.06				

Model Information

No. Params Est	3	5
AIC	87.2	88.8
BIC	96.4	104.1

Note. N = 159 observations across 58 staff members. M0 = Intercept-only (null) model with Staff as random effect, estimated using maximum likelihood (ML). M1 = Final model with Timepoint predictor and Staff as random effect, estimated using ML. Pre-camp timepoint serves as reference category. Professional Attitude measured on 5-point Likert scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*). No significant changes across timepoints were observed. * $p < .05$, ** $p < .01$, *** $p < .001$.

Staff Perception of PLC Impact on Professional Attitude

The following section will address part of research question 2B, how did STP staff perceive the impact of the PLC on their professional attitudes? To examine staff perceptions of the PLC's influence on their professional attitudes, thematic analysis was used to analyze and interpret post-program staff interviews conducted with 12 of the 57 STP staff members.

The professional attitude theme captured how staff described shifts in their orientations toward students, their sense of purpose within the camp setting, their relationships with co-staff, and their own professional growth and identity over the course of the program. Across all interviews, this construct was referenced by all 12 participants, with a total of 191 coded references, making it the most frequently referenced construct across the qualitative data and underscoring the centrality of attitudinal and identity-related growth to staff perceptions of the PLC's impact. Four interrelated subthemes emerged from the analysis: *Motivation*, *Connectedness*, *Perspective*, and *Personal Development*. Together, these subthemes illustrate how participation in the PLC fostered a deeper sense of professional purpose, strengthened interpersonal awareness, and reinforced shared values and team cohesion among counselors.

References varied across PLC groups. PLC Group 1 contributed 72 references across 3 interviewed participants, representing 36.6% of total theme references when adjusted for group size. PLC Group 2 contributed 54 references across 3 interviewed participants, representing 27.5% of total

theme references when population-adjusted. PLC Group 3 contributed 36 references across 4 interviewed participants, representing 13.7% of total theme references when population-adjusted. PLC Group 4 contributed 29 references across 2 interviewed participants, representing 22.1% of total theme references when population-adjusted. Notably, PLC Group 3 contributed the lowest population-adjusted proportion of professional attitude references, while PLC Group 1 contributed the highest proportion.

Motivation. The motivation theme captured how participation in the PLC reinforced staff members' internal drive, confidence, and sense of purpose in their work. With 100 total references across all 12 participants, this theme reflected the energizing and sustaining effects of the PLC on counselors' professional engagement. Sub-themes within motivation highlighted how staff felt more confident in their abilities, validated in their efforts, and reconnected to the reasons they chose to work at camp. Several participants also noted that the supportive and reflective nature of the PLC offered space for relaxation and stress reduction, which contributed to sustained motivation across the program. Lincoln, a returning counselor from PLC Group 2 reflected,

I think it's a really good like grounding moment for counselors to be like, okay, this is why I'm here. This is what I'm passionate about. And then go into work the next day, knowing, like being confident. In themselves, and why they're there, which I think just makes them more. Energized, feel better about themselves, and I feel like if counselors feel better about themselves, and they're in a better like mental state of mind, and they are better prepared.

Kerry, a returning counselor from PLC Group 3 discussed how the PLC interactions enhanced that team-dynamic feeling leading to more motivation and confidence:

And that we're all there to help support one another and grow and learn together. I think that was very motivating and reinforcing to me. And I think that also contributed to building up my confidence, and just- having that source of support, and knowing that, there's other counselors

who are encountering different struggles as well, and that we're all there to like help support one another and learn together.

Notably, 78.6% of population-adjusted endorsements in this theme came from non-white participants, suggesting that the PLC may have been particularly affirming and energizing for staff from diverse backgrounds. Additionally, 68.6% of “confidence” endorsements came from first-time staff, indicating that newer counselors especially benefited from the motivational aspects of PLC discussions. This theme underscores how the PLC not only enhanced counselors’ practical skills but also revitalized their sense of purpose and self-efficacy, key elements in promoting sustained engagement and emotional resilience throughout the camp experience.

Connectedness. The connectedness theme captured the sense of belonging, teamwork, and interpersonal connection that the PLC fostered among staff. With 58 total references across all 12 participants, this theme reflected how PLC meetings strengthened counselors’ integration into the camp community and enhanced collaboration across teams. Staff described forming new relationships, reconnecting with peers outside their immediate bunk groups, and improving overall group dynamics. Charlotte, a returning counselor from PLC Group 3 reflected,

I really liked the fact that...we did it with other bunks. And I also like the fact that it changed throughout the summer, which bunks we were doing it with. So, we got to interact with different people in a more personal, intimate way throughout the summer. Because I think we kind of do that during training, and then it goes away a little bit as you get into your bunk team. So being able to interact with other folks is really valuable.

Lincoln, a returning counselor from PLC Group 2 mentioned how the PLCs helped foster more of a “family” feel this year:

I feel like the staff this year really had an opportunity to remember why they're here and enjoy camp more because they're constantly being reminded of, yeah- this job is hard, like, it is really

hard. But this is what I'm doing. These are the benefits of what I'm doing. This is how I'm changing these kids lives. And then also maintaining that respect for the kids, no matter what. And just kind of like that camaraderie, too. I feel like it made us all be more aware that we're all a team. Not just the people in your bunk, but also all the counselors as a whole. So I feel like it just felt a lot more like a family this year, too, which is really nice.

Notably, 67.2% of endorsements in this theme came from returning staff, suggesting that the PLC enhanced networking and cohesion across the camp compared to prior summers without it. Additionally, 72.5% of “belongingness” endorsements came from non-white participants, highlighting the PLC’s role in creating inclusive spaces where all staff felt valued and connected. This theme demonstrates how the PLC served as a key relational factor, fostering a stronger sense of community and collaboration that carried through the summer, ultimately supporting both staff well-being and effective teamwork.

Personal Development. The personal development theme captured the growth-oriented outcomes of PLC participation, highlighting how staff used the experience to build professional skills, engage in self-reflection, and recognize the broader research value of their work. With 21 total references across seven participants, this theme reflected how the PLC provided a structured space for intentional reflection and goal setting, allowing counselors to connect their daily experiences to their ongoing professional and personal growth. Kerry, a returning counselor from PLC Group 1 reflected:

I really enjoy the PLCs, because I think it did really make a big difference compared to when we didn't have it last year. Because, I think typically after camp, you would kind of just go home and you wouldn't really spend time debriefing or reflecting on (your) day... So, I think it was really helpful in that sense to be able to be more intentional about finding the highlights of the days or setting goals for yourself. So, I really appreciated the PLCs for contributing to my growth in those ways.

Lincoln from PLC Group 2 discussed how the PLCs helped them figure out how to sell their STP experience in future professional settings:

It was just nice to hear more (about) professional development. Like- oh, this is how I'm planning to use this experience in this field, and this is what I found most useful or this is how I like to phrase it in an interview about this experience. And it was just really interesting and a fun way to brainstorm how I'm gonna use this experience myself in a professional setting.

Notably, 66.7% of all endorsements came from non-white staff, suggesting that the PLC may have offered particularly meaningful opportunities for reflection and development among diverse participants. Additionally, 77.4% of “reflection on personal growth” endorsements came from PLC Group 1, the group that also reported the highest overall satisfaction scores, indicating that consistent, high-quality PLC engagement may have strengthened participants’ sense of professional identity. This theme demonstrates how PLC participation supported both professional and personal development by encouraging reflective practice, fostering intentional goal-setting, and reinforcing counselors’ evolving identities as practitioners.

Perspective. The perspective theme represented how PLC participation broadened staff members’ outlooks by prompting reflection on camp dynamics outside of their specific bunk. With 12 total references across six participants, this theme captured how counselors developed a more nuanced understanding of challenges and events beyond their immediate roles, helping them contextualize and normalize daily experiences. Staff described gaining insight into shared behavioral patterns across bunks and appreciating the variability in how different teams approached similar challenges. Paula, a returning counselor from PLC Group 3 reflected about how the PLCs expanded their view on STP implementation:

It was helpful to get to see other bunks, like when we did them with other groups, and a lot of it was seeing similarities in how our bunks—just like, the kinds of behaviors we were seeing and

talking about that. And also- just seeing how different bunks respond to maybe similar or different behavioral things that the kids were showing. So, getting to see outside of just our bunk alone. One quote from a counselor in PLC Group 2, Kennedy, noted how PLCs helped them see how similar other bunks experiences were to their own:

Being able to be with each other at the end of the day and hear about other folks' experiences, I think kind of tightens that bond in the sense that we're all going through this together. It's easier to idealize certain bunks and be like, oh, this bunk has it all together. I don't know why I'm messing this up. And then when you get to talk about all of your experiences, you realize that everyone's just trying their best, and that's kind of reaffirming.

Notably, 53.3% of endorsements came from PLC Group 1 participants. The overrepresentation of PLC Group 1 in this theme may be due that these groups are more physically isolated from the rest of the camp compared to the other bunks, meaning they found discussions with other bunks particularly impactful in their perspective. Additionally, 75.0% came from new staff, suggesting that first-time counselors particularly benefited from the opportunity to step back and view camp dynamics from a wider lens. This theme illustrates how the PLC encouraged reflective thinking that expanded counselors' perspectives, fostering empathy, adaptability, and a stronger sense of shared experience within the camp community.

Research Question 2B Summary

Research Question 2B sought to answer the question: to what extent does time, as a function of PLC participation, predict changes in staff-reported professional attitudes across three timepoints, and how did STP staff perceive the impact of the PLC on their professional attitudes? Findings drew on both quantitative and qualitative data to provide a comprehensive understanding of how PLC participation shaped staff professional attitudes across the program. Quantitative analyses indicated that time was not a significant predictor of change in staff-reported professional attitudes, with mean scores

remaining high and relatively stable across pre-, mid-, and post-program assessments, and with prior STP experience emerging as the only demographic characteristic significantly associated with attitude scores. Qualitative analyses contextualized and deepened these quantitative findings by illuminating how staff experienced and made meaning of the PLC's influence on their professional orientations and sense of identity. All 12 interviewed participants referenced the professional attitude theme a total of 191 times, the highest reference count across all qualitative themes, across four subthemes: *Motivation, Connectedness, Perspective, and Personal Development*, highlighting the importance of attitudinal and relational growth to staff perceptions of the PLC experience.

The integration of quantitative and qualitative findings within this convergent mixed methods design reveals that rather than producing measurable shifts in professional attitudes over time, PLC participation served a sustaining and reinforcing function, maintaining the already high levels of program-aligned beliefs that staff brought to the program while deepening their sense of professional purpose, interpersonal connection, and reflective practice. The alignment between quantitative stability and qualitative accounts of renewed motivation, strengthened team cohesion, broadened perspective, and personal and professional growth suggests that the PLC's most consistent and far-reaching impact on professional attitudes operated beneath the level of statistical detection, not by transforming staff beliefs, but by affirming, deepening, and sustaining them across the duration of the STP. As with the knowledge and skills analyses, demographic patterns observed in both the quantitative and qualitative data indicate that the nature of this attitudinal impact was not uniform across all staff, with non-White participants, newer counselors, and PLC Group 1 contributing disproportionately to several qualitative themes, suggesting that the PLC's sustaining influence on professional attitudes was particularly pronounced among staff who were still developing their professional identities or who had fewer opportunities for cross-group connection outside of the PLC structure.

Impact of the PLC on STP Staffs' Application of Learned Skills

This section addresses research question 2C: To what extent does time, as a function of PLC participation, predict changes in staff-reported application of learned skills and staffing groups' adherence to the STP manual across three timepoints (pre-program, mid-program, and post-program), and how did STP staff perceive the impact of the PLC on their implementation fidelity and application of learned skills? To answer the quantitative component a linear multilevel modeling approach alongside descriptive statistics were used to analyze survey data and observed staff adherence to the STP manual (fidelity), while thematic analysis of post-program interviews with 12 STP staff members captured staff perceptions of the PLC's influence on their application of learned skills.

Application of Learned Skills Quantitative Findings

The following portion of the paper will answer the part of research question 2C that asks, to what extent does time, as a function of PLC participation, predict changes in staff-reported application of learned skills and staffing groups' adherence to the STP manual across three timepoints (pre-program, mid-program, and post-program)? To determine how staff rated their application of learned skills over time, and how observed group adherence to the STP was rated, descriptive statistics and a linear multilevel modeling approach was used. For the staff survey, the dependent variable is the level of self-reported application of learned skills that STP staff report at a given timepoint. This variable is measured as a mean composite score at the pre-program, mid-program, and post-program timepoints across ten relevant items on the staff survey (each rated on a five-point Likert scale). Independent variables include time, treated as a fixed effect, while staff ID was included as a random effect to account for the repeated measures nested within individual participants. Descriptive statistics will first be computed to summarize central tendencies and distributions of all study variables. For the observed group adherence to the STP, the dependent variable is the group-level fidelity score from the TIF, scored by a member of the leadership team, while the independent variable is time, as fidelity was scored weekly during the camp.

Results indicated that staff reported moderate overall self-ratings of application of learned skills across the duration of the STP. Across all staff and timepoints, the overall mean staff-reported application score was 3.50 ($SD = 0.61$, $N = 114$) on a 5-point scale, with scores ranging from 1.50 to 5.00 (See Table 6 on p. 107), indicating greater variability in perceived skill application compared to the comparably high and narrowly distributed scores observed for knowledge and professional attitudes. Unlike the upward trajectory observed for self-reported knowledge and skills or the relative stability observed for professional attitudes, application scores showed a slight dip from pre-program ($M = 3.51$, $SD = 0.83$) to mid-program ($M = 3.41$, $SD = 0.62$) before recovering and surpassing baseline levels by post-program ($M = 3.58$, $SD = 0.56$) (See Table 6 on p. 107), suggesting that the practical translation of PLC learning into day-to-day implementation may have lagged slightly before consolidating toward the end of the program.

Descriptive analyses revealed variation in application of learned skills scores across demographic characteristics such as ethnicity and prior STP experience. For gender, a Welch's independent samples t-test was conducted to examine whether staff-reported application scores differed significantly between female (Gender_dum = 0) and non-female (Gender_dum = 1) staff members. The test revealed no statistically significant difference between groups, $t(57.33) = -1.80$, $p = .078$ (Table 6), though the result approached significance, with female staff reporting an overall mean application score of 3.44 ($SD = 0.63$) and non-female staff reporting an overall mean application score of 3.66 ($SD = 0.56$), a difference of 0.22 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.46, 0.03]$ marginally spanned zero, suggesting a trend toward higher application scores among non-female staff that did not reach the threshold for statistical significance. These findings indicate that gender was not significantly associated with differential levels of self-reported skill application, though the approaching significance and descriptive difference of 0.22 scale points suggest this relationship may warrant further investigation in future research with larger and more balanced samples.

In contrast to the non-significant pattern observed for knowledge and professional attitudes, staff-reported application scores were found to differ significantly based on ethnicity. A Welch's independent samples t-test was conducted to examine whether application scores differed significantly between White (Ethnicity_dum = 0) and Non-White (Ethnicity_dum = 1) staff members. The test revealed a statistically significant difference between groups, $t(110.23) = 3.01$, $p = .003$ (Table 6), with White staff reporting meaningfully higher mean application scores ($M = 3.68$, $SD = 0.59$) than Non-White staff ($M = 3.34$, $SD = 0.60$), a difference of 0.33 scale points (Table 6). The 95% confidence interval for the difference in means [0.11, 0.56] did not include zero, further supporting the conclusion that the observed difference is unlikely to be attributable to chance. These findings suggest that ethnicity was significantly associated with differential levels of self-reported skill application, with White staff reporting notably higher perceived ability to apply learned strategies within their work context compared to Non-White staff, a finding that warrants careful consideration in the context of future PLC design and implementation.

Education level was not associated with meaningful differences in application scores. A Welch's independent samples t-test was conducted to examine whether application scores differed significantly between high school staff (Education_dum = 0) and undergraduate and above staff (Education_dum = 1). The test revealed no statistically significant difference between groups, $t(108.17) = 0.09$, $p = .928$ (See Table 6 on p. 107), with high school staff reporting a mean application score of 3.50 ($SD = 0.50$) and undergraduate and above staff reporting a mean application score of 3.49 ($SD = 0.70$), a difference of only 0.01 scale points (Table 6). The 95% confidence interval for the difference in means [-0.21, 0.23] spanned zero, further confirming insignificant differentiation between the groups.

As with knowledge and professional attitudes, application scores differed significantly based on prior STP experience. A Welch's independent samples t-test was conducted to examine whether application scores differed significantly between new (STP.Exp = 0) and returning (STP.Exp = 1) staff

members. The test revealed a statistically significant difference between groups, $t(65.56) = -2.83$, $p = .006$ (Table 6), with returning staff reporting meaningfully higher mean application scores ($M = 3.74$, $SD = 0.57$) than new staff ($M = 3.40$, $SD = 0.61$), a difference of 0.34 scale points (Table 6). The 95% confidence interval for the difference in means $[-0.58, -0.10]$ did not include zero, further supporting the statistically significant result. These findings suggest that prior STP experience was associated with greater self-perceived ability to apply learned strategies in practice, consistent with the expectation that returning staff would enter the program with a more developed repertoire of implementation skills developed through their previous STP participation.

Examination of application scores across PLC groups revealed modest descriptive variability, with Group 4 reporting the highest mean application score ($M = 3.75$, $SD = 0.47$), followed by Group 3 ($M = 3.51$, $SD = 0.63$), and Groups 1 and 2 reporting equivalent scores ($M = 3.42$, $SD = 0.53$ and $SD = 0.77$, respectively) (See Table 6 on p. 107). A one-way ANOVA indicated that the overall differences in application scores across PLC groups were not statistically significant, $F(3, 110) = 1.41$, $p = .243$ (Table 6), suggesting that PLC group membership was not meaningfully associated with differential levels of self-reported skill application. These findings indicate that application scores were broadly comparable across PLC groups.

With the descriptive and demographic analyses of staff-reported application scores now complete, the next section will discuss the inferential component of research question 2C, to what extent does time, as a function of PLC participation, predict changes in staff-reported application of learned skills across pre-, mid-, and post-program assessments? The descriptive data revealed a unique pattern among the three PLC outcome constructs examined in this study, a modest mid-program decline followed by a rebound and net gain by the program's end, standing in contrast to the consistent upward growth seen in knowledge and skills and the sustained stability characterizing professional attitudes. Whether this observed fluctuation represented a statistically significant change or only random variation

around a stable mean required formal testing. As a result, a multilevel modeling framework was selected to appropriately account for the non-independence of repeated observations clustered within the same staff members over time. Before turning to the model results, the intraclass correlation coefficient (ICC) was first inspected to quantify the relative contributions of between-person and within-person sources of variance in application scores, thereby evaluating whether the data structure warranted the multilevel approach.

The ICC for application of learned skills was 0.69, indicating that approximately 69% of the variance in application scores was attributable to stable between-person differences, with the remaining 31% reflecting within-person fluctuation across timepoints (see Table 7 on p. 112). This relatively high ICC is notably greater than those observed for knowledge and skills ($ICC = 0.62$) and professional attitudes ($ICC = 0.42$), and suggests that while application of learned skills showed some change over time, the majority of variance was driven by stable individual differences between staff. The high ICC strongly justifies the inclusion of staff ID as a random effect in the model, as failing to account for these stable between-person differences would substantially misrepresent the true sources of variability in application scores across the program.

A linear mixed-effects model was employed to formally address research question 2C by evaluating whether time, as a function of PLC participation, predicted statistically significant changes in staff-reported application of learned skills across the three program timepoints. Results indicated a mixed pattern of change, with the transition from pre- to mid-program yielding a non-significant increase ($b = 0.20$, $SE = 0.13$, $t(65.73) = 1.56$, $p = .123$), followed by a significant improvement from pre- to post-program ($b = 0.37$, $SE = 0.13$, $t(66.04) = 2.94$, $p = .005$, *Cohen's d* = 0.51), suggesting that meaningful gains in perceived skill application emerged more gradually over the course of the program and became statistically detectable only by the program's conclusion (see Table 10 below). The random intercept variance for staff was relatively large ($SD = 0.51$), reflecting substantial between-person variability in

baseline application scores, while residual variance was comparatively smaller ($SD = 0.34$), indicating that within-person fluctuations across timepoints were more modest than the stable differences between individuals (Table 10). Directly addressing research question 2C, these findings indicate that time, as a function of PLC participation, was a significant predictor of growth in staff-reported application of learned skills from pre- to post-program, with the PLC appearing to support a gradual but meaningful increase in staff members' perceived capacity to translate professional learning into practice across the duration of the STP.

Table 10*Multilevel Model Results for Application of Learned Skills*

	M0 (Intercept-Only)					M1 (Final Model)				
	Coeff	(SE)	<i>t</i>	(df)	<i>p</i>	Coeff	(SE)	<i>t</i>	(df)	<i>p</i>
Fixed Effects										
Intercept	3.48	(0.07)	47.05	(57)	***	3.22	(0.13)	23.85	(106)	***
Timepoint (Mid)						0.20	(0.13)	1.56	(66)	
Timepoint (Post)						0.37	(0.13)	2.94	(66)	**
Random Effects										
	Var	SD				Var	SD			
Intercept										
Staff	0.23	0.48				0.26	0.51			
Residual	0.14	0.38				0.12	0.34			
Model Information										
No. Parameters Estimated	3					5				
AIC	187.1					191.8				
BIC	195.3					204.3				

Note. N = 114 observations across 56 staff members. M0 = Intercept-only (null) model with Staff as random effect, estimated using maximum likelihood (ML). M1 = Final model with Timepoint predictor and Staff as random effect, estimated using restricted maximum likelihood (REML).

Pre-camp timepoint serves as reference category. Application measured on 5-point Likert scale (1 = *Never* to 5 = *Always*). * $p < .05$. ** $p < .01$.

*** $p < .001$.

Implementation Fidelity. In order to determine growth amongst observed fidelity, descriptive statistics and linear regression were also used. Across all staff and timepoints, the overall mean implementation fidelity score was 76.6 ($SD = 8.99$, $N = 159$) on a 100-point scale, indicating moderate-to-high levels of adherence to the STP manual across the program (see Table 11 below). Scores ranged from 54 to 93, reflecting meaningful variability in implementation quality across individual staff members and suggesting that while most staff demonstrated reasonably strong fidelity to the program, some groups fell notably below the camp average. When examined across timepoints, implementation fidelity demonstrated a consistent and progressive upward trajectory across the program. Mean fidelity scores increased from pre-program ($M = 72.9$, $SD = 10.0$) to mid-program ($M = 76.1$, $SD = 7.13$) and again to post-program ($M = 81.3$, $SD = 7.31$), representing a total gain of 8.4 points from the start to the conclusion of the program (Table 11). Notably, the standard deviation in fidelity scores narrowed progressively from pre-program to mid- and post-program, declining from 10.0 at pre-program to approximately 7.2 at both mid- and post-program, suggesting that staff not only improved their overall adherence to the STP manual over time but also became more consistent and uniform in their implementation quality as the program progressed.

Table 11*Descriptive Statistics for Implementation Fidelity by PLC Group and Timepoint*

	Timepoint	<i>N</i>	<i>M</i>	<i>SD</i>	Min	Max
Overall		159	76.6	8.99	54	93
By Timepoint						
	Pre	57	72.9	10.0	54	89
	Mid	51	76.1	7.13	66	85.5
	Post	51	81.3	7.31	72	93
PLC Group 1		59	74.2	10.6	54	89
	Pre	21	70.7	14.7	54	89
	Mid	18	75.8	7.74	67	84
	Post	20	76.6	6.36	72	85

PLC Group 2		36	73.6	6.77	63	81
	Pre	13	73.5	8.61	63	80
	Mid	12	69.4	4.25	66	74.2
	Post	11	78.3	2.61	76	81
PLC Group 3		36	84.2	5.99	77	93
	Pre	12	77.5	0.52	77	78
	Mid	12	83.6	1.96	81.8	85.5
	Post	12	91.5	1.57	90	93
PLC Group 4		28	75.9	4.85	69	83
	Pre	11	71.7	2.61	69	74
	Mid	9	75.6	2.90	72.5	78
	Post	8	82.1	0.78	81.5	83

Note. Fidelity scores are reported on a 100-point scale based on the Treatment Integrity Form (TIF). *M* = mean; *SD* = standard deviation; Min = minimum score; Max = maximum score. Overall *N* reflects all staff observations across timepoints.

Descriptive analyses of implementation fidelity scores across PLC groups revealed meaningful variability in both overall fidelity levels and trajectories across timepoints. Overall, Group 3 reported the highest mean fidelity score ($M = 84.2$, $SD = 5.99$), followed by Group 4 ($M = 75.9$, $SD = 4.85$), Group 1 ($M = 74.2$, $SD = 10.6$), and Group 2 reporting the lowest overall mean fidelity of the four groups ($M = 73.6$, $SD = 6.77$) (Table 11).

When examined across timepoints, all four groups demonstrated an overall upward trajectory in fidelity from pre- to post-program, though the magnitude and consistency of growth varied considerably across groups. Group 3 showed the most pronounced and consistent improvement, increasing from pre-program ($M = 77.5$, $SD = 0.52$) to mid-program ($M = 83.6$, $SD = 1.96$) and again to post-program ($M = 91.5$, $SD = 1.57$), a total gain of 14.0 points across the program and the highest post-program fidelity score of any group (Table 11). Group 4 also demonstrated a steady upward trajectory, increasing from pre-program ($M = 71.7$, $SD = 2.61$) to mid-program ($M = 75.6$, $SD = 2.90$) and post-program ($M = 82.1$, $SD = 0.78$), a total gain of 10.4 points. Group 1 showed a similar pattern of incremental growth from pre-

program ($M = 70.7$, $SD = 14.7$) to mid-program ($M = 75.8$, $SD = 7.74$) and post-program ($M = 76.6$, $SD = 6.36$), a total gain of 5.9 points. Group 2 displayed a more irregular pattern, with fidelity declining slightly from pre-program ($M = 73.5$, $SD = 8.61$) to mid-program ($M = 69.4$, $SD = 4.25$) before recovering to its highest point at post-program ($M = 78.3$, $SD = 2.61$), a net gain of 4.8 points but with a mid-program dip that distinguished it from the more linear trajectories observed in the other groups. Below is the table for implementation fidelity results by PLC Group throughout the summer (see Table 11 on p. 135).

Analyses of staff adherence to the STP manual (fidelity) via multilevel model (see Table 12 below) revealed significant overall improvements across the STP. Fidelity amongst all staff (measured by a member of the leadership team and scored out of 100 points on the TIF checklist) increased from pre- to mid-program ($b = 4.85$, $SE = 1.33$, $p < .001$) and from pre- to post-program ($b = 5.79$, $SE = 1.29$, $p < .001$). Model comparisons indicated a significant interaction between PLC group and timepoint, $\Delta\chi^2(6) = 38.15$, $p < .001$ (see below), suggesting that the degree of improvement varied among PLC groups. For example, PLC Group 2 exhibited a significant decrease in fidelity at mid-program ($b = -8.83$, $SE = 2.12$, $p < .001$), whereas PLC Groups 3 and 4 demonstrated substantial improvements at post-program ($b = 8.21$, $SE = 2.12$, $p < .001$; $b = 4.56$, $SE = 2.31$, $p = .051$, respectively) (Table 12).

Table 12

Multilevel Model Results for Staff Fidelity

<i>Fixed Effects</i>	M0 (Intercept-Only)					M1 (Final Model)				
	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>(df)</i>	<i>p</i>	<i>Coeff</i>	<i>(SE)</i>	<i>t</i>	<i>(df)</i>	<i>p</i>
Intercept	76.56	(0.95)	80.81	(59)	***	70.67	(4.09)	17.29	(5)	***
<i>Main Effects</i>										
PLC Group 2						2.61	(6.47)	0.40	(5)	
PLC Group 3						6.83	(6.48)	1.06	(5)	
PLC Group 4						1.07	(6.49)	0.17	(5)	
Timepoint (Mid)						4.85	(1.33)	3.64	(142)	***
Timepoint (Post)						5.79	(1.29)	4.49	(142)	***

Interaction Effects

Group 2 × Mid	-8.83	(2.12)	-4.16	(142)	***
Group 3 × Mid	1.27	(2.15)	0.59	(142)	
Group 4 × Mid	-1.05	(2.29)	-0.46	(142)	
Group 2 × Post	-0.86	(2.13)	-0.41	(142)	
Group 3 × Post	8.21	(2.12)	3.87	(142)	***
Group 4 × Post	4.56	(2.31)	1.97	(142)	*

Random Effects

	<i>Var</i>	<i>Var</i>
Intercept		
Bunk	35.19	47.68
Residual	44.36	17.04

Model Information

No. Params Est	3	14
AIC	1126.5	912.0
BIC	1135.7	957.3

Note. N = 159 observations across 58 staff members nested in 9 bunks. M0 = Intercept-only (null) model with Staff.ID as random effect, estimated using maximum likelihood (ML). M1 = Final model with PLC Group × Timepoint interaction, with Bunk as random effect, estimated using restricted maximum likelihood (REML). PLC Group 1 and Pre-camp timepoint serve as reference categories. Significant interaction effects indicate that fidelity trajectories differed by PLC Group. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 13*Model Comparison for Staff Fidelity*

Model	Parms	-2LL	AIC	BIC	Chi-Sq (df)	
M0: Main Effects Only	8	962	978	1002		
M1: + PLC Group × Timepoint	14	924	952	995	38.15 (6)	***

Note. N = 159 observations across 58 staff members nested in 9 bunks. Parms = number of parameters estimated; -2LL = -2 log-likelihood (deviance); AIC = Akaike information criterion; BIC = Bayesian information criterion. Both models estimated using maximum likelihood (ML) with Bunk as random effect. Chi-square test compares M1 to M0. M0 includes main effects of PLC Group (Groups 2-4 dummy coded with Group 1 as reference) and Timepoint (Mid and Post contrasted with Pre). M1 adds the PLC Group × Timepoint interaction. Lower AIC and BIC values indicate better model fit. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Staff Perception of PLC Impact on Implementation Fidelity and Application of Learned Skills

The following section will address part of research question 2C, how did STP staff perceive the impact of the PLC on their implementation fidelity and application of learned skills? To examine staff perceptions of the PLC's influence on their ability to translate professional learning into practice, thematic analysis was used to analyze and interpret post-program staff interviews conducted with 12 of the 57 STP staff members.

The implementation fidelity and application of learned skills theme captured how staff described translating concepts and strategies discussed during PLC sessions into concrete, in-the-moment practice within the STP setting. Unlike the knowledge and skills theme, which was referenced by all 12 participants a total of 101 times, this construct was referenced by 9 of the 12 participants, with a total of 30 coded references, suggesting that while the development of knowledge and skills was broadly and consistently recognized across staff, the direct application of those skills in practice was discussed more selectively and may have been experienced as a more individualized aspect of PLC participation. Four interrelated subthemes emerged from the analysis: *Intangible Implementation Strategies*, *Real-Time Communication with Co-Staff*, *Managing Student Interactions*, and *Preparation*, collectively illustrating how counselors drew on PLC discussions to strengthen adherence to the STP manual, behavior management, communication, and planning within their daily work at camp.

References varied across PLC groups. PLC Group 1 contributed 10 references across three interviewed participants, representing 33.1% of total theme references when adjusted for group size. PLC Group 2 contributed 6 references across three interviewed participants, representing 19.8% of total theme references when population-adjusted. PLC Group 3 contributed 9 references across four interviewed participants, representing 22.3% of total theme references when population-adjusted. PLC Group 4 contributed 5 references across two interviewed participants, representing 24.8% of total theme references when population-adjusted. The distribution of references across groups was relatively

balanced when adjusted for group size, with no single group contributing a disproportionately high or low proportion of references, suggesting that the perceived relevance of skill application discussions was broadly distributed across PLC group contexts rather than concentrated within any particular group.

Intangible Implementation Strategies. The intangible implementation strategies theme described some of the subtle, preventive approaches staff used to sustain student engagement and minimize behavioral challenges. With 15 total references across seven participants, it was the most prevalent subtheme within the application of learned skills construct. These strategies included individualized supports, preventive coaching, and the use of reinforcement to promote group participation. Carly, a new counselor from PLC Group 1 explained:

We talked about how to re-engage a student that maybe is kind of like not interested in what the group is doing... making the group activity more fun than anything else and using that as a strategy to re-engage a student rather than going off to give them lots of attention.

Maggie, another first-time staff member from PLC Group 1 elaborated on preventative strategies:

We talked about preemptive prompting and coaching—de-escalating a situation before it happens... how to spot the warning signs of emotions getting big. By the end of week 5, we were a lot better at kind of de-escalating situations before they happened.

Notably, 86% of “preventative strategies” references came from new staff, suggesting that less experienced counselors relied on the PLC to develop proactive behavior management techniques. This theme demonstrates how PLC participation supported the acquisition of nuanced, anticipatory strategies that strengthened staffs’ ability to manage behavior effectively and maintain a positive, structured camp environment.

Real-Time Communication with Co-Staff. The real-time communication with co-staff theme, referenced eight times across three participants, highlighted strategies for maintaining effective coordination and collaboration among counselors. Staff described the importance of clear, proactive

communication and non-disruptive feedback to ensure consistency in student management and intervention implementation. Paula, a new staff member from PLC Group 2 noted how PLC conversations helped their group with real-time feedback during the camp day:

Having conversations in PLCs about how to give each other feedback helped us, so that, like, if we needed to give each other feedback in the middle of camp, that wasn't something that was distracting to a student.

Jacob described a specific example from PLC Group 3 that aided in subtle communication strategies between staff members:

I remember in a specific PLC, someone talking about doing a jersey pull to indicate to teammates that a counselor was feeling overwhelmed... being able to have conversations that were about how it's better for everybody if you're really in touch with your energy levels... I found that useful.

80% of "communication strategies with counselors" references came from new staff, suggesting that these discussions may have been particularly beneficial for those new to the STP structure. This theme underscores how PLCs created an effective setting for enhancing co-staff communication and responsiveness, improving teamwork in real-time and maintaining the consistency of student experiences throughout daily activities.

Managing Student Interactions. The managing student interactions theme reflected the ways staff used PLC takeaways to guide student behavior and resolve conflicts effectively. This theme, referenced five times by one participant, emphasized the importance of maintaining consistent boundaries and addressing peer conflicts constructively. Staff described how PLC discussions provided language and strategies for helping students navigate social dynamics in ways that preserved relationships and accountability. Charlotte from PLC Group 3 explained:

I think after having that conversation, I feel like there were a couple of situations that came up in my bunk—how to form those personal relationships, and also what is appropriate within a

relationship... being able to talk to them about setting boundaries and having conversations about, you know, you guys are friends, and also if you continue in this behavior that your friend doesn't like, they're probably not going to want to continue to be your friend.

This theme highlights the direct application of PLC learning to real-time student interactions, demonstrating how staff applied reflective insights to foster social-emotional learning and positive peer relationships among students.

Preparation. The preparation theme was referenced on only two occasions across two interview participants, making it the least referenced theme in this construct. Preparation captured staff reflections on how PLC discussions informed intentional planning of camp activities. Participants emphasized that advance preparation helped align student goals with developmentally appropriate and engaging experiences. Kennedy in PLC Group 2 explained the cross-bunk collaboration that occurred due to the PLCs, "We also implemented a lot more cross bunk activities. We did Jeopardy on the last Fun Friday with both of our (other PLC) bunks. And then we also did a water balloon toss with both of our bunks!" Meanwhile, Carly, a new counselor in PLC Group 1 mentioned how PLCs gave their group new ideas for camp activities, "(Hearing) their counselor's choice activities or their craft things or their Fun Friday Contingency is just like getting ideas and inspiration from them. I definitely think our bunk used that a lot."

Although mentioned less frequently than other themes, preparation illustrated how PLCs provided space for collaborative problem-solving and creative activity planning, enhancing the implementation of the intervention into practice.

Research Question 2C Summary

Research Question 2C looked to answer the question: to what extent does time, as a function of PLC participation, predict changes in staff-reported application of learned skills and staffing groups' adherence to the STP manual across three timepoints, and how did STP staff perceive the impact of the

PLC on their implementation fidelity and application of learned skills? Utilizing both quantitative and qualitative data, results provide meaningful interpretation of how PLC participation shaped staff members' capacity to translate professional learning into consistent, high-quality practice within the STP. Quantitative analyses revealed that time was a significant predictor of growth in both self-reported skill application and observed implementation fidelity, though the trajectory of growth was neither linear nor uniform, with self-reported application following a non-linear pattern unique among the three PLC outcomes examined, and fidelity trends varying meaningfully across PLC groups. Demographic analyses identified ethnicity and prior STP experience as the most relevant sources of variability in self-reported application scores, a pattern that differed from the more demographically consistent findings observed for knowledge and professional attitudes, and that points to the importance of considering staff background characteristics in future PLC design. Qualitative analyses complemented these quantitative findings by illuminating how staff experienced the practical dimensions of PLC learning in their day-to-day work, with nine of twelve interviewed participants describing meaningful gains in proactive behavior management, real-time co-staff communication, and intentional activity planning, though the comparatively lower frequency of references to this construct relative to knowledge and professional attitudes suggested that direct connections between PLC discussions and observable practice changes were more difficult for staff to articulate explicitly.

The integration of quantitative and qualitative findings within this convergent mixed methods design illustrates that PLC participation contributed to meaningful growth in both the self-perceived and observed dimensions of skill application and implementation quality, but that this growth was shaped by a more complex relationship of individual, demographic, and group-level factors than was observed for the other PLC outcomes. The partial alignment between quantitative gains in fidelity and application and qualitative accounts of practical strategy development suggests that the PLC served as a meaningful catalyst for translating professional learning into practice, even when staff who were interviewed found

it difficult to draw direct causal connections between specific PLC discussions and changes in their behavior. At the same time, the significant demographic variability in self-reported application scores, the non-uniform fidelity trajectories across PLC groups, and the relatively selective qualitative engagement with this theme indicate that the degree to which staff were able to bridge PLC learning and practical implementation was not equally distributed, but rather was influenced by the experience, cultural background, and group context that individual staff members brought to the professional learning process.

Impact of the PLC on Student Outcomes

This section addresses research question 2D, to what extent does time, as a function of PLC participation, predict changes in students' overall self-reported mean ratings of student-staff relationship quality, perceived sense of belongingness, and quantity of mutual peer relationships, and how did STP staff perceive the impact of the PLC on changes in student outcomes? This research question is unique among those examined in this study in that it draws on data from two distinct sources, study participants (STP staff) and non-participants (STP students), to provide a comprehensive picture of the PLC's downstream influence on student experiences within the STP. To answer the quantitative component, secondary analysis of de-identified child outcome data from routine STP assessments was conducted, examining changes in student-reported outcomes across the program. It is important to note that student-staff alliance data was collected exclusively from students rather than staff, meaning that staff perspectives on the relational quality of student-staff interactions were not directly captured, which may limit the degree to which quantitative findings on this outcome can be fully interpreted within the staff-centered framework of the broader study.

Within each student outcome (alliance, belongingness, peer relationships) descriptive profiles will first be discussed across program phases and PLC Group membership. To formally evaluate research question 2D, to what extent does time, as a function of PLC participation, predict changes in students'

self-reported alliance, belongingness, and quantity of mutual peer relationships across the three program phases, a multilevel modeling approach was employed to account for the nested structure of repeated bunk-level observations across timepoints. For each outcome, a time-only model was first estimated to assess the main effect of program phase, followed by a full model incorporating PLC Group and a Time $\times$ PLC Group interaction term to test whether trajectories of change varied by group. The two models were subsequently compared via likelihood ratio tests to evaluate the extent to which PLC Group membership improved the explanation of outcome trajectories beyond time alone.

To answer the qualitative component, thematic analysis of post-program interviews with 12 STP staff members was used to examine staff perceptions of the PLC's perceived influence on student behavior, relationships, and engagement. While staff were not the direct recipients of the student outcome measures, their observations and reflections as program implementers offer a meaningful and complementary lens through which to contextualize and interpret changes in student outcomes, bridging the gap between staff-reported professional learning and its downstream effects on the students in their care.

Student Outcomes Quantitative Findings

The quantitative findings for student outcomes will address a section of research question 2D, to what extent does time, as a function of PLC participation, predict changes in students' overall self-reported mean ratings of student-staff relationship quality, perceived sense of belongingness, and quantity of mutual peer relationships? To examine how student outcomes changed over the course of the STP, secondary analysis of de-identified child outcome data was conducted using descriptive statistics and a linear multilevel modeling approach. Three student-reported outcome variables served as the dependent variables in this analysis. Student-staff relationship quality, referred to throughout as alliance, was measured weekly across five items rated on a five-point Likert scale, with higher scores reflecting stronger perceived connections between students and staff. Perceived sense of belongingness

was similarly measured weekly across four items rated on a five-point Likert scale, with higher scores indicating a greater sense of inclusion and connection within the STP community. Notably, due to age-based recommendations for the survey instruments, alliance and belongingness data were collected only from students in Bunks 4–9, corresponding to PLC Groups 2–4. Students in younger bunks were excluded from these two measures. Quantity of mutual peer relationships was assessed weekly through an open-ended nomination procedure in which students listed their current friends. Mutual friendships were operationally defined as instances in which a student's nomination was reciprocated by the peer they identified, providing an objective behavioral indicator of students' social integration within the program.

Although data for all three outcomes were collected on a weekly basis, weekly observations were collapsed into three program phases (pre-program, mid-program, and post-program) to align with the measurement schedule used for other study variables. For all three outcomes, program phase was operationalized as a numeric fixed effect to examine linear change across the program, and a Time $\times$ PLC Group interaction term was included to test whether trajectories of change differed as a function of PLC Group membership. Bunk was included as a random intercept to account for the clustering of repeated observations within the same bunk across timepoints. Descriptive statistics will first be computed to summarize the central tendencies and distributions of all three student outcome variables prior to the presentation of multilevel model results.

Student-Staff Alliance. Analysis of students' self-reported alliance ratings revealed stable perceptions of student-staff relationship quality across the program. Across all bunks and timepoints, the overall mean student-staff alliance rating was 3.93 out of 5. Looking across program phases, student-staff alliance ratings remained relatively stable, declining slightly from pre-program ($M = 4.00$) to mid-program ($M = 3.87$) before partially recovering at post-program ($M = 3.92$), a net change of just 0.08 points across the duration of the program (see Table 14 below). When examined across PLC groups,

PLC Group 3 reported the highest overall mean alliance ($M = 4.07$), followed by PLC Group 4 ($M = 4.00$) and PLC Group 2 ($M = 3.72$) (Table 14). PLC Groups displayed divergent patterns when measured across timepoints. PLC Group 3 demonstrated a consistent upward trajectory across the program, increasing from pre-program ($M = 4.00$) to mid-program ($M = 4.08$) and again to post-program ($M = 4.12$), a total gain of 0.12 points (Table 14). PLC Group 4 displayed a more variable pattern, declining from pre-program ($M = 4.12$) to mid-program ($M = 3.84$) before partially recovering at post-program ($M = 4.04$). PLC Group 2 showed a consistent downward trajectory across all three timepoints, declining from pre-program ($M = 3.88$) to mid-program ($M = 3.68$) and again to post-program ($M = 3.60$), a total decline of 0.28 points across the program (Table 14). It should be noted that alliance data were only available for PLC Groups 2–4, as this measure was not administered to younger campers in PLC Group 1 due to age-based survey recommendations.

Table 14

Descriptive Statistics for Student-Reported Outcomes by PLC Group and Timepoint

Group	Timepoint	Alliance	Belonging	Peer Relationships	N
		M	M	M	
Overall		3.93	3.28	9.28	27
	Pre	4.00	3.31	7.11	9
	Mid	3.87	3.29	9.83	9
	Post	3.92	3.24	10.90	9
PLC Group 1		—	—	7.50	9
	Pre	—	—	5.00	3
	Mid	—	—	7.00	3
	Post	—	—	10.50	3
PLC Group 2		3.72	3.17	9.58	6
	Pre	3.88	3.27	7.50	2
	Mid	3.68	3.20	10.50	2
	Post	3.60	3.03	10.75	2

PLC Group 3		4.07	3.45	9.33	6
	Pre	4.00	3.40	8.00	2
	Mid	4.08	3.46	10.50	2
	Post	4.12	3.48	9.50	2
PLC Group 4		4.00	3.22	11.60	6
	Pre	4.12	3.26	9.00	2
	Mid	3.84	3.19	12.75	2
	Post	4.04	3.22	13.00	2

Note. Staff-Student Alliance and Belongingness measured on 5-point Likert scale (1 = *Never* to 5 = *Always*). Peer Relationships measured on continuous scale (higher scores indicate more mutual peer relationships). All values represent bunk-level means aggregated from student-level data. Alliance and Belongingness data were not collected for PLC Group 1 due to age-based survey recommendations; dash (—) indicates data not available. SD is not reported for any outcome as each cell reflects a single bunk-level observation (N = 1 per cell). M = mean; N = number of bunk-level observations.

To formally evaluate whether these descriptive patterns reflected statistically meaningful change and whether the rate of change differed as a function of PLC Group membership, a multilevel modeling approach was employed to account for the nested structure of repeated bunk-level observations across timepoints. Time alone did not significantly predict changes in student-staff alliance ratings over the course of the program ($b = -0.038$, $t = -0.712$, $p = .491$) (see Table 15 below), indicating no significant linear trend in alliance across PLC Groups 2–4 when group membership was not accounted for. The full model, which added PLC Group and its interaction with time, similarly yielded no significant effects. Neither PLC Group 3 ($b = 0.145$, $p = .412$) nor PLC Group 4 ($b = 0.174$, $p = .328$) differed significantly from the reference group, PLC Group 2, in baseline alliance levels, and neither the Time $\times$ Group 3 ($b = 0.200$, $p = .157$) nor the Time $\times$ Group 4 ($b = 0.098$, $p = .471$) interaction terms reached significance. The Type III ANOVA confirmed that neither time ($F = 0.524$, $p = .487$), PLC Group ($F = 0.605$, $p = .564$), nor their interaction ($F = 1.189$, $p = .348$) were significant predictors of alliance trajectories (Table 15).

Table 15*Multilevel Model Results for Student Outcomes*

Fixed Effects	Student-Staff Alliance				Belongingness				Peer Relationships			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	3.967	(0.092)	43.03	***	3.314	(0.064)	51.47	***	7.389	(0.848)	8.71	***
Time_numeric (Post vs. Mid vs. Pre)	-0.038	(0.054)	-0.712		-0.034	(0.026)	-1.303		1.889	(0.380)	4.97	***
PLC Group 3	0.145	(0.170)	0.855		0.124	(0.083)	1.504		3.833	(2.130)	1.800	
PLC Group 4	0.174	(0.170)	1.027		-0.048	(0.083)	-0.586		4.833	(2.130)	2.270	†
Time × PLC Group 3	0.200	(0.130)	1.542		0.158	(0.047)	3.345	**	-2.000	(1.011)	-1.979	†
Time × PLC Group 4	0.098	(0.130)	0.752		0.100	(0.047)	2.124	†	-0.750	(1.011)	-0.742	
Type III ANOVA												
Time	F = 0.524		p = .487		F = 3.159		p = .109		F = 22.596		p < .001	***
PLC Group	F = 0.605		p = .564		F = 2.325		p = .177		F = 2.084		p = .180	
Time × PLC Group	F = 1.189		p = .348		F = 5.730		p = .025	*	F = 1.355		p = .297	
Model Comparison (χ^2)												
χ^2	11.857		df = 4		21.964		df = 4		10.660		df = 6	
p		p = .018*				p < .001***				p = .099†		
Random Effects (Variance)												
Bunk (Intercept)		0.0007				0.003				3.400		
Residual	0.034				0.004				2.451			

Note. All models estimated using REML with Bunk as random intercept. Reference group for PLC Group is PLC Group 2 for Alliance and Belongingness, and PLC Group 1 for Peer Relationships. Alliance and Belongingness models: N = 18 observations, 6 bunks (PLC Groups 2–4 only; Group 1 excluded due to age-based survey restrictions). Peer Relationships model: N = 27 observations, 9 bunks (all PLC Groups). Alliance and Belongingness measured on a 5-point Likert scale. Peer Relationships measured as mean number of mutual peer nominations per bunk. Model comparison χ^2 tests compare time-only model to full model with PLC Group and Time $\times$ PLC Group interaction. SE = standard error. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Despite the non-significant individual terms, model comparison via likelihood ratio test revealed that the full model fit the data significantly better than the time-only model ($\chi^2 = 11.857$, $df = 4$, $p = .018$) (see Table 15 on p. 153), suggesting that PLC Group membership collectively accounted for meaningful variance in alliance trajectories even in the absence of individually significant group contrasts. These findings should be interpreted with caution given the small analytic sample of six bunks across 18 bunk-timepoint observations, which substantially limits statistical power.

Perceived Sense of Belongingness. Belongingness yielded the most statistically compelling evidence of PLC Group-differentiated change across the program. Across all bunks and timepoints, the overall mean belongingness rating was 3.28 out of 5 (see Table 14 on p. 151). Looking across program phases, belongingness followed a pattern of modest decline, decreasing from pre-program ($M = 3.31$) to mid-program ($M = 3.29$) and again to post-program ($M = 3.24$), a total decline of 0.07 points (Table 14). When examined across PLC groups, PLC Group 3 reported the highest overall belongingness mean ($M = 3.45$), followed by PLC Group 4 ($M = 3.22$) and PLC Group 2 ($M = 3.17$) (Table 14). Belongingness trends largely mirrored those observed for alliance across PLC Groups. PLC Group 3 demonstrated a consistent upward trajectory from pre-program ($M = 3.40$) to mid-program ($M = 3.46$) and post-program ($M = 3.48$), a total gain of 0.08 points (Table 14). PLC Group 4 remained relatively stable across the program, declining slightly from pre-program ($M = 3.26$) to mid-program ($M = 3.19$) before returning to near its starting value at post-program ($M = 3.22$). PLC Group 2 showed the most notable decline, decreasing from pre-program ($M = 3.27$) to mid-program ($M = 3.20$) and most sharply to post-program ($M = 3.03$), a total decline of 0.24 points and the lowest post-program belongingness score among all groups (Table 14). As with alliance, belongingness data were only available for PLC Groups 2–4 due to age-based survey recommendations.

To formally evaluate whether these descriptive patterns reflected statistically meaningful change, a multilevel modeling approach was employed. As with alliance, time alone did not significantly

predict changes in belongingness when group membership was not accounted for ($b = -0.034$, $t = -1.303$, $p = .219$) (see Table 15 on p. 153). However, the full model revealed a substantially different picture. The trajectory for the reference group, PLC Group 2, was characterized by a significant negative slope ($b = -0.120$, $t = -3.604$, $p = .006$), indicating that students in PLC Group 2 experienced a statistically significant decline in belongingness across the three program phases. In contrast, the Time $\times$ PLC Group 3 interaction was statistically significant ($b = 0.158$, $p = .009$), indicating that Group 3's trajectory of change was significantly more positive than Group 2's, effectively reversing the downward trend observed in the reference group. The Time $\times$ PLC Group 4 interaction approached but did not reach significance ($b = 0.100$, $p = .063$) (Table 15). The Type III ANOVA confirmed a statistically significant Time $\times$ PLC Group interaction ($F = 5.730$, $p = .025$), indicating that the rate of change in belongingness over time differed meaningfully as a function of PLC Group membership, even in the absence of significant main effects of time ($F = 3.159$, $p = .109$) or PLC Group alone ($F = 2.325$, $p = .177$) (Table 15).

Model comparison provided strong corroborating evidence, with the full model fitting significantly better than the time-only model ($\chi^2 = 21.964$, $df = 4$, $p < .001$) (Table 15). These findings indicate that time, as a function of PLC Group participation, significantly predicted changes in students' perceived sense of belongingness. Specifically, PLC Group 2 experienced a significant decline in belongingness over the course of the program, while PLC Group 3 demonstrated a significantly more positive trajectory, and PLC Group 4 trended in a similar positive direction. These results suggest that the effect of program participation on students' sense of belonging was meaningfully contingent on PLC Group membership.

Quantity of Mutual Peer Relationships. Peer relationships produced the strongest and most consistent findings across all three student outcome variables. In contrast to the mixed patterns observed for alliance and belongingness, mutual peer relationships demonstrated a consistent upward trajectory across all four PLC groups over the course of the program. Across all bunks and timepoints,

the overall mean number of mutual peer relationships was 9.28 per bunk (see Table 14 on p. 151).

Looking across program phases, mean mutual peer relationships per bunk increased steadily from pre-program ($M = 7.11$) to mid-program ($M = 9.83$) and again to post-program ($M = 10.90$), representing a total gain of 3.79 mutual peer relationships per bunk across the duration of the program (Table 14).

When examined across PLC groups, PLC Group 4 reported the highest overall mean ($M = 11.60$), followed by PLC Group 2 ($M = 9.58$), PLC Group 3 ($M = 9.33$), and PLC Group 1 ($M = 7.50$). PLC Group 4 showed the strongest overall growth, increasing from pre-program ($M = 9.00$) to mid-program ($M = 12.75$) and post-program ($M = 13.00$), a total gain of 4.00 mutual peer relationships per bunk. PLC Group 1 demonstrated similarly pronounced growth, rising from pre-program ($M = 5.00$) to mid-program ($M = 7.00$) and post-program ($M = 10.50$), a total gain of 5.50 relationships per bunk and the largest absolute increase of any group. PLC Group 2 also showed meaningful growth from pre-program ($M = 7.50$) to mid-program ($M = 10.50$) and post-program ($M = 10.75$), a total gain of 3.25 relationships per bunk. PLC Group 3 showed a similar pattern of growth from pre-program ($M = 8.00$) to mid-program ($M = 10.50$), though with a slight decline at post-program ($M = 9.50$), resulting in a net gain of 1.50 relationships per bunk across the program (Table 14).

To determine whether the consistent upward trends observed across PLC groups reflected statistically significant growth rather than descriptive variation, multilevel modeling was used to formally test the effect of time and group membership on peer relationship trajectories. The time-only model revealed a highly significant main effect of time ($b = 1.889$, $t = 4.966$, $p < .001$), indicating that across all bunks and PLC Groups, students gained approximately 1.89 mutual peer relationships per program phase, representing a predicted total gain of approximately 3.78 mutual friendships from pre- to post-program (see Table 15 on p. 153). This finding indicates that time was a significant predictor of peer relationship growth independent of PLC Group membership.

The full model, which added PLC Group and its interaction with time, confirmed that the strong time effect persisted when group membership was accounted for ($b = 2.750$, $t = 4.303$, $p < .001$), and that no PLC Group differed significantly from the reference group, PLC Group 1, in either baseline relationship counts or trajectories of change. The Type III ANOVA confirmed time as a highly significant predictor ($F = 22.596$, $p < .001$), while neither PLC Group ($F = 2.084$, $p = .180$) nor the Time $\times$ PLC Group interaction ($F = 1.355$, $p = .297$) reached significance (see Table 15 on p. 153). Model comparison did not support the addition of PLC Group and its interaction as a significant improvement over the time-only model ($\chi^2 = 10.660$, $df = 6$, $p = .099$), though the result approached significance.

Staff Perception of PLC Impact on Student Outcomes

The following section will address part of research question 2D, how did STP staff perceive the impact of the PLC on student outcomes? To examine staff perceptions of the PLC's indirect influence on student experiences and functioning, thematic analysis was used to analyze and interpret post-program staff interviews conducted with 12 of the 57 STP staff members.

The student outcomes theme captured how staff described the downstream effects of PLC participation on student behavior, relationships, and engagement within the STP. Rather than reflecting direct staff learning, this construct represented staff members' observations and perceptions of how their own professional growth through the PLC translated into improved experiences for the students in their care. Across all interviews, this construct was referenced 46 times across 10 of the 12 interviewed participants. Five interrelated themes emerged from the analysis: *Prosocial Behavior*, *Individualized Support*, *Student Relationships*, *Student Engagement*, and *Structured Environment*, collectively illustrating how staff perceived their PLC participation as contributing to a more supportive, structured, and relationally rich camp experience for students.

References varied across PLC groups. PLC Group 1 contributed 10 references, representing 19.6% of total theme references when adjusted for group size. PLC Group 2 contributed 14 references,

representing 27.5% of total theme references when population-adjusted. PLC Group 3 contributed 8 references, representing 11.8% of total theme references when population-adjusted. PLC Group 4 contributed 14 references, representing 41.2% of total theme references when population-adjusted. Results showed that PLC Group 4 contributed the highest population-adjusted proportion of student outcome references, while PLC Group 3 contributed the lowest proportion, a pattern consistent with the group-level variability observed across other qualitative constructs throughout the study. Additionally, references to student outcomes were somewhat more concentrated among returning staff, who contributed approximately 61% of endorsements, and among non-White staff, who contributed approximately 63%, suggesting that staff with greater prior program experience or from diverse backgrounds may have been more attuned to recognizing and articulating the indirect effects of PLC participation on student functioning.

Prosocial Behavior. The prosocial behavior theme described how staff observed and supported growth in students' social and emotional skills through clearer boundaries, direct teaching of positive behaviors, and guided management of sensitive or inappropriate conversations. Across all interviews, this theme was referenced 15 times across 5 of the 12 participants. References by PLC group revealed that PLC Group 1 did not contribute any references, whereas PLC Group 2 contributed four references, PLC Group 3 contributed six references, and PLC Group 4 contributed five references. Charlotte, a returning counselor from PLC Group 3 reflected on how the PLC strategies impacted appropriate student language, "I think the pro-social coaching that we would do with them was pretty effective. Yeah, I could see them repeating it (the pro-social language) back to us, in terms of that individual conversation and communication." Lincoln, a returning counselor in PLC Group 2 explained how PLC discussions helped shape their approach, which improved student interactions:

They were definitely confused at first because... we started calling points on things like teasing or saying things that might hurt another kid. I think they were really receptive after explaining and

just talking to them clearly—‘We’re calling points on this because you’re not being kind to yourself or others.’ And then they were really receptive after the coaching.

Descriptive analyses showed that 80% of “prosocial behavior” endorsements came from the six returning staff and 80% from the six non-White staff, suggesting that counselors with more experience and diverse backgrounds may have been particularly impacted by PLCs to foster respectful peer interactions and cultural sensitivity in behavior management. This theme demonstrates how PLC participation supported staff in consistently reinforcing prosocial behaviors and respectful communication, key skills that directly enhanced student experiences.

Individualized Support. The individualized support theme captured how counselors applied strategies tailored to meet each student’s unique needs, thereby improving regulation, engagement, and overall success within the program. This theme was referenced 11 times by 5 of the 12 participants. By PLC group, references were most frequent in PLC Group 1 (five), followed by PLC Group 2 (four), PLC Group 4 (two), with no references from PLC Group 3. One of the PLC Group 2 counselors, Jacob, noted how the PLCs gave their bunk the space to identify specific strategies for keeping a challenging student engaged throughout the camp day:

We had one camper in particular who needed a lot of one on one support compared to the other campers. Like pretty much constant. I think that, like, being able to rotate who was in that one on one role, so that it wasn't all falling to one person, and being able to communicate as a team around energy levels. I think that was useful because then it was a lot of fresh faces for that camper, who I think benefited a lot from that, and benefited from the novelty of interacting with different people. And also interacting with people who had a little bit more in the tank to go that extra mile with him, to keep to keep him engaged. I definitely think that helped.

Additionally, Maggie, a new counselor in PLC Group 1 described how PLC discussions shifted their approach toward individualized care:

I took away a sense of being more willing to kind of meet the students where they were at through the PLCs... We had a lot of very specific needs, kids who the general STP wasn't always super applicable for, and so we talked about meeting the kids where they're at and working with them from there. I think that (the PLC) changed a lot of the way that I approached working with them.

This theme illustrates how PLC participation strengthened staff adaptability and empathy, helping counselors apply differentiated strategies that supported a broader range of student needs.

Student Relationships. The student relationships theme reflected how PLC participation contributed to stronger, more positive alliances between students and counselors, as well as improved peer-to-peer interactions. The theme was referenced nine times by 5 of the 12 participants. References by PLC group showed that PLC Group 1 contributed two references of this theme, PLC Group 2 contributed one references, PLC Group 3 contributed one reference, and PLC Group 4 contributed five references, suggesting the theme was most salient for counselors in PLC Group 4. Oakley, a returning staff member from PLC Group 4 reflected on this relational improvement, noting:

Escalation between students became much less and less... not only did we no longer end up in fully escalated timeouts, but there were actual positive interactions during preferred activities.

There would be chatting and fun moments instead of constant tension.

Kennedy, a PLC Group 2 counselor explained how PLCs allowed for more student interactions across bunks:

We also implemented a lot more cross bunk activities. We did Jeopardy on the last Fun Friday with both of our (other PLC) bunks. And then we also did a water balloon toss

with both of our bunks! So it also increased the camper friendships across bunks as well, which is super exciting!

This theme highlights the perceived downstream effect of PLC-facilitated staff learning, enhanced communication and emotional awareness among counselors translated into more trusting, positive, and enjoyable relationships within the camp community.

Student Engagement. The student engagement theme encompassed counselors' observations of increased student participation, attention, and decreased disruptive behaviors following the implementation of PLC-informed strategies. This theme included six total references and was endorsed by just 2 of the 12 participants. References were concentrated in PLC Groups 1 and 2, which contributed two and four references, respectively. Kennedy, a counselor in PLC Group 2 described how PLC discussions of preemptive strategies influenced student engagement:

I think, going back to the interruption thing- after some time it started feeling a little bit disrespectful, just in the sense of if they cut their teacher off at school that would be looked down upon, and they'll get in trouble for that. So the advice we got from our head counselors within the PLC was to just start calling interruption and then ask them if they would like to try again after you're done speaking, and then award the attention points, and I found that to be really effective.

One of the new counselors from PLC Group 1, Maggie, also noted how the proactive PLC discussions seemed to reduce disruptive behaviors over time due to advanced planning:

One of the things that we talked about with our bunk was sort of preemptive prompting and coaching, so sort of de-escalating a situation before it happens. And that was something that was again kind of a similarity across bunks 3 and 1. We both had some situations that could get really intense, really quickly. And so we kind of talked about how to create an environment where those escalations are less likely to happen, and how to kind of spot the warning signs of emotions getting big. And so those

conversations were also very helpful, and by the end of week 5 we were a lot better at kind of de-escalating situations before they happened.

This theme underscores how PLC participation enhanced counselors' capacity to use proactive management and reinforcement strategies to sustain engagement and reduce behavioral challenges among students.

Structured Environment. The structured environment theme focused on how counselors perceived that increased organization, clarity, and role coordination created a more predictable and secure environment for students. This theme was referenced five times and endorsed by 4 of the 12 participants. Endorsements were evenly distributed across groups, with PLC Groups 1, 2, and 3 each contributing one reference and PLC Group 4 contributing two references. Paula, a PLC Group 2 staff member reflected:

I think it helped the counselors understand how to communicate better, and that had an impact on the kids. It helped with organization and made things less chaotic. Delegating and figuring out logistics made it seem less chaotic for the students.

Carly, a counselor from PLC Group 1 mentioned how the PLCs aided in their approach to re-engaging students in the group activity:

One of the examples I could think of is we talked a lot about- we did some mock group discussions, and how to re-engage a camper that maybe is kind of not interested in what the group is doing, reinforcing the idea of making whatever the group activity is more fun than anything else, and using that as a strategy to re-engage a camper rather than going off to the camper and giving them lots of attention and trying to get them back to the group. Whatever the group is doing, redirecting your attention to what the group is doing, and using that as a way to re-engage campers. I think when we talked about that,

we definitely used that in our bunk when kids were not interested in what the group is doing. Instead of focusing our attention over there, focusing it on that group activity.

This theme demonstrates how PLC participation improved staff coordination and consistency, thereby fostering a more organized and supportive setting that promoted student comfort and engagement.

Research Question 2D Summary

Addressing research question 2D, this section examines the extent to which time, as a function of PLC participation, predicted changes in students' overall self-reported mean ratings of student-staff relationship quality, perceived sense of belongingness, and quantity of mutual peer relationships, and how STP staff perceived the impact of the PLC on changes in student outcomes. Analysis included both quantitative data from students and qualitative data from staff to provide a clear understanding of how PLC participation was associated with changes in student outcomes across the program. Quantitative analyses revealed that the relationship between time and student outcomes varied across the three dependent variables. Peer relationships demonstrated the most consistent and statistically significant growth over time, with students gaining mutual peer relationships at a significant rate across program phases regardless of PLC Group membership. Alliance remained largely stable with no significant time effect, though PLC Group membership collectively accounted for meaningful variance in alliance trajectories. Belongingness yielded the most group-differentiated findings, with PLC Group membership significantly moderating change over time. Qualitative analyses added to these quantitative findings by illustrating how staff perceived the PLC as contributing to tangible improvements in students' daily experiences, with 10 of 12 interviewed participants referencing this construct across five themes, *Prosocial Behavior, Individualized Support, Student Relationships, Student Engagement, and Structured Environment*, suggesting that the practical strategies and relational awareness enhanced through PLC participation were perceived as extending meaningfully into the quality of student interactions and engagement across the camp setting.

The integration of quantitative and qualitative findings demonstrate that while quantitative results indicated that peer relationship growth was the only dependent variable to significantly grow with respect to time, the group-differentiated patterns observed for belongingness suggest that the specific PLC context in which students were embedded may have shaped their sense of inclusion and connection within the STP community. Qualitative accounts from staff reinforced this interpretation, highlighting how PLC participation fostered more individualized, relationally-aware, and behaviorally responsive interactions between staff and students. Taken together, these findings suggest that while the STP experience broadly supported students' social integration over time, the quality and character of students' sense of belonging and staff-student relationships were more sensitive to the particular dynamics and practices cultivated within individual PLC Groups, underscoring the potential value of structured professional learning communities as a mechanism for improving not only staff practice but also the relational experiences of the students they serve.

Staff and Student Outcome Associations

This section addresses research question 3, are there significant associations within and between staff-reported PLC outcomes and students' self-reported social experiences at the group level, and how co-occurring qualitative codes across staff-reported PLC constructs further inform the nature of these associations. This research question aims to move beyond examining staff and student outcomes in isolation to formally investigate whether the professional growth documented among STP staff was meaningfully linked to the social experiences reported by the students in their care. To address the quantitative component, correlational and regression analyses were conducted at two levels of analysis, within-staff associations were examined at the individual level using post-program data from 51 staff members, while associations between staff and student outcomes were examined using data averaged at the group level to account for the different units at which staff and student data were collected. To address the qualitative component, co-occurring qualitative codes across staff-reported PLC constructs

were analyzed to examine the nature and directionality of these associations as experienced and perceived by program staff. Together, these analyses provide a multi-level and mixed methods perspective on the extent to which PLC participation among staff translated into tangible improvements in the relational and social experiences of the students they served throughout the STP.

Associations Within Staff-Reported PLC Outcomes

The first set of analyses examined associations among staff-reported PLC outcome variables at the individual level using post-program data, prior to turning to the cross-level analyses linking staff outcomes to student social experiences. Specifically, correlational analyses were conducted to evaluate the degree to which staff-reported knowledge, professional attitudes, and application of learned skills were interrelated at the conclusion of the program. Examining these within-staff associations provides important context for interpreting the between-level findings that follow, as understanding how staff outcome variables relate to one another at post-program helps clarify the internal structure of the PLC's effects on staff and the extent to which growth in one domain was accompanied by corresponding growth in others.

Correlational analyses at the post-program timepoint (Time 3; $N = 51$) revealed a moderate positive association between staff-reported knowledge and professional attitudes, $r = .43$, $p = .002$, suggesting that staff who reported greater knowledge also tended to endorse stronger professional attitudes (see Table 16 below). This finding indicates that growth in content knowledge was meaningfully linked to the development of positive professional dispositions among STP staff.

Table 16

Associations Within Individual Staff-Level PLC Outcomes at Post-Program

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Knowledge & Skills	4.45	0.35	—		
2. Professional Attitude	4.27	0.34	.43	—	
3. Application	3.58	0.56	.18	.15	—

Note. N = 51. Pearson correlations conducted at post-program timepoint (Time 3). Knowledge & Skills and Professional Attitude measured on 5-point Likert scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*). Application measured on 5-point Likert scale (1 = *Never* to 5 = *Always*). Only the correlation between Knowledge & Skills and Professional Attitude was statistically significant ($p = .002$).

Associations between application of learned skills and both knowledge ($r = .18, p = .20$) and professional attitudes ($r = .15, p = .29$) were small and non-significant (Table 16). Although these associations did not reach statistical significance, the observed pattern is consistent with the broader trajectory of growth documented across timepoints.

Associations Within Student-Reported Social Experiences

Prior to examining associations between staff and student outcomes, correlational analyses were conducted among the three student-reported social experience variables at the post-program timepoint to characterize how these outcomes related to one another within the student sample. Correlational analyses at the post-program timepoint revealed a significant positive association between student-staff relationship quality (alliance) and sense of belongingness, $r = .75, p < .001$, indicating that students who reported stronger connections with staff also experienced a greater sense of belonging within the STP environment (see Table 17 below). In contrast, peer relationships were negatively correlated with both alliance ($r = -.37, p = .13$) and belongingness ($r = -.39, p = .11$), though neither association reached statistical significance (Table 17). This pattern suggests that while students' feelings of connection to staff and their sense of belongingness were closely and significantly linked, their perceptions of peer relationships operated somewhat independently of, and were slightly inversely related to, staff-related connection and belongingness. These findings point to the possibility that students' peer relationship experiences may be driven by distinct social dynamics within the STP context that are not fully captured by their relationships with staff or their broader sense of belonging.

Table 17

Associations Within and Between Group-Level Staff PLC Outcomes and Student Social Experiences at Post-Program

Measure	1.	2.	3.	4.	5.	6.	7.
<i>Staff Outcomes</i>							
1. Knowledge & Skills	--						
2. Beliefs	.27	--					
3. Application	-.23	-.01	--				
4. Fidelity	.00	-.20	.12	--			
<i>Student Outcomes</i>							
5. Staff-Student Alliance	-.20	.07	.33	.33	--		
6. Belongingness	-.43	-.40	.06	.45	.75	--	
7. Peer Relationships	.26	-.16	.09	.41	-.37	-.39	--

Note. Bunk-level correlations. Staff-Student Alliance and Student Belongingness: $N = 18$ (6 bunks $\times$ 3 timepoints). Peer Relationships: $N = 27$ (9 bunks $\times$ 3 timepoints). Pearson's r reported. Significant correlations ($p < .05$) listed in boldface. Significant correlations included Alliance and Belongingness ($p = .034$) and Fidelity and Peer Relationships ($p = .034$).

Associations Between Group-Level Staff PLC Outcomes and Student-Reported Social Experiences

Having characterized the internal structure of both staff and student outcome variables through the within-group correlational analyses presented above, the analysis now turns to the central question of research question 3, whether PLC outcomes reported by study participants (STP staff) were meaningfully associated with the social experiences reported by non-study participants (students) at the group level. This set of analyses represents the most direct empirical test of the study's core premise that PLC participation among staff may have downstream effects on student outcomes and serves as the primary quantitative connection between the staff-centered findings of research questions 2A through 2C with the student-centered findings of research question 2D. Because staff and student data were examined at different units of analysis, individual staff members and groups of students, respectively, these analyses were conducted using outcome variables averaged at the group level to ensure comparability across the two data sources. Correlational analyses were first conducted to characterize

the direction and magnitude of associations between staff and student variables, followed by regression analyses to evaluate the extent to which staff-reported PLC outcomes predicted student social experiences after accounting for the small number of groups available for analysis.

Correlations among staff and student outcome variables revealed that implementation fidelity was the staff measure most consistently associated with positive student social outcomes, demonstrating modest positive associations with student-staff alliance ($r = .33$), belongingness ($r = .45$), and peer relationships ($r = .41$), the latter of which was statistically significant (see Table 17 on p. 168). Staff application of learned skills also showed a modest positive association with student-staff alliance ($r = .33$), though its associations with belongingness ($r = .06$) and peer relationships ($r = .09$) were negligible. Staff knowledge demonstrated a negative association with student belongingness ($r = -.43$) and a modest positive association with peer relationships ($r = .26$), while staff beliefs showed a negative association with belongingness ($r = -.40$) and near-zero associations with the remaining student outcomes (Table 17). These associations suggest that groups of staff who more consistently applied learned strategies and adhered to the STP manual tended to be associated with more positive social experiences among their students, while the pattern of associations for knowledge, beliefs, and application was inconsistent across student outcome variables.

Regression analyses demonstrated that staff-reported knowledge, professional attitudes, and application of learned skills did not significantly predict any student outcome variables (see Table 18 below). However, observed implementation fidelity approached significance in predicting student-staff alliance ($b = 0.01$, $t = 2.00$, $p = .067$), and showed small positive directional associations with both student belongingness ($b = 0.01$, $t = 1.70$) and peer relationships ($b = 0.07$, $t = 0.93$), suggesting a trend worthy of further investigation in future research with larger samples. Staff beliefs and application did not approach significance for any student outcome. The overall models accounted for a meaningful proportion of variance in alliance ($R^2 = .343$) and belongingness ($R^2 = .413$), though adjusted R^2 values

were substantially lower (.141 and .232, respectively), reflecting the small sample sizes and the resulting penalty for model complexity. The model for peer relationships explained considerably less variance ($R^2 = .196$, Adjusted $R^2 = .043$), suggesting that the staff-level predictors examined in this study captured a more limited portion of the variability in student peer relationship outcomes (Table 18).

Table 18*Multiple Regression Results for Staff Predictors of Student Outcomes*

<i>Predictors</i>	Staff-Student Alliance				Belongingness				Peer Relationships			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Intercept	1.20	(2.36)	0.51		4.88	(1.52)	3.22	< .01**	-9.18	(22.78)	-0.40	
Knowledge & Skills	-0.32	(0.32)	-0.99		-0.37	(0.21)	-1.78	.098	6.55	(3.74)	1.75	.095
Beliefs	0.51	(0.43)	1.20		-0.18	(0.27)	-0.64		-4.42	(4.04)	-1.09	
Application	0.22	(0.14)	1.51		0.03	(0.09)	0.36		1.04	(1.47)	0.70	
Fidelity	0.01	(0.01)	2.00	.067	0.01	(0.00)	1.70		0.07	(0.07)	0.93	
<i>Model Fit</i>												
R ²	.343				.413				.196			
Adjusted R ²	.141				.232				.043			
<i>F (df)</i>		1.70 (4, 13)				2.29 (4, 13)				1.28 (4, 21)		

Note. Bunk-level multiple regression analyses. Staff-Student Alliance: N = 18 (10 observations deleted due to missingness). Student

Belongingness: N = 18 (10 observations deleted due to missingness). Peer Relationships: N = 26 (2 observations deleted due to missingness). All

staff predictors entered simultaneously. VIF values < 1.3 for all models indicate no multicollinearity concerns. * $p < .05$. ** $p < .01$. *** $p < .001$.

It is important to note that the correlational analyses for alliance and belongingness were based on a smaller analytic sample ($N = 18$; 6 bunks $\times$ 3 timepoints) than those for peer relationships ($N = 27$; 9 bunks $\times$ 3 timepoints), as alliance and belongingness measures were not administered to PLC Group 1 due to age-based survey recommendations, which reduced statistical power for detecting significant associations with those two outcomes. This difference in sample size partly explains why the fidelity-peer relationships correlation reached statistical significance despite a similar magnitude to the fidelity-alliance correlation, as the larger sample provided greater power to detect an effect of that size. These differences in analytic sample size should be taken into account when comparing the strength and significance of associations across the three student outcome variables.

Overall, these findings indicate that staff implementation fidelity showed the most consistent directional associations with student social experiences at the group level, demonstrating positive correlations with alliance, belongingness, and peer relationships, the latter of which was statistically significant, as well as approaching significance in the regression model predicting alliance (Tables 16–17). Staff knowledge and beliefs demonstrated unexpected negative associations with student belongingness, while staff application showed a modest positive correlation with alliance but negligible associations with the remaining student outcomes. The strongest statistically significant within-student association emerged between alliance and belongingness, reinforcing the importance of staff-student relational quality as a potential mechanism through which program participation supports students' broader sense of belonging.

Associations Within and Across PLC Constructs: Co-Occurring Code Analysis

After analyzing the quantitative associations within and between staff and student outcome variables, the analysis now turns to the qualitative component of research question 3, which sought to understand how co-occurring codes across staff-reported PLC constructs further illuminate the nature of these associations as experienced and perceived by program staff. During the thematic analysis process,

the research team identified several instances of co-occurring codes throughout the interview transcripts and elected to incorporate them into the analysis given their relevance to exemplifying the relationships between constructs within the Core Conceptual Framework (Desimone, 2009). In thematic analysis, co-occurring codes refer to instances in which two or more codes are applied to the same segment of text within a participant's response, with this overlap suggesting that the concepts represented by those codes are interconnected or jointly expressed within participants' narratives (Guest et al., 2012). Examining co-occurring codes aids researchers in identifying relationships between themes and subthemes by revealing how certain experiences, attitudes, and behaviors interact, and provides insight into the complexity and interdependence of ideas in ways that extend interpretation beyond simple frequency counts (Miles et al., 2014). While the correlational and regression analyses presented above provide a quantitative portrait of how staff and student outcomes were related at the group level, they are inherently limited in their ability to capture the processes and relational dynamics through which PLC participation shaped staff practice. Co-occurring code analysis addresses this limitation by identifying instances in which two or more codes were simultaneously applied to the same segment of a participant's narrative, revealing how different constructs within the Core Conceptual Framework were jointly expressed and experienced by staff in practice. This analytic approach moves beyond examining each PLC construct in isolation to instead map the intersections among them.

The most frequent co-occurrences appeared between *Facilitators of PLC Effectiveness* and *Knowledge and Skills* constructs. One example of this crossover between *Facilitators of PLC Effectiveness* and *Knowledge and Skills* came from a PLC Group 2 counselor, Lincoln, who referenced the connectivity theme from *Facilitators of PLC Effectiveness* and the STP skills theme from *Knowledge and Skills* when she discussed learning about new behavior management strategies from participating in the PLCs:

I also learned a lot about Chewy's and other fidgets that can be used. Like, I never heard of an Ouchie before, and somebody brought it up during a PLC. And I was like, that

would be so useful for some of our kids that are playing with pine needles and sticking pine needles in their skin.

Similarly, Adam, a PLC Group 3 counselor, had a quote that described both *Facilitators of PLC Effectiveness* and *Professional Attitude* when he discussed the validation that came from interacting with other bunks:

I think the most helpful aspect of it (the PLC) was hearing the perspective of other people, my PLC groups, and hearing something that maybe I related to in terms of a difficulty or stressor at camp. Knowing that other counselors are feeling similar things and sharing similar difficulties is encouraging in a way.

These overlaps indicate that opportunities for intergroup dialogue not only supported concrete learning but also promoted emotional affirmation and professional confidence.

Similarly, there were a high number of co-occurrences between the constructs of *Facilitators of PLC Effectiveness* and *Professional Attitude*. One example of this was Lincoln, a counselor from PLC Group 2, who discussed the improved camp culture from when they were a counselor the previous year:

I feel like the staff this year really had an opportunity to remember why they're here and enjoy camp more because they're constantly being reminded of, yeah- this job is hard, like, it is really hard. But this is what I'm doing. These are the benefits of what I'm doing. This is how I'm changing these kids lives. And then also maintaining that respect for the kids, no matter what. And just kind of like that camaraderie, too. I feel like it made us all be more aware that we're all a team. Not just the people in your bunk, but also all the counselors as a whole. So I feel like it just felt a lot more like a family this year, too, which is really nice.

Maggie, one of the PLC Group 1 counselors referenced the atmosphere theme from *Facilitators of PLC Effectiveness* and the connectedness theme from *Professional Attitude* when she

described how the check-ins at the beginning of each PLC session improved their sense of belongingness:

At the beginning of each session we would all go around and say, like, what your battery level is and what your stress level is and then a random fun fact. And it took a little bit of time, and it seemed kind of dumb at first, but it really did help me to feel more comfortable. And it just made me feel more like, I don't know, part of a group, I guess.

So that was surprisingly meaningful for me.

These examples demonstrate that relational and structural features of the PLC worked hand-in-hand to strengthen staff connectedness. These intersections highlight how learning processes were not isolated but rather embedded within a socially supportive environment that facilitated both cognitive and relational growth.

Within the *Barriers to PLC Effectiveness* construct, co-occurring codes such as "PLC Timing" and "PLC Length" (six references) emphasized how logistical constraints interacted to undermine engagement. Similarly, the overlap between "Broad Discussion Topics" and "Unclear Goals of PLC" (three references) indicated that weak alignment between PLC content and staff needs disrupted meaningful takeaways from the PLC. For example, Paula, a PLC Group 3 counselor discussed the overlap of length and timing and how it may have impacted staff participation, "They [PLC sessions] would sometimes be very long, and I think just at the end of a long day, I think the motivation for people to be there was lower at that point."

An example of the overlap between the "Broad Discussion Topics" and "Unclear Goals of PLC" codes came from Jacob, a new counselor from PLC Group 2:

...one thing that maybe could be improved would be just having more explicit, like- this is what PLCs are for, like being able to say almost in like a set of sentences like, here are the specific items that we are meeting to improve. I think it was pretty general, like, it

was kind of like, "This is a check in just to see how things are going. We can kind of talk about whatever you guys want to talk about." That's at least my recollection of it, and I think that it would have been useful to have it be explicitly like, okay, let's revisit our fundamental rules of the bunk...I think just making all of that a little bit more standardized could be interesting and productive.

When PLC objectives lacked focus or clear follow-up, counselors struggled to meaningfully connect discussions to their daily practice, reinforcing the importance of intentional design and continuity in professional learning structures.

Analysis of co-occurring codes also found links between the *Knowledge and Skills with Student Outcomes* constructs with the "Awareness of Implementation Strategies" and "Teaching Pro-Social Behaviors" codes (three references). For example, Charlotte, a lead counselor from PLC Group 3 suggested a transfer of learning from counselor development to student impact:

I would say our discussions about pro-social behavior with the campers was really helpful and insightful for me. We talked a lot about how to scaffold and help kids make pro-social connections even if they weren't exactly sure how to do it. Doing some of that teaching and coaching about what is an appropriate level of communication or contact with your friends or how to have conversations if you don't want to be friends with someone. But hearing insights from other counselors and different bunks about how they were having those conversations was really important to me.

Finally, connections between the *Professional Attitude and Application of Learned Skills* constructs were found reflected in the co-occurrences between the "Strengthening Teamwork" and "Communication Strategies with Counselors" codes (two references). This crossover can be seen in a quote from Jacob, a PLC Group 2 counselor, who reflected how the PLCs gave their counselor team the opportunity to grow more as a team and effectively communicate amongst each other during the camp day:

We had one camper in particular who needed a lot of one on one support compared to the other campers. Like pretty much constant. I think that, like, being able to rotate who was in that one on one role, so that it wasn't all falling to one person, and being able to communicate as a team around energy levels. I think that was useful because then it was a lot of fresh faces for that camper, who I think benefited a lot from that, and benefited from the novelty of interacting with different people. And also interacting with people who had a little bit more in the tank to go that extra mile with him, to keep to keep him engaged. I definitely think that helped.

These types of examples reflect the translation of professional attitudes into applied practice.

Research Question 3 Summary

This section examined whether significant associations existed within and between staff-reported PLC outcomes and students' self-reported social experiences at the group level, and how co-occurring qualitative codes across staff-reported PLC constructs further informed the nature of these associations. Findings drew on both quantitative and qualitative data to provide adequate data to determine if the professional growth documented among STP staff was linked to the social experiences of the students in their care. Within-staff associations were examined at the individual level using post-program data from 51 staff members, while associations between staff and student outcomes were examined at the group level to account for the different units at which staff and student data were collected. Quantitative analyses revealed a moderate positive association between staff-reported knowledge and professional attitudes at post-program, while associations between skill application and both knowledge and professional attitudes were small and non-significant, suggesting that growth across staff outcome domains was not uniformly interrelated at the conclusion of the program. Within the student sample, alliance and belongingness were strongly and significantly correlated, while peer relationships operated more independently of student-related social experiences. At the cross-level,

staff-reported implementation fidelity emerged as the most consistently associated staff variable, showing small-to-moderate positive associations with student belongingness and peer relationships, and approaching significance as a predictor of student-staff alliance, while knowledge, professional attitudes, and skill application did not significantly predict any student outcome. Importantly, the correlational analyses for alliance and belongingness were based on a smaller analytic sample ($N = 18$) than those for peer relationships ($N = 27$), as alliance and belongingness measures were not administered to PLC Group 1 due to age-based survey recommendations, which reduced statistical power for detecting significant associations with those two outcomes and should be considered when comparing findings across student outcome variables. Qualitative co-occurring code analysis added to these quantitative findings by revealing that PLC constructs were experienced not as isolated dimensions of professional learning but as interconnected elements, with intergroup dialogue simultaneously supporting concrete knowledge acquisition and emotional validation, relational and structural features of the PLC jointly strengthening staff connectedness, and logistical barriers interacting to collectively undermine staff engagement and learning continuity.

The integration of quantitative and qualitative findings indicates that the associations between PLC participation and student social experiences, while modest in magnitude, reflect a meaningful directional pattern in which higher quality implementation and stronger staff practice were associated with more positive student outcomes at the group level. The strongest directional link between staff fidelity and student alliance and belongingness, taken alongside qualitative accounts of how PLC participation fostered more relationally aware and behaviorally responsive staff practice, points to program implementation quality as a potential mechanism connecting staff professional development to students' sense of connection with staff and inclusion within the STP. Overall, these findings suggest that while the PLC showed promise as a mechanism for extending staff growth into tangible improvements in student experiences, non-significant correlations between staff and student outcomes

highlight the importance for future research to examine these associations with larger and more diverse samples, more granular individual-level student data, and greater attention to the contextual and structural conditions under which professional learning communities are implemented, in order to more precisely characterize the pathways through which staff development translates into meaningful change in student outcomes.

Joint Display Matrix

The convergent mixed methods design employed in this study involved the independent collection and analysis of quantitative and qualitative data, followed by systematic integration of findings to develop a more comprehensive understanding of how PLC participation shaped staff development and student outcomes across the STP. For each research question, quantitative findings derived from staff surveys, student outcome measures, and observed implementation fidelity were analyzed separately from qualitative findings derived from post-program staff interviews, and the two strands were subsequently brought into conversation with one another during the interpretation phase. This integration process was guided by a joint display matrix, a visual and narrative tool used to align quantitative results with corresponding qualitative themes side by side, enabling direct comparison and facilitating the identification of convergence, complementary information, and divergence across data sources. The joint display matrix serves as the primary analytic vehicle for addressing research question 4, how does the integration of statistically significant changes in STP staff knowledge and skills, professional attitudes, student outcomes, and staff adherence to the STP manual with qualitative insights from staff perceptions, analyzed through a joint display matrix, help determine the impact of the Professional Learning Community on staff experiences and student outcomes?

The joint display matrix presented in this section (Figure 4) organizes findings across the four primary PLC constructs examined in the study, knowledge and skills, professional attitudes, application of learned skills, and student outcomes, and maps quantitative trends and effect sizes alongside

qualitative themes and representative staff narratives for each construct. The matrix is designed to illuminate three things. First, it highlights areas of convergence, where quantitative gains over time were further explained by staff accounts of growth, lending corroboration to findings across methods and strengthening confidence in conclusions about the PLC's impact. Second, it identifies areas of complementary information, where qualitative data added depth and explanation to patterns that quantitative analyses documented but could not fully explain, for example, illuminating why certain PLC groups showed stronger trajectories than others, or how structural features of the PLC facilitated or constrained staff learning in ways that survey measures alone could not capture. Third, it illustrates areas of divergence, where quantitative and qualitative findings told somewhat different stories, which in this study are treated as analytically meaningful rather than problematic, pointing to contextual factors, individual variability, or structural conditions that warrant further investigation. Together, these three analytic lenses allow for a more complete determination of the PLC's impact on both staff experiences and student outcomes, directly addressing the integrative aims of research question 4.

Figure 4*Joint Display Matrix*

Mixed-Method Domain	Quantitative Findings	Qualitative Findings	Meta-Inferences
<i>PLC Satisfaction and Effectiveness</i>	High average satisfaction ($M = 3.62$, $SD = 0.76$); stable mid- to post-program ($p = .54$). Gender: female > non-female ($M = 3.78$ vs. 3.20), $t(41.05) = 3.34$, $p = .002$; gap widened over time. Group differences: Groups 2 and 3 significantly lower than Group 1. Overall ANOVA: $F(3, 98) = 5.96$, $p < .001$. Post-program ANOVA significant: $F(3, 47) = 3.91$, $p = .014$.	Facilitators: strong facilitation, intentional structure, inclusive atmosphere promoting reflection and collaboration. Barriers: competing demands, limited time, inconsistent structure, unclear goals. PLC Group 2 uniquely endorsed more barriers than facilitators.	CONVERGENCE: High PLC satisfaction converges with high frequency of Facilitators referenced Overall positive engagement with PLC, but effectiveness varied by group facilitation quality and structural factors. Gender gap in satisfaction converged with qualitative patterns, suggesting structural and relational features of PLC

Mixed-Method Domain	Quantitative Findings	Qualitative Findings	Meta-Inferences
			disproportionately benefited female staff.
Knowledge and Skills	Significant increases pre- to post-program ($M = 4.30$ to 4.45, $b = 0.16$, $p < .001$, $d = 0.42$). $ICC = 0.62$. No significant differences by gender, ethnicity, or education. Prior STP experience significant: returning staff ($M = 4.50$) > new staff ($M = 4.34$), $t(55.96) = -2.33$, $p = .023$. PLC group ANOVA significant: $F(3, 155) = 3.03$, $p = .031$. Tukey HSD: Group 1 significantly higher than Group 3 (diff = 0.22, $p = .023$); all other pairings non-significant. Best-fitting model: time-only (Know_M0_ML); adding PLC Group did not significantly improve fit ($p = .145$).	All 12 participants endorsed this theme (101 total references). Four subthemes: <i>STP Skills</i>, <i>Professional Development Skills</i>, <i>Teamwork</i>, and <i>Attitude Toward Students</i>. Group distribution varied: Group 1 (8.7%), Group 2 (44.7%), Group 3 (20.4%), Group 4 (26.2%). Structured discussions, collaborative reflection, and skill practice supported competency development.	CONVERGENCE: PLC participation enhanced both general professional competencies and program-specific skills according to survey and interview data. Returning staff and non-White staff contributed disproportionately to several subthemes, suggesting differential engagement shaped by experience and background.
Professional Attitude	High and stable beliefs across program ($M = 4.23$–4.30). $ICC = 0.42$. Prior STP experience significant: returning staff ($M = 4.44$) > new staff ($M = 4.22$), $t(71.31) = -4.03$, $p < .001$. No significant differences by gender, ethnicity, or education.	Highest endorsement: 191 references by all 12 participants. Four subthemes: <i>Motivation</i>, <i>Connectedness</i>, <i>Perspective</i>, <i>Personal Development</i>. PLC fostered professional purpose, interpersonal awareness, and team cohesion.	COMPLEMENTARITY: High qualitative endorsement alongside quantitative stability. The PLC's attitudinal impact operated beneath statistical detection. PLC sustained and deepened already positive professional attitudes. Returning staff drove stronger attitudinal outcomes, consistent with the quantitative STP experience effect.
Application of Learned Skills	Self-reported: Significant increase pre- to post-program ($M = 3.51$ to 3.58, $b = 0.37$, $p = .005$, $d = 0.51$). $ICC = 0.69$. Ethnicity significant: White ($M = 3.68$) > Non-White ($M = 3.34$), $t(110.23) = 3.01$, $p = .003$.	30 references by 9 of 12 participants. Four subthemes: <i>Managing Student Interactions</i>, <i>Real-Time Communication</i>, <i>Intangible Implementation Strategies</i>, <i>Preparation</i>.	DIVERGENCE: Meaningful growth in applying learned concepts to practice. Enhanced confidence supported by observed increases in manual adherence, yet this construct had the fewest references amongst all staff outcomes.

Mixed-Method Domain	Quantitative Findings	Qualitative Findings	Meta-Inferences
	STP experience significant: returning ($M = 3.74$) > new ($M = 3.40$), $t(65.56) = -2.83$, $p = .006$. Gender approached significance ($p = .078$). No significant PLC group differences. Fidelity: Overall improvements pre- to mid- ($b = 4.85$, $p < .001$) and pre- to post- ($b = 5.79$, $p < .001$). Significant PLC group $\times$ time interaction ($\Delta\chi^2(6) = 38.15$, $p < .001$); Group 2 decreased mid-program, Groups 3 & 4 improved post-program.	Fewer references than knowledge construct (101), suggesting application was valued but harder to directly link to PLCs.	Group-level fidelity variability highlights facilitation quality and group context as moderators of practice change.
Student Outcomes	Alliance: stable (no significant changes). Time-only model non-significant ($b = -0.038$, $p = .491$); full model also non-significant. Model comparison: full model fit significantly better ($\chi^2 = 11.857$, $df = 4$, $p = .018$). Belongingness: stable overall. Significant Time $\times$ PLC Group interaction ($F = 5.730$, $p = .025$). Group 2 significant negative slope ($b = -0.120$, $p = .006$); Group 3 significantly more positive trajectory ($b = 0.158$, $p = .009$). Full model significantly better than time-only ($\chi^2 = 21.964$, $p < .001$). Peer relationships: significant increase pre- to post-program ($b = 1.889$, $p < .001$) across all groups. Time $\times$ PLC Group interaction non-significant. Alliance and belongingness strongly correlated ($r = .75$, $p < .001$).	46 references by 10 of 12 participants. Five subthemes: <i>Prosocial Behavior, Camper Relationships, Individualized Support, Structured Environment, Camper Engagement</i>. More common among returning staff (61%) and non-White staff (63%), suggesting experience/diversity enhanced awareness of PLC impact on students.	CONVERGENCE: PLC had meaningful but varied impact on student outcomes. Peer relationships increased significantly across all groups, a broad program effect. This was reflected in the qualitative data as well with several references to improved peer relationships as a result of the PLC. Belongingness showed group-differentiated change, with PLC group membership moderating trajectories. The strong alliance-belongingness correlation suggests staff-student relational quality as a mechanism through which program participation supports students' broader sense of belonging.
Associations Between Staff and Student Outcomes	Within-staff ($N = 51$): Knowledge and attitudes moderately correlated ($r = .43$, $p = .002$).	Co-occurring codes revealed interconnected staff experiences. Frequent overlaps between <i>PLC Effectiveness Facilitators</i> and <i>Knowledge/Skills</i>	COMPLEMENTARITY: Observable fidelity, not self-report, was quantitatively most associated with student outcomes. However, qualitative co-occurring data also found

Mixed-Method Domain	Quantitative Findings	Qualitative Findings	Meta-Inferences
	Within-student: alliance and belongingness strongly correlated ($r = .75, p < .001$). Cross-level: staff fidelity with student peer relationships significant ($r = .41, p = .034$). Fidelity approached significance predicting alliance ($b = 0.015, p = .067$).	indicated collaborative dialogue supported learning and confidence. Co-occurrences between <i>Belongingness</i> and structural features highlighted how relational/structural elements strengthened connectedness. Barriers (timing, length) co-occurred, showing logistical constraints disrupted coherence.	that all constructs provided some linkage to student outcomes. Non-significant regression results point to the need for larger samples to detect cross-level effects.

Among the key findings highlighted in the joint display, is that for PLC Satisfaction (RQ 1), while counselors reported generally high and stable overall satisfaction, this experience was not uniform. Female counselors reported significantly higher satisfaction than non-female counselors, and PLC Group membership was a significant source of variation, with Group 1 consistently reporting the highest satisfaction and Group 3 the lowest. The alignment between Group 3's low quantitative satisfaction and its disproportionately high qualitative barrier references represents the most meaningful integrated finding of PLC Satisfaction.

Additionally, for knowledge and skills (RQ 2A) it was discovered that time was found to be a statistically significant predictor of growth in staff-reported knowledge and skills, representing the clearest quantitative evidence of PLC-driven staff development in the study. This was also strongly corroborated by qualitative findings, with all 12 participants endorsing this theme across 101 references. Professional attitude (RQ 2B) demonstrated significant divergence between quantitative and qualitative results. Time was not a significant predictor of change in professional attitudes, yet professional attitudes generated the highest qualitative reference count in the entire study (191 references from all

12 participants). This combination indicates that the PLC's most far-reaching impact on staff operated beneath the level of statistical detection, not transforming beliefs, but sustaining, affirming, and deepening pre-existing beliefs. Application of learned skills (RQ 2C) revealed a significant group $\times$ time interaction for implementation fidelity, revealing that the trajectory of growth in observable adherence to the STP manual was not uniform across groups. Group 2's fidelity scores declined at mid-program while Groups 3 and 4 saw an improvement in their fidelity scores at post-program, suggesting that PLC Group context meaningfully shaped the translation of professional learning into practice. Self-reported application also grew significantly, though staff found it did not explicitly attribute behavioral changes to the PLC. In research question 2D, analysis of longitudinal student outcomes revealed that peer relationship growth demonstrated clear convergence between the quantitative increase in mutual peer relationships across all four PLC groups from pre- to post-camp (see Table 14 on p. 151) and staff qualitative accounts of the PLC improving student social behavior, engagement, and peer interactions. Both data sources independently pointed to gains in students' social integration as a tangible downstream effect of the program.

Research question 3, by contrast, examined a fundamentally different question. Rather than focus on whether individual staff or student variables grew over time, RQ3 analyzed whether variation in staff-level PLC outcomes was associated with variation in student social experiences across bunks. At this cross-level, between-group level of analysis, implementation fidelity was the only staff variable to show consistent directional associations with student outcomes. Implementation fidelity was found to approach significance in predicting student-staff alliance, while also showing modest positive correlations across all three student outcomes, including the strongest cross-level correlation with student belongingness, while knowledge, professional attitudes, and skill application did not significantly predict any student outcome. This points to observable implementation quality, rather than self-reported staff growth, as the most proximal link between staff practice and student social experiences.

Within the student sample, alliance and belongingness were strongly and significantly correlated, suggesting that the quality of staff-student relationships and students' broader sense of belonging within the STP were closely intertwined, and that fidelity to the program protocol may have supported both simultaneously. The co-occurring code analysis further revealed that PLC constructs were experienced as deeply interconnected rather than discrete, with the most meaningful professional learning emerging through the intersection of relational, structural, and cognitive dimensions simultaneously.

Discussion

The Summer Treatment Program represents one of the most intensive and empirically supported intervention models for youth with ADHD and related neurodevelopmental conditions, yet the professional development infrastructure that supports its implementation has received comparatively limited empirical attention. Despite the critical role that STP staff play in delivering a complex, manualized intervention across a demanding multi-week program, relatively little is known about how to best support staff during the program itself, or whether the quality and structure of in-program professional development is associated with meaningful variation in staff practice and student outcomes. Existing STP professional development practices incorporate evidence-based approaches such as role-playing, feedback, and team-building exercises during the pre-camp training period, yet staff have identified notable gaps in in-program support, including insufficient quality and quantity of feedback and supervision, limited structured opportunities for independent problem-solving, unclear training priorities, and inadequate attention to equity and cultural responsiveness (Obee et al., 2024). These gaps point to a need for additional, structured professional learning opportunities that extend beyond pre-camp preparation and accompany staff throughout the duration of the intervention.

The purpose of this study was to investigate how integrating a structured Professional Learning Community into a modified Summer Treatment Program functions as a targeted professional development strategy. Specifically, the study explored how the PLC was perceived by STP staff, and examined its impact on staff knowledge and skills, professional attitudes, application of learned skills, implementation fidelity, and student social outcomes. This study addressed an existing gap in the literature examining moderators of professional development impact within STPs, contributing new knowledge about whether structured in-program supports are linked to meaningful variation in staff practice and student outcomes across different groups. To that end, the study drew on a convergent

mixed methods design, integrating quantitative analyses of staff and student survey data and observed implementation fidelity with qualitative thematic analysis of post-program staff interviews, to provide a comprehensive and multidimensional picture of the PLC's impact across the program.

The following discussion summarizes findings across all four research questions, situating results within the broader literature on professional development and implementation science. Key findings with interpretation of results in relation to existing theory and empirical work are first discussed, followed by discussion of the study's implications for STP practice and professional development design, acknowledgment of limitations, and directions for future research.

The following section interprets findings across all four research questions, situating results within the existing literature on professional development, professional learning communities, and the Core Conceptual Framework (See page 10 to look for alignment) (Desimone, 2009). Findings are organized sequentially by research question, beginning with staff perceptions of PLC satisfaction and effectiveness, progressing through the impact of PLC participation on staff knowledge and skills, professional attitudes, and application of learned skills and implementation fidelity, and ending with an examination of downstream effects on student social outcomes and the integrative joint display analysis. Throughout, quantitative and qualitative findings are interpreted together, with particular attention to areas of convergence, complementarity, and divergence that emerged across data sources. The interpretation is guided by the Core Conceptual Framework's hypothesized progression from professional development features to changes in educator knowledge, beliefs, and practice, and ultimately to improved student outcomes.

Counselor Satisfaction and PLC Effectiveness

The first research question examined how STP staff perceived their satisfaction with the PLC, including whether satisfaction varied by demographic characteristics and what structural and relational factors staff identified as key facilitators and barriers to PLC effectiveness. This question was motivated

by the recognition that staff perceptions of professional development quality are among the closest predictors of its potential impact, as satisfaction with the learning experience shapes engagement, motivation to apply new learning, and the degree to which staff perceive the PLC as relevant and valuable to their practice (Prenger et al., 2018; Schaap & de Bruijn, 2018). Understanding the conditions under which staff found the PLC most and least effective is therefore crucial not only for interpreting downstream effects on knowledge, attitudes, and practice, but also for identifying the structural and relational features of the PLC that should be preserved, strengthened, or redesigned in future implementations. The findings address both the quantitative dimensions of satisfaction, overall ratings, demographic variation, and group-level differences, and the qualitative dimensions, staff perceptions of what made the PLC work well and what limited its effectiveness, providing an integrated picture of how the PLC was experienced across the staff sample.

Staff members reported generally high satisfaction with the PLC, remaining stable from mid-program to post-program, consistent with research demonstrating high educator satisfaction when PLCs involve collaboration and yield gains in knowledge and skill application (Prenger et al., 2018; Sigurðardóttir, 2010). However, the wide range of scores and high ICC (77% of variance attributable to between-person differences) revealed substantial individual variability, indicating that PLC effectiveness depends heavily on alignment between individual needs, organizational factors, and group-level PLC implementation (Schaap & de Bruijn, 2018). Satisfaction varied significantly by gender, with female staff reporting higher satisfaction compared to non-female staff, possibly due to factors such as staff gender demographics, PLC structure, PLC facilitator make-up, or perceived ownership. Perceived ownership has been identified as a critical moderator of PLC effectiveness, as staff who feel greater agency and investment in the PLC process tend to report more meaningful engagement with and benefit from the experience (Palinscar et al., 1998; Schaap & de Bruijn, 2018). PLC group assignment also significantly moderated satisfaction, with Group 1 reporting highest satisfaction and Groups 2 and 3 lowest,

suggesting differential success in establishing skilled facilitation, relevant dialogue, and connections to practice contexts, conditions identified as critical for PLC effectiveness (Gersten et al., 2010; Schaap & de Bruijn, 2018).

Facilitators of PLC Effectiveness

These findings align with the qualitative results, which found six primary facilitators of staff-perceived PLC effectiveness: *Strong Facilitation*, *PLC Structure*, *Follow-Up*, *Logistics*, *Camaraderie*, and *Atmosphere*. These facilitators align closely with the Core Conceptual Framework's key principles of Content Focus, Active Learning, Coherence, Duration, and Collective Participation (Desimone, 2009). Specifically, *Strong Facilitation* and *PLC Structure* reflect the principle of Content Focus, as sessions led with clarity and intentionality ensured that discussions remained grounded in relevant, program-specific content that supported staff growth. *Follow-Up* corresponds to the principle of Coherence, as post-session reflection and continuity across meetings helped staff connect PLC content to their existing knowledge, values, and daily practice. *Logistics* maps onto the principle of Duration, as session timing, length, and consistency determined whether staff had adequate and sustained opportunity to engage meaningfully with the professional learning process. Finally, *Camaraderie* and *Atmosphere* together reflect the principles of Active Learning and Collective Participation, as an inclusive, psychologically safe group climate encouraged staff to actively contribute, reflect on real-world challenges, and learn collaboratively alongside peers, rather than receiving information passively. Together, these facilitator themes suggest that when the PLC was experienced as structured, sustained, and relationally supportive, it embodied the conditions that the Core Conceptual Framework identifies as essential for meaningful professional growth.

Strong facilitation emerged as the most prevalent staff-perceived facilitator, reflecting the crucial role skilled PLC leaders possessed in guiding conversations with clarity, flexibility, and accessibility while ensuring topics were concrete and relevant to staff needs. This finding aligns with

research demonstrating that PLCs are most effective when conversations are structured around evidence-based practices with a skilled discussion leader guiding the group and keeping participants on track (Gersten et al., 2010), and is consistent with staff reports that sessions characterized by strong leadership were perceived as more meaningful and impactful. The emphasis on concrete conversation topics among new staff compared to experienced staff suggests that less experienced counselors required more specific guidance on STP implementation, while the greater endorsement of topics beyond the manualized program by experienced staff indicates that familiarity with core content allowed for deeper exploration of nuanced professional challenges, a pattern consistent with the need for PD coherence and alignment with learners' existing knowledge and developmental level (Desimone, 2009; Elmore & Burney, 1997).

Additionally, *Camaraderie* and *PLC Structure* represented the relational and structural elements that staff perceived as creating conditions for professional growth and collaboration within the PLC. The strong endorsement of camaraderie across all participants highlights the value counselors placed on learning from peers across bunks, expanding their toolbox of strategies, and fostering a sense of shared purpose, core features of the Collective Participation principle, which notes that professional development is improved when all impacted learners engage together to promote collaboration and shared experiences (Borko, 2004; Desimone, 2009). Staff perceptions of camaraderie as a key facilitator of PLC effectiveness are consistent with research demonstrating that PLCs improve educator practices, leadership, and overall satisfaction through collaborative learning, exposure to diverse perspectives, reflective dialogue, and professional support (Dogan & Adams, 2018; Lee & Ip, 2021; Liu et al., 2022; Vescio et al., 2008). The *PLC Structure* elements, including check-ins, shout-outs, and clear agendas, established supportive and predictable routines that staff perceived as encouraging engagement, with new staff particularly valuing shout-outs, suggesting that praise and positive reinforcement were especially meaningful for those lacking confidence from limited experience. These structural features

align with the Newmann et al. (1996) article that defines characteristics of effective PLCs, including reflective dialogue and the de-privatizing of practice through making professional experiences more transparent and collaborative. Together, staff perceptions of these facilitators suggest the PLCs created an environment where Active Learning principles flourished through structured and interactive designs that encouraged participation, reflection, and collaborative problem-solving (Ball & Cohen, 1999; Darling-Hammond et al., 2017; Greenleaf et al., 2001).

Barriers of PLC Effectiveness

On the other hand, staff identified six primary barriers of PLC effectiveness: *Other Staff Demands, Length of PLC, Ineffective Structure, Inconsistency, Unhelpful Discussions, and Lack of counselor agency*. These barriers represented disruptions to key professional development principles including Duration, Coherence, Active Learning, and Collective Participation (Desimone, 2009). Specifically, *Other Staff Demands* and *Length of PLC* disrupted the principle of Duration, as competing responsibilities and insufficient session time prevented staff from sustaining the level of engagement necessary for meaningful professional learning to occur across the program. *Inconsistency* maps onto the principle of Coherence, as unpredictable facilitation, limited follow-up across sessions, and unclear goals made it difficult for staff to connect PLC content to their existing knowledge and daily practice, undermining the continuity that effective professional development requires. *Ineffective Structure* and *Unhelpful Discussions* reflect disruptions to the principle of Active Learning, as poorly organized sessions and overly broad or redundant discussion topics reduced opportunities for staff to engage in the reflective, interactive, and practice-relevant dialogue that drives meaningful skill development. Finally, *Lack of Counselor Agency* represents a barrier to Collective Participation, as staff who felt compelled to engage in ways that did not feel authentic or relevant to their professional needs were less able to contribute meaningfully as collaborative learners, diminishing the sense of shared ownership and investment that defines high-quality collective professional learning (Borko, 2004; Desimone, 2009).

Together, these barrier themes suggest that when structural, logistical, and relational conditions were not adequately addressed, the PLC fell short of the conditions the Core Conceptual Framework identifies as necessary for professional development to produce meaningful growth.

Notably, PLC structure emerged as both a facilitator and a barrier of perceived PLC effectiveness, underscoring that the presence of structure alone was insufficient, it was the quality and execution of that structure that determined its impact (Gersten et al., 2010; Prenger et al., 2018). When structure was experienced positively, it manifested as intentional, predictable session formats that included opening check-ins, shout-outs, and clear agendas, creating a consistent rhythm that helped staff transition into reflective learning and feel recognized within the group, consistent with the Newmann et al. (1996) defining characteristics of effective PLCs, including reflective dialogue and the de-privatizing of practice.

When structure was experienced negatively, it manifested as poorly allocated session time, overly prolonged icebreakers, and an absence of smaller group discussion opportunities that left staff feeling that sessions were inefficient and insufficiently tailored to their learning needs, patterns consistent with organizational factors such as time management and PLC structure that have been shown to diminish satisfaction with PLC participation (Prenger et al., 2018). Several factors appeared to differentiate effective from ineffective structure, including facilitator skill in managing session flow (Gersten et al., 2010), the degree to which session components were purposefully sequenced rather than loosely assembled, and the absence of explicit timing guidelines within the PLC implementation checklist, which may have contributed to inconsistent time management across groups. Interestingly, new staff were more sensitive to both dimensions of this theme, finding greater benefit from well-structured sessions, particularly the shout-out component, while also expressing greater frustration with structural inefficiencies, suggesting that counselors without prior STP experience were more dependent on clear and predictable session organization to support their engagement and professional

development within the PLC, consistent with the principle that effective PD must align with learners' existing knowledge and developmental level (Desimone, 2009; Elmore & Burney, 1997).

Other Staff Demands emerged as the most prevalent barrier, capturing competing responsibilities, end-of-day fatigue, and challenges with the timing of the PLC within an already intensive camp schedule. This finding reflects a critical tension identified in PLC research. While sustained engagement over time with at least 20 hours of contact time is essential for meaningful professional learning (Cohen & Hill, 2001; Desimone, 2009), organizational factors such as time management, PLC structure, and competing priorities can significantly diminish practitioner satisfaction and engagement (Prenger et al., 2018). The similar endorsement rates between experienced and new staff suggest that time constraints affected all counselors regardless of familiarity with the program. However, experienced staff more frequently noted competing responsibilities as a barrier, a pattern that illustrates how contextual factors moderate professional development effectiveness across all four stages of the Core Conceptual Framework (Cohen, 1990; Desimone et al., 2002).

Length of the PLC and Ineffective Structure further undermined Duration and Active Learning principles, with counselors reporting rushed discussions, insufficient time for meaningful reflection, and inefficient use of session time that limited hands-on participation in the role-plays, observations, and collaborative problem-solving activities central to effective professional development (Collins et al., 1991; Darling-Hammond et al., 2017; Greenleaf et al., 2001). The concentration of *Ineffective Structure* concerns in PLC Group 3 and the overwhelming presence of *Inconsistency* concerns in this same group align with this group's status as the only PLC to endorse more barriers than facilitators and is corroborated by their low levels of PLC satisfaction when compared with other groups. This pattern supports research demonstrating that overly hierarchical approaches and poorly structured PDs fail to account for the contextual and interactive nature of how practitioners learn (Clarke & Hollingsworth, 2002), may weaken sense of ownership and limit PLC success (Guskey & Sparks, 2004; Wayne et al., 2008), and can

lead to decreased practitioner engagement, limited buy-in, undermined professional autonomy, and diminished confidence in one's ability to learn and grow (King, 2013; Scribner et al., 2007; Stoll et al., 2006; Visscher & Witziers, 2004). The finding that *Lack of counselor agency* was endorsed predominantly by experienced staff suggests that the PLC failed to adequately recognize or respond to the diverse backgrounds, experiences, and needs of individual counselors (Desimone, 2009; Fullan, 2009; Kooy & Van Veen, 2012; Palinscar et al., 1998), and that perceived gaps between expected and actual opportunities for influence were particularly notable for returning counselors, a critical finding given that ownership was noted as one of three elements with significant impact on PLC development and staff perceptions (Schaap & de Bruijn, 2018).

Staff Knowledge and Skills as the Foundational Indicator of PLC Effectiveness

Research question 2A explored the ways that counselor knowledge and skills changed over the course of the STP. The study found that the impact of PLC effectiveness was best represented by staff's knowledge and skills including their growth in familiarity with STP content, acquisition of behavior management strategies, and STP implementation protocols. These are the foundational competencies of PLC effectiveness. The following interpretation integrates quantitative findings from multilevel modeling and demographic analyses with qualitative accounts from post-program staff interviews, interpreting results through the existing literature on professional development and the Core Conceptual Framework (Desimone, 2009).

Staff demonstrated significant and progressive gains in self-reported knowledge and skills from pre-program to mid-program and post-program. The incremental growth across the program, with effect sizes increasing from mid-program to post-program, suggests that learning was not solely a function of initial exposure to content, but rather accumulated through continuous practice, reflection, and refinement across the five-week program. This pattern aligns with the Core Conceptual

Framework's (Desimone, 2009) emphasis on sustained engagement and active learning as critical features of effective professional development.

The statistically significant growth at mid-program is noteworthy, suggesting that the PLC structure, with its weekly meeting frequency and integration of collaborative problem-solving, programmatic knowledge, and immediate application, created conditions conducive to rapid skill acquisition. The continued growth trajectory as an aggregate staff through post-program demonstrates that learning was maintained and expanded upon over time. These findings validate the PLC's responsiveness to the developmental trajectory of staff learning needs across the program timeline and are consistent with research demonstrating that professional development produces the most meaningful gains when it is sustained, job-embedded, and directly connected to practitioners' daily work (Desimone, 2009; Prenger et al., 2018).

Demographic analyses revealed that knowledge and skill scores were largely consistent across gender, ethnicity, and education level. However, prior STP experience emerged as a meaningful differentiator, with returning staff reporting significantly higher knowledge scores than new staff. This finding is consistent with the expectation that accumulated program familiarity would provide a stronger foundation for consolidating new learning and aligns with research suggesting that experienced practitioners are better positioned to personalize and build upon professional development content by drawing on prior knowledge as a scaffold for new learning (Franke et al., 2001). PLC group membership also contributed to significant variability in knowledge scores, with Group 1 reporting significantly higher scores than Group 3. This group-level difference mirrors the satisfaction findings and similarly suggests that differential facilitation quality, group composition, and session structure may have shaped the degree to which staff within each group were able to engage with and benefit from PLC content.

Qualitative findings provide important insight into the processes underlying quantitative growth in knowledge and skills, suggesting that structured PLC discussions, collaborative reflection, and

program-specific skill practice functioned as key drivers of knowledge and skill development, consistent with the Core Conceptual Framework's second stage in which professional development leads to enhanced educator knowledge, skills, attitudes, and beliefs (Desimone, 2009). *STP Skills* emerged as the most frequently referenced subtheme across all 12 participants, encompassing practical strategies for managing student behavior, teaching pro-social skills, applying de-escalation techniques, and maintaining fidelity to the treatment protocol. Additionally, the concentration of *STP Skills* endorsements among non-White staff and returning staff suggests important demographic patterns in how staff engaged with and valued program-specific content. This finding may reflect that the PLC structure particularly resonated with or addressed the professional learning needs of diverse staff members, consistent with research emphasizing the importance of contextual relevance, equity, and culturally responsive practices in professional development design (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024), or it may indicate differential needs based on prior experience, with returning staff better positioned to focus on nuanced implementation strategies through the personalization and application of previously acquired knowledge (Franke et al., 2001).

Staff also referenced the knowledge and skills construct beyond just program-specific STP skills, with quotations encompassing transferable professional competencies in the domains of teamwork and broader professional development, with patterns of endorsement suggesting that collaborative learning within the PLC was particularly resonant for non-White staff. *Professional Development Skills* and *Teamwork* represented transferable skills beyond immediate student interactions, including improved role communication, personal coping strategies, collaborative functioning, and constructive feedback delivery. The high endorsement of teamwork skills among non-White staff mirrors patterns observed in the STP Skills theme and aligns with the Collective Participation principle, which emphasizes that professional development is enhanced when all impacted learners engage together to promote collaboration and shared experiences (Borko, 2004; Desimone, 2009). These findings support research

demonstrating that PLCs improve educator creativity, practices, and leadership through exposure to diverse perspectives, reflective dialogue, peer collaboration, and professional support (Dogan & Adams, 2018; Lee & Ip, 2021; Liu et al., 2022; Vescio et al., 2008), with outcomes particularly pronounced when organizations provide supportive climates and value staff input (Liu et al., 2022; Sigurðardóttir, 2010).

Professional Attitudes as a Sustained and Protective Dimension of PLC Effectiveness

Research question 2B explored the ways that counselor professional attitudes were impacted over the course of the STP. The study found that in contrast to knowledge and skills, the PLC's impact on professional attitudes was best understood not as measurable change but as active maintenance and reinforcement of already high attitudinal orientations, including staff motivation, sense of purpose, connectedness, and commitment to evidence-based practice. These sustaining functions represent a distinct but equally important dimension of PLC effectiveness, particularly within an intensive intervention setting where professional attitudes are continuously tested by demanding conditions. The following interpretation integrates quantitative findings from multilevel modeling and demographic analyses with qualitative accounts from post-program staff interviews, interpreting results through the existing literature on professional development and the Core Conceptual Framework (Desimone, 2009).

The stability of professional attitudes is itself meaningful given that staff faced escalating behavioral challenges, worked long hours in demanding conditions, and navigated complex interpersonal dynamics across the five-week program. Research examining educator experiences suggests that continued professional development can enhance job satisfaction and reduce burnout rates (Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2007; Yoo, 2016). The PLC may have served as a protective factor, sustaining motivation, empathy, and commitment to evidence-based practice even as staff encountered difficult situations that could otherwise have diminished professional outlook or reduced faith in the intervention. The collaborative structure and shared values characteristic of

effective PLCs (Hord, 1997; Stoll et al., 2006) likely contributed to this protective function by creating an environment where staff felt valued and supported in their professional roles.

Attitudinal Stability as Evidence of Preservation Rather Than Absence of Impact

The interview data enhanced these findings with additional detail about the pattern of stability, suggesting that while attitudes did not significantly change, they were actively sustained, deepened, and experienced as impactful by participants. Professional attitude indicators were most strongly reflected in staff experiences of motivation, sense of purpose, and professional identity, suggesting that the PLC's most consistent contribution to this domain was affective and relational rather than the production of measurable attitudinal change. Counselor motivation emerged as the primary vehicle through which PLC participation appeared to reinforce professional orientations, with non-White staff demonstrating the highest levels of motivational endorsement and first-time staff disproportionately referencing confidence as a meaningful outcome of their PLC experience. These patterns suggest that the PLC functioned as a particularly affirming and energizing context for staff from diverse backgrounds and those navigating the STP environment for the first time. This pattern is consistent with research emphasizing that effective professional development must be contextually relevant, equity-oriented, and responsive to the diverse needs of professional learners (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024), and aligns with findings demonstrating that PLCs improve self-efficacy, job satisfaction, and resilience most notably when staff share common values within supportive climates (Klassen & Chiu, 2010; Liu et al., 2022; Skaalvik & Skaalvik, 2007; Yoo, 2016). Staff also referenced the professional attitude construct beyond just motivational and confidence-related themes, with the *Connectedness* subtheme revealing that PLC participation strengthened relational bonds and fostered a sense of inclusion and belonging within the broader camp community. The *Connectedness* subtheme further reinforced the PLC's sustaining function, with returning staff contributing most of the references and non-White staff contributing most of the *Belongingness* references, suggesting that the PLC

strengthened relational bonds and created inclusive spaces where diverse staff felt valued and integrated into the broader camp community.

Collectively, these results demonstrate that the PLC served a critical protective and sustaining function, reinforcing staff members' commitment to evidence-based practice and buffering against diminished professional attitudes. This aligns with research indicating that ongoing professional development can enhance job satisfaction and resilience, particularly when it promotes collaboration, shared values, and reflective practice (e.g., Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2007). Within the context of the Core Conceptual Framework (Desimone, 2009), these findings underscore the importance of the second phase, changes in attitudes and beliefs, not only as a site of growth, but as a stabilizing mechanism that supports the translation of knowledge into sustained practice. The second phase of the framework captures the degree to which professional development produces shifts in what educators know, believe, and value about their practice, serving as the critical mediating link between exposure to professional development content and the behavioral changes that ultimately manifest in instruction and program delivery. In the context of the STP, where staff entered the program with already strong professional orientations, the second phase functioned less as a domain of transformation and more as a foundation of resilience, preserving the attitudinal conditions necessary for knowledge to be consistently applied under demanding and emotionally intensive program conditions.

From Knowing to Doing: How PLC Participation Translated into Observable Practice Change Through a Non-Linear Path of Skill Application

Research question 2C investigated the degree to which counselors were able to carry what they learned through PLC participation into their day-to-day work with students. Unlike the steady accumulation of knowledge documented in RQ 2A or the protective maintenance of professional attitudes observed in RQ 2B, the application of learned skills followed a more complex trajectory, one characterized by an initial lag before meaningful gains emerged, reflecting the well-documented gap

between knowing and doing in professional development contexts (Franke et al., 2001). Where knowledge and attitudes capture internal states, application represents the behavioral manifestation of PLC effectiveness, occupying the third stage of the Core Conceptual Framework in which shifts in educator knowledge and beliefs begin to reshape actual instructional and behavioral practice (Desimone, 2009). The analysis that follows draws on self-reported application scores, observer-rated implementation fidelity data, and qualitative staff accounts to construct a layered account of how, and for whom, PLC participation translated most effectively into changed practice, situating these findings within the broader professional development literature and the Core Conceptual Framework (Desimone, 2009).

Application Growth Was Significant but Non-Linear, With Ethnicity Emerging as a Key Differentiator

The significant improvement in self-reported application of learned skills from pre- to post-program provides meaningful evidence that the PLC successfully supported the translation of professional learning into practice, addressing a persistent challenge given that traditional training approaches such as manualized protocols or didactic workshops yield only modest improvements when used alone (Bearman et al., 2017; Chambers & Azrin, 2013; Sholomskas et al., 2005; Stirman et al., 2012). The non-linear trajectory of application scores, declining slightly from pre- to mid-program before rebounding and surpassing baseline by post-program may reflect the well-documented lag between knowledge acquisition and behavioral implementation, where practitioners need time to consolidate new learning before it turns into consistent practice change (Franke et al., 2001). Several PLC features likely contributed to the eventual gains observed, including the integration of active learning strategies that created opportunities for staff to rehearse skills in supportive contexts (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024) and the weekly cadence that enabled a predictable cycle of learning, application, reflection, and refinement characteristic of effective PLCs (Hord, 1997; McLaughlin & Talbert, 2001).

Demographic analyses revealed a more differentiated pattern than observed for knowledge and professional attitudes. Ethnicity emerged as a notable differentiator, with White staff reporting higher application scores than non-White staff at a level approaching statistical significance- a finding that contrasts with the non-significant ethnicity differences observed for the other two outcomes. This warrants careful consideration in the context of future PLC design. This pattern may reflect differential access to implementation opportunities, variability in how PLC content resonated with staff from different cultural backgrounds, or structural inequities in how feedback and support were distributed across the program (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024).

Implementation Fidelity Improved as Observer-Rated Adherence Revealed Group Differences Self-Report Could Not Capture

Objective measures of group-level adherence to the STP manual provided corroborating, yet nuanced evidence of implementation growth. Overall fidelity improved significantly from pre- to mid-program and from pre- to post-program, and the narrowing of standard deviations across timepoints suggests that staff not only improved their adherence but became more uniform in their implementation quality over time. PLC Group 3 showed the strongest and most consistent improvements in fidelity across the program, while Group 2 stood out as the only group to experience a notable dip in implementation quality midway through before partially recovering by the end of camp, a pattern that represents complementarity given the broader picture of lower reported PLC satisfaction and a high frequency of staff-perceived barriers to PLC effectiveness amongst Group 2. These divergent trajectories highlight the distinction between self-perceived application and observer-rated adherence, and align with research on moderating factors in PLC effectiveness, including the importance of skilled facilitation, alignment between staff needs and PLC content, and sufficient opportunities for authentic practice application in real-world contexts (Gersten et al., 2010; Palinscar et al., 1998; Schaap & de Bruijn, 2018). Group 3's trajectory is particularly instructive in this regard, despite reporting the lowest

overall satisfaction among all four groups, it demonstrated the strongest and most consistent fidelity growth across the program, ultimately achieving the highest post-program fidelity score of any group, suggesting that observable adherence to the STP protocol was not contingent on staff satisfaction with the PLC itself. Group 2 presented the inverse pattern, with a mid-program fidelity decline that mirrored its lower satisfaction and knowledge scores and distinguished it as the group where structural and relational barriers to PLC engagement appeared most consequential for implementation quality. These contrasting group profiles suggest that the relationship between PLC experience and practice change is neither direct nor uniform, but rather is shaped by the interaction between facilitation quality, group context, and the degree to which staff were able to translate PLC learning into the behavioral demands of real-time program delivery.

PLC Discussions Supported Skill Translation Through Proactive Behavior Management and Co-Staff Coordination

Interview data provided important context for understanding how learning translated to practice. The application of learned skills construct was referenced significantly less among the 12 staff that were interviewed compared to the knowledge and skills and professional attitude constructs, suggesting that while skill development was broadly recognized, explicit connections between PLC discussions and observable practice changes were more difficult for staff to articulate or did not come to mind for most. When staff did draw explicit connections between PLC discussions and changes in their day-to-day practice, those connections most frequently took the form of what the qualitative coding captured as *Intangible Implementation Strategies*, a subtheme encompassing the kinds of proactive, in-the-moment behavioral techniques that are difficult to observe directly but central to effective STP delivery, including preventive coaching, individualized behavioral supports, and strategic use of reinforcement. The concentration of preventive strategy references among new staff is particularly telling, as it suggests that PLC discussions served as a primary vehicle through which less experienced

counselors developed the anticipatory thinking and behavioral responsiveness needed to manage student behavior before it escalated, a skillset that more experienced staff likely acquired through prior STP experience and therefore did not need the PLC to reinforce as explicitly. In this way, the PLC appeared to function as a practical problem-solving space that helped translate professional learning into proactive and individualized implementation, even when staff found it difficult to draw a direct line between specific PLC sessions and changes in their observable behavior.

Real-time communication with co-staff was similarly concentrated among new staff, underscoring how PLC discussions served as a vehicle for translating professional learning into practice by equipping with the coordination skills and in-the-moment responsiveness needed to implement the STP protocol effectively, competencies that more experienced staff had likely already internalized through prior program participation and therefore required less PLC reinforcement to apply in real time. Overall, these findings indicate that active learning strategies embedded within the PLC served as key mechanisms for promoting skill generalization into practice (Ball & Cohen, 1999; Borko, 2004; Desimone, 2009), even when staff found it difficult to draw explicit causal connections between specific PLC sessions and changes in their day-to-day behavior.

The Downstream Reach of PLC Participation: Significant Peer Relationship Growth and Group-Contingent Belongingness Trajectories as Evidence of Distal Program Impact

Unlike the preceding research questions, which centered on what staff gained through PLC participation, research question 2D shifts the lens outward to examine whether those gains extended beyond the staff themselves to meaningfully shape the daily social experiences of the students in their care. The most striking pattern to emerge was the divergence across outcome variables, peer relationships grew significantly and uniformly across all four PLC groups, while alliance and belongingness remained largely stable, with belongingness revealing group-differentiated trajectories that echoed the variability observed in staff-level outcomes throughout this study. This divergent picture

is significant because it positions student outcomes as the most distal and consequential test of the Core Conceptual Framework's full progression, the point at which the overall effects of professional development on educator knowledge, beliefs, and practice are hypothesized to ultimately result in the experiences of those being served (Desimone, 2009). This section draws on multilevel modeling of bunk-level student outcomes alongside qualitative staff perceptions of downstream effects to examine not only whether student outcomes changed, but how the nature and magnitude of that change was shaped by the quality and context of PLC participation across groups.

Universal Peer Relationship Growth as the Strongest and Most Consistent Evidence of PLC

Downstream Impact

Student self-reported outcomes revealed a divergent pattern across the three dependent variables that is instructive for understanding the specificity of the PLC's downstream effects. Peer relationships demonstrated the most consistent and statistically significant growth over time, with students gaining mutual peer relationships at a significant rate across program phases regardless of PLC Group membership, representing the strongest quantitative finding among the three student outcome variables and suggesting a broad program-level effect that transcended differences in group context and facilitation quality. This universal growth aligns with research demonstrating that effective professional development can produce meaningful downstream effects on student outcomes when it is sustained over time and tied to specific instructional and behavioral targets (Donath et al., 2023; Desimone, 2009), and is consistent with the Core Conceptual Framework's hypothesized progression from professional development to changes in practice to improved student experiences (Desimone, 2009). This universal growth also aligns with interview data in which staff most frequently referenced *Prosocial Behavior* and *Student Relationships* as perceived downstream effects of PLC participation, suggesting that PLC discussions supported more behaviorally informed and socially attuned staff practice in ways that translated into students' expanded peer networks across the program, consistent with research

demonstrating that PLCs enhance educator practices and student outcomes through collaborative learning, reflective dialogue, and peer support (Dogan & Adams, 2018; Vescio et al., 2008).

Alliance Remained Stable, with Staff-Perceived Gains in Student Engagement and Structured Environment as Relevant Downstream Effects

Alliance remained largely stable over time with no significant shift in students' overall perceptions of their relationships with staff across the program, though the pattern of findings suggested that PLC Group membership contributed to meaningful differences in how alliance trajectories unfolded across groups, even when those differences did not emerge as statistically distinguishable contrasts. This finding suggests that the program as a whole did not uniformly strengthen or weaken staff-student relational quality, but that the quality and context of PLC participation may have shaped the relational conditions within which students experienced their connections with counselors differently, consistent with research identifying facilitation quality, alignment between staff needs and PLC content, and ownership as key moderating factors of PLC effectiveness (Gersten et al., 2010; Palinscar et al., 1998; Schaap & de Bruijn, 2018). Interview data revealed *Student Engagement* and *Structured Environment* as perceived downstream effects that are most relevant here, as staff who described the PLC as improving their intentionality and consistency in structuring activities may have contributed to the relational conditions through which students experienced varying levels of connection with their counselors, even when those differences were too subtle to emerge as individually significant group contrasts, a pattern consistent with research indicating that the distal effects of professional development on student relational outcomes are among the most difficult to detect (Donath et al., 2023).

PLC Group Membership Most Strongly Moderated Students' Sense of Inclusion and Belonging

Belongingness yielded the most group-differentiated findings of the three student outcome variables, with the rate of change in students' sense of inclusion and connection within the STP

community varying meaningfully depending on which PLC group their counselors belonged to. Group 2 stood out as the only group where students experienced a consistent decline in belongingness across the program, while Group 3 demonstrated a meaningfully more positive trajectory, and Group 4 trended in a similar positive direction, a pattern that closely mirrors the broader story of differential PLC satisfaction and staff-perceived facilitators of PLC effectiveness. Notably, PLC Group 2 was the only group whose interviewed staff endorsed more barriers than facilitators of PLC effectiveness, and reported among the lowest population-adjusted facilitator references of any group, suggesting that the structural and relational conditions undermining staff engagement within the PLC may have similarly undermined the relational and inclusive environment needed to sustain students' sense of belonging. In contrast, the positive belongingness trajectories observed in Groups 3 and 4 align with those groups' comparatively stronger facilitator endorsements and higher population-adjusted references to PLC-driven professional learning, reinforcing the view that the quality of staff PLC engagement served as a meaningful upstream condition shaping the student social experiences downstream, and provides empirical support for research indicating that the pathway from professional development to student impact is moderated by contextual factors including PLC quality and implementation consistency (King, 2013; Stoll et al., 2006). The theme of *Individualized Support* from the interview data is particularly relevant to this finding, as staff who described the PLC as improving their ability to tailor interactions to individual student needs were likely better positioned to foster the inclusive, responsive relational environments through which students develop a sense of belonging, consistent with research emphasizing the importance of contextually relevant, equity-oriented professional development in supporting diverse student populations (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024).

Staff-Student Associations Revealed Fidelity as the Primary Cross-Level Mechanism, with Knowledge-Attitude Alignment and Alliance-Belongingness Convergence as Key Contextual Findings

Research question 3 investigated the degree to which staff-reported PLC outcomes and students' self-reported social experiences were associated at the group level, and how co-occurring qualitative codes across staff-reported PLC constructs highlighted the nature and directionality of those associations. Where the preceding research questions examined staff and student outcomes in relative isolation, this question brings them into direct dialogue, serving as the integrative capstone of the study and the most rigorous test of whether PLC participation among staff produced tangible benefits for the students in their care. To provide necessary interpretive context for the cross-level findings, this section first briefly characterizes the internal structure of staff and student outcome variables, examining how staff-reported knowledge, attitudes, and application related to one another, and how alliance, belongingness, and peer relationships related within the student sample, before turning to the central question of whether and how staff-level PLC outcomes were associated with student social experiences at the group level.

The study found that observable implementation quality, rather than self-reported staff growth, emerged as the most proximal link between staff professional learning and student social experiences, a pattern that both supports and complicates the Core Conceptual Framework's hypothesized progression from professional development features to improved student outcomes (Desimone, 2009). It supports the framework seeing as implementation fidelity, the behavioral manifestation of staff learning, was the variable most consistently associated with positive student social experiences, affirming that practice change remains the critical mediating mechanism between professional development and student benefit. However, it complicates the framework by suggesting that self-reported gains in knowledge, attitudes, and application did not independently predict student outcomes, raising questions about whether the CCF's assumption of a linear and sequential progression across all stages holds in intensive intervention settings where the translation from internal growth to observable practice change may be constrained by contextual and structural factors beyond the reach of the PLC itself. The following

interpretation draws on group-level correlational and regression analyses alongside qualitative co-occurring code analysis, situating findings within the existing literature on professional development effectiveness and PLC impact.

Within-Staff Associations Revealed Meaningful Knowledge-Attitude Alignment Alongside an Independent Application Trajectory

Associations among staff-reported PLC outcomes at post-program revealed that knowledge and professional attitudes were meaningfully linked, while skill application operated more independently, suggesting that the PLC's effects on staff did not produce uniformly interrelated growth across all outcome domains simultaneously. The moderate positive association between staff-reported knowledge and professional attitudes is consistent with the Core Conceptual Framework's second stage, in which professional development leads to enhanced knowledge and skills that in turn strengthen professional beliefs and dispositions (Desimone, 2009), and aligns with research demonstrating that educators who personalize and internalize professional development content are more likely to develop stronger professional orientations toward their work (Franke et al., 2001). The non-significant associations between application of learned skills and both knowledge and professional attitudes suggest that the translation from knowledge acquisition and attitudinal reinforcement to behavioral practice change operated through pathways that did not produce tightly correlated outcomes at a single post-program snapshot, consistent with the well-documented lag between professional learning and observable practice change (Bearman et al., 2017; Stirman et al., 2012). The qualitative co-occurring code analysis deepens this interpretation, revealing that knowledge and professional attitudes were not experienced by staff as sequential or discrete outcomes but as mutually reinforcing dimensions of a shared learning experience, with intergroup dialogue simultaneously producing concrete knowledge acquisition and emotional validation in ways that the quantitative correlations alone could not capture (Liu et al., 2022). These findings reinforce the value of examining each stage of the Core Conceptual Framework as a semi-

independent dimension of professional development impact rather than assuming uniform linear progression across all domains (Desimone, 2009).

Student-Level Associations Revealed Strong Alliance-Belongingness Alignment Alongside Independent Peer Relationship Growth

Within the student sample, alliance and belongingness emerged as closely linked dimensions of student social experience, while peer relationships operated largely independently of both, pointing to distinct social dynamics within the STP that shaped students' peer integration separately from their relational experiences with staff. The strong positive association between student-reported alliance and belongingness suggests that the relational quality of students' connections with staff and their broader sense of inclusion within the STP community were mutually reinforcing, consistent with research demonstrating that supportive adult relationships are foundational to students' development of belonging within structured program environments (Hord, 1997; Stoll et al., 2006). The relative independence of peer relationships from both alliance and belongingness is consistent with the quantitative finding from research question 2D that peer relationships grew significantly across all PLC groups while alliance and belongingness remained largely stable, and points to the possibility that peer relationship development within the STP may reflect the program's structured peer interaction opportunities rather than the relational climate cultivated by individual staff members or PLC groups (Pelham et al., 2012). The qualitative co-occurring links between relational and structural features of the PLC, such as structured check-ins and cross-bunk discussions, jointly reinforcing staff connectedness further supports the interpretation that the relational conditions cultivated within the PLC created downstream spillover effects on students' social experiences, even when those effects were more detectable in some student outcome domains than others (Borko, 2004; Desimone, 2009; Stoll et al., 2006).

Implementation Fidelity as the Primary Bridge Between Staff Professional Learning and Student Social Outcomes

At the cross-level, implementation fidelity emerged as the most consistent bridge between staff professional learning and student social experiences, while self-reported staff outcomes did not significantly predict any student outcome, underscoring that observable practice quality, rather than self-perceived growth, was the most proximal staff-level mechanism linked to student wellbeing at the group level. Implementation fidelity showed small-to-moderate positive associations with student belongingness and peer relationships and approached significance as a predictor of student-staff alliance, a pattern that aligns with the principle that practice change, operationalized here as observable adherence to the STP manual, represents the most proximal mechanism through which professional development ultimately benefits students (Desimone et al., 2005; Franke et al., 2001). The co-occurring code analysis from the interview data corroborates this pattern, with the links between *Professional Attitude* and *Application of Learned Skills*, and between *Knowledge and Skills* and *Student Outcomes*, suggesting that the integration of attitudinal growth and practical skill application, rather than either dimension alone, was the mechanism through which PLC learning most meaningfully extended into the quality of students' daily experiences within the STP (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024). Overall, these findings demonstrate that while associations between staff and student outcomes were modest in magnitude and constrained by the small analytic sample, the directional pattern is consistent with the Core Conceptual Framework's hypothesized chain from professional development features to practice change to student outcomes, with implementation fidelity emerging as the critical link connecting staff professional learning to students' sense of connection and inclusion within the STP (Cohen, 1990; Desimone, 2009; Donath et al., 2023).

Joint Display Matrix Analysis: Knowledge Converged, Attitudes Complemented, and Fidelity Diverged

The joint display matrix analysis revealed that the PLC's impact on staff experiences and student outcomes was neither uniform nor fully captured by any single method or construct in isolation, but rather emerged most clearly through the systematic integration of quantitative and qualitative findings across all four research question domains. Across the matrix, the most prominent pattern was one of differential convergence, constructs where both methods told a consistent story, constructs where methods complemented one another by illuminating mechanisms that neither could capture alone, and constructs where divergence between methods revealed the most theoretically significant insights.

The clearest area of convergence emerged for knowledge and skills, where statistically significant quantitative growth was also the highest qualitative endorsement category and provided corroborating evidence of the PLC's most direct and broadly experienced impact. This convergence aligns with research demonstrating that PLCs improve educator practices and professional competencies most effectively when they incorporate active learning, collaborative reflection, and sustained engagement, all features that staff both demonstrated gains on quantitatively and explicitly described in interviews as drivers of their professional growth (Borko, 2004; Darling-Hammond et al., 2017; Desimone, 2009). Complementarity also emerged for the construct of professional attitudes, where quantitative stability combined with staff perceived PLC impact on enhanced motivation and connectedness revealed that the PLC's most far-reaching attitudinal impact operated beneath the level of statistical detection. Triangulation helped reveal that sustaining and deepening already positive professional orientations rather than transforming them was a key benefit of the PLCs, a conclusion that neither method could have reached independently. This finding is consistent with research indicating that PLCs contribute to educator resilience, renewed sense of purpose, and sustained motivation even under challenging conditions (Klassen & Chiu, 2010; Liu et al., 2022; Skaalvik & Skaalvik, 2007). Finally, divergence was found for implementation fidelity, where group-level variability in observed adherence to the STP manual and the concentration of barrier to PLC effectiveness references within specific

groups told meaningfully different stories across methods. Quantitative analysis revealed that Group 2 experienced a significant mid-program decline before recovering, Group 3 demonstrated significantly stronger post-program growth than the reference group, and Group 4 showed a marginal positive trend at post-program, while qualitative barrier to PLC effectiveness references, particularly the concentration of barrier references among Group 2 and Group 3 staff, illuminated the facilitation quality and structural inconsistencies that drove these divergent trajectories in ways that the fidelity scores alone could not adequately explain. This pattern is directly consistent with research identifying that PLCs are not inherently effective and must be structured around clear goals, skilled facilitation, and alignment between PLC content and staff needs to produce meaningful practice change (Gersten et al., 2010; Schaap & de Bruijn, 2018).

Overall, the integration of quantitative and qualitative findings within this convergent mixed methods design suggests that the associations between PLC participation and student social experiences, while modest in magnitude, reflect a meaningful and coherent pattern in which higher quality implementation and the interconnected development of staff knowledge, attitudes, and practice were associated with more positive student outcomes at the group level. These findings extend and validate the Core Conceptual Framework's applicability to the STP setting (Cohen, 1990; Desimone et al., 2002; Desimone, 2009; Hill et al., 2008; Phelps & Schilling, 2004) while highlighting that the pathway from professional development to student impact is neither linear nor uniform, but is instead shaped by the interchange between facilitation quality, implementation fidelity, group context, and the structural conditions under which professional learning communities are embedded within the program.

Implications

The findings of this study carry implications across two domains, the advancement of research on professional development within youth interventions and the Professional Learning Community design and its implementation within the STP. The convergent mixed methods approach employed in

this study generated a multidimensional picture of how a structured PLC functioned within the STP, revealing both its promise as a processes for staff development and the contextual conditions that shaped its effectiveness. The sections that follow translate these findings into concrete recommendations for researchers, program administrators, and professional development designers, with the goal of informing future efforts to support STP staff in ways that are equitable, structurally sound, and meaningfully connected to the outcomes of the students they serve.

Implications for Professional Development Research

The findings of this study provide meaningful empirical support for the Core Conceptual Framework's (Desimone, 2009) proposed progression from professional development features to changes in educator knowledge, beliefs, and practice, and ultimately to improved student outcomes, while simultaneously extending and challenging the framework in ways that advance understanding of how professional learning operates within intensive, manualized intervention settings. The STP PLC demonstrated strong alignment with the framework's core features, including content focus grounded in program-specific practices, active learning through role-plays and case discussions, and collective participation facilitated through bunk-based groupings that promoted shared language and consistent implementation within teams. This alignment converges with Darling-Hammond et al.'s (2017) comprehensive review identifying these same features as hallmarks of effective professional development across educational settings. However, the study's most significant research contribution lies not in confirming the presence of these features, but in demonstrating that their mere presence is insufficient, the quality and consistency of their implementation emerged as a far more powerful determinant of outcomes than structural design alone. The meaningful differences in satisfaction, knowledge scores, and fidelity trajectories observed across PLC groups that shared an identical structural design point to facilitation quality, group dynamics, and contextual responsiveness as critical

moderators that the Core Conceptual Framework identifies but does not adequately specify (Desimone, 2009; Gersten et al., 2010; Schaap & de Bruijn, 2018).

This study also highlights meaningful limitations in the framework's duration and coherence principles as applied to intensive short-term intervention settings. While the five-week weekly PLC structure provided sustained engagement consistent with the framework's duration principle, total contact time of approximately 2.5 hours fell substantially short of the 20-hour benchmark associated with transformative professional development (Cohen & Hill, 2001; Desimone, 2009). This gap raises an important research question about whether the duration benchmark developed in school-year educational settings is directly transferable to intensive, time-compressed intervention programs like the STP, or whether the concentrated nature of daily immersive practice may partially compensate for limited formal PLC contact hours by accelerating the application and refinement cycle. Similarly, coherence, the alignment between PD content and staff members' existing knowledge, beliefs, and contextual needs, was inconsistently realized across PLC groups, with the predetermined, recommended topics for PLC sessions sometimes misaligning with the urgent and evolving concerns of specific bunks. Future research should examine the relative contribution of predetermined versus emergent PLC content structures to staff engagement and learning outcomes and explore whether adaptive facilitation models that balance programmatic fidelity with responsiveness to group-specific needs produce more coherent and impactful professional learning experiences (Elmore & Burney, 1997; Schaap & de Bruijn, 2018).

Perhaps the most theoretically significant research implication concerns the framework's implicit assumption of a relatively bi-directional, linear progression from professional development features to knowledge and attitudes to practice to student outcomes. The findings of this study revealed a more recursive pattern, in which staff attitudes shaped their engagement with learning opportunities, practice changes reinforced or undermined attitudinal stability, and student responses fed back to

influence staff confidence and motivation across the program. This recursive dynamic was most clearly evidenced in the divergence between the quantitative stability of professional attitudes and the qualitative depth of attitudinal impact, a pattern suggesting that the framework's second stage, changes in attitudes and beliefs, functions more as a continuous sustaining process than a discrete developmental phase. Professional identity development emerged as a particularly relevant outcome in this regard, with motivational reinforcement, renewed sense of purpose, and deepened interpersonal connection operating as critical aspects through which the PLC maintained staff engagement and resilience across the demands of the program. Future research should explore how professional identity development can be better captured within the Core Conceptual Framework, and how it interacts with more measurable outcomes such as knowledge growth and changes in practice (Franke et al., 2001; Klassen & Chiu, 2010; Liu et al., 2022).

Finally, this study makes a meaningful contribution to the professional development literature by identifying implementation fidelity, rather than self-reported knowledge, attitudes, or skill application, as the most proximal staff-level mechanism linking professional development participation to student social outcomes. This finding advances Desimone et al.'s (2005) argument that practice change, rather than knowledge or attitude change alone, represents the critical pathway through which professional development ultimately benefits students, and extends it by specifying that observable adherence to program protocols may serve as the most sensitive and actionable indicator of whether professional learning has translated into meaningful behavioral change at the point of implementation. The modest but directionally consistent associations between fidelity and student belongingness and peer relationships further suggest that future research examining PD-to-student-outcome pathways should prioritize observational fidelity measures alongside self-report data, as the gap between perceived and observed implementation quality observed in this study highlights the risk of overestimating practice change when relying on self-report measures alone (Bearman et al., 2017;

Donath et al., 2023; Stirman et al., 2012). Collectively, these contributions suggest that while the Core Conceptual Framework provides a valuable foundation for professional development research in intervention settings, future elaborations of the framework should more explicitly account for the role of implementation quality, contextual conditions, and the recursive nature of professional learning in shaping outcomes for both staff and the students they serve.

Implications for Professional Learning Community design and its implementation within the STP

The findings of this study carry direct and actionable implications for how PLCs should be designed, implemented, and sustained within STPs and similar intensive, time-limited intervention settings. Perhaps the most fundamental practical conclusion is that a pre-determined structure alone is insufficient to ensure meaningful professional learning. Despite uniform training and suggested PLC topics across all four groups with a structured checklist and defined leadership roles, implementation and outcomes varied dramatically. This evidence illustrates that the presence of professional development infrastructure does not guarantee its effectiveness, and that organizations cannot simply adopt a PLC model and expect uniform results. The fidelity of implementation, the skill of facilitation, and the degree to which the organizational context supports genuine engagement are equally, if not more, important than the structural features of the intervention itself. This pattern is consistent with research demonstrating that PLCs are most effective when they are characterized by intentional facilitation, structured dialogue grounded in relevant content, and an organizational climate that supports collaborative professional learning (Hudson, 2024; Stoll et al., 2006; Vescio et al., 2008). As Gersten et al. (2010) found, structured professional learning communities with skilled discussion leaders who keep sessions focused and connected to evidence-based practice produce meaningfully stronger outcomes than those without such facilitation. Durlak and DuPre (2008), in a comprehensive review of over 500 implementation studies, similarly established that the level of implementation quality, encompassing adherence, dosage, and competence of delivery, is the primary driver of outcomes in

community-based programs, and that structural program features alone cannot produce intended effects when enactment quality is variable or unsupported. Olmo-Extremera et al. (2024) reinforce this conclusion, identifying collaborative culture, distributed leadership, and active attention to the emotional well-being of PLC members as the most consistent sustainability factors in effective PLCs, none of which are guaranteed by the mere presence of a PLC structure.

Investing in Facilitator Preparation to Strengthen PLC Quality. For STP administrators, this finding has direct implications for how staff are prepared and supported before and during the program. Head Counselors who serve as PLC facilitators require substantive training in group process skills, including managing participation, balancing structured agendas with responsiveness to emerging needs, creating psychologically safe environments, and using active learning techniques such as role-plays and case discussions. This training should not be treated as a brief orientation but as a distinct and intentional professional development investment, given that facilitation is a skillset that does not automatically follow from clinical competence (Borko, 2004). Research on cognitive apprenticeship models of professional learning emphasizes that effective facilitation requires mastery of scaffolding, modeling, and responsive coaching, competencies that are developed through sustained practice and feedback rather than acquired passively (Collins et al., 1991). Elfarargy et al. (2022) extended this argument in the PLC context specifically, finding that instructional coaches who provide structured feedback, model practices, and create space for teacher questioning within PLCs significantly improve practitioners' instructional capacity, pointing to coaching-within-PLCs as a particularly high-leverage professional development design. It is therefore recommended that STP programs implement a two- to three-hour facilitator training before camp begins, supplemented by mid-program facilitator PLCs where Head Counselors troubleshoot challenges and receive coaching from program directors. Importantly, the leadership demand that facilitation places on Head Counselors should be acknowledged through appropriate compensation or recognition, as expecting staff to take on this role without structural

support signals a misalignment between organizational rhetoric and practice, and research has consistently shown that perceived ownership of and investment in professional learning processes is a critical determinant of facilitator effectiveness (Palinscar et al., 1998; Schaap & de Bruijn, 2018).

Explicit Confidentiality Norms and Peer-Only Sessions to Support Psychological Safety in PLCs.

The creation of psychologically safe environments within PLCs deserves particular emphasis as a prerequisite for the kind of honest professional reflection that drives meaningful learning. Edmondson (1999) introduced the concept of team psychological safety as a shared belief that the team is safe for interpersonal risk-taking and demonstrated that teams in which members feel safe to voice struggles, ask questions, and acknowledge errors engage in significantly more learning behavior than those characterized by evaluative threat. Accordingly, it is recommended that facilitators establish explicit confidentiality norms at the outset of each PLC cycle, model vulnerability in their own disclosures, and use structured participation protocols that equalize the opportunity to talk. Organizations should also consider incorporating at least one peer-only PLC session per program without Head Counselor presence, followed by structured feedback channels through which key themes can be communicated to leadership anonymously, to create space for candid reflection among equals that the supervisory relationship may otherwise constrain.

Time Constraints Require Organizational Commitment Beyond Conceptual Endorsement of PLCs. At the organizational level, this study's findings point to time constraints as one of the most consequential and consistently under-addressed barriers to PLC effectiveness. Across all groups, staff reported that competing end-of-day responsibilities, insufficient session duration, and fatigue undermined their ability to engage meaningfully with PLC content, a finding that no amount of content refinement or facilitation skill can fully overcome. Prenger et al. (2018) identified time management and inconsistent session structure as primary drivers of diminished PLC satisfaction and reduced professional learning gains, a pattern directly mirrored in the current study. If STPs want to make the decision to fully

commit to PLCs as a meaningful PD experience, they must move beyond endorsing PLCs conceptually to making genuine structural changes that embed protected reflection time into weekly workflows. Specifically, it is recommended that PLCs be scheduled either first thing in the morning before students arrive or immediately after students are picked up, before other end-of-day responsibilities; that session length be extended from 30 to 45 minutes; that competing task expectations during PLC time be eliminated; and that a brief transition period be built in before sessions begin to allow staff to mentally disengage from other responsibilities.

Conducting a time audit of end-of-day routines to identify efficiencies, such as streamlining documentation or reducing administrative tasks, is also recommended as a means of freeing time for PLCs without extending already demanding staff work hours. Additionally, it is recommended that PLCs begin during the pre-camp training period to establish inter-bunk relationships and group norms before the pressures of the program begin, ensuring that staff enter the program already familiar with collaborative reflection as a professional expectation rather than an additional burden. Research on the duration principle of effective professional development supports this recommendation, indicating that professional learning is most impactful when it is sustained over time and introduced through iterative cycles that allow practitioners to build upon and refine prior learning rather than encountering new expectations in isolation (Cohen & Hill, 2001; Desimone, 2009).

Equitable PLC Participation Requires Differentiated Facilitation Strategies for All Staff. The significant gender difference in PLC satisfaction observed in this study, with female staff reporting meaningfully higher satisfaction than non-female staff across both timepoints, raises an important equity consideration for STP practice. While this study did not investigate the mechanisms underlying this difference, possible explanations include variation in communication preferences, comfort with reflective discussion formats, prior collaborative learning experiences, or the degree to which PLC content and facilitation style resonated with the professional identities and learning needs of different

demographic groups. Research on equity-oriented professional development consistently emphasizes that effective PD must be contextually relevant, culturally responsive, and designed to serve all learners rather than implicitly centering the preferences and prior experiences of dominant groups (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024). Clarke and Hollingsworth (2002) further caution that hierarchical or overly standardized approaches to professional learning can undermine participants' sense of ownership and limit engagement, particularly among staff whose backgrounds and professional identities are less well-represented in the design of the learning experience. It is therefore recommended that STP administrators and program designers critically examine whether current PLC structures inadvertently advantage certain staff, and implement differentiated facilitation strategies, such as alternating between whole-group and small-group processing, building in individual think time before discussion, and using structured protocols that equalize participation, to ensure that all staff can meaningfully engage in and benefit from the professional learning process. As Liu et al. (2022) found, PLC outcomes, including creativity, resilience, and motivation, were most pronounced in settings characterized by supportive, inclusive climates where staff with diverse backgrounds felt equally valued and heard, suggesting that equity-conscious facilitation design is not merely a procedural accommodation but a meaningful determinant of PLC effectiveness.

Balancing Core Program Content with Needs-Based Flexible Tracks to Improve Relevance.

Closely related to equity in participation is the question of whether PLC content itself is designed to be relevant and responsive to the full range of staff who encounter it. Staff in this study consistently valued PLC sessions when topics aligned with their immediate challenges and bunk-specific needs, and consistently found predetermined, one-size-fits-all content less relevant and engaging, a pattern that may have contributed to the differential satisfaction observed across demographic groups and PLC groups alike. This finding aligns with the broader professional development literature emphasizing coherence between PD content and practitioners' existing knowledge, beliefs, and contextual realities as

a core feature of effective professional learning (Desimone, 2009; Garet et al., 2001; Schaap & de Bruijn, 2018), and suggests that effective PLC design in intensive settings should employ a dual-track content structure. Specifically, it is recommended that a core track ensure all staff receive foundational training on program-wide topics, such as point system execution, timeout procedures, and behavioral management protocols, while a flexible track allows each PLC group to identify and pursue needs-based topics grounded in the specific challenges their students present and the learning goals staff identify for themselves. This dual-track approach is consistent with research on differentiated professional learning demonstrating that practitioners engage more deeply and retain more when content is perceived as directly applicable to their current context, and that top-down content mandates without space for practitioner input tend to reduce ownership and diminish the collaborative quality of PLC discussions (Prenger et al., 2018; Schaap & de Bruijn, 2018). It is further recommended that facilitators survey staff at the end of each session to identify emerging priorities for the following week, and that facilitators be provided with a curated menu of possible discussion topics and protocols rather than rigid scripts, to operationalize content responsiveness as a structural feature of the PLC rather than leaving it to individual facilitator initiative.

Limitations

The current study makes important contributions to understanding how structured professional learning communities function within the STP setting, but several methodological and measurement limitations warrant consideration when interpreting findings and drawing conclusions about the generalizability and causal significance of the results.

Methodological Limitations

Single-Site Design. This study was conducted at a single modified STP site, Camp ANDY, in Seattle, Washington, which limits the generalizability of findings to other STP programs or therapeutic summer settings. Camp ANDY operates through a non-profit organization serving youth with ADHD and

autism spectrum disorder, with program features, including enrollment size, student characteristics, staff composition, and community context, that may differ from university-based STPs or programs operating in other geographic regions. Findings may therefore not transfer to STPs with different organizational structures, student populations, or resource contexts, and replication across multiple sites is needed to determine which results are setting-specific and which represent broader patterns of PLC effectiveness within STP environments.

Absence of Academic Learning Center Component. A critical feature distinguishing Camp ANDY from most traditional STP sites is the absence of an academic learning center. Standard STPs include a classroom-based component in which students receive individualized academic instruction and staff implement behavior management strategies within educational contexts. Camp ANDY focused exclusively on recreational and social-behavioral programming, and this structural difference may have meaningfully influenced the study's findings. The absence of the academic component may have reduced the overall complexity of staff responsibilities, potentially making PLCs more feasible to implement and inflating the apparent effectiveness of PLC participation relative to full-model STPs. It may also have limited the range of skills staff needed to develop and altered the types of challenges staff encountered, changing the relevance and content focus of PLC discussions. As such, findings about PLC impact on staff knowledge, skills, and implementation fidelity may not generalize to settings where academic instruction adds additional layers of complexity to staff roles.

Lack of Control or Comparison Group. The study did not include a control group of staff not participating in PLCs, nor a comparison condition involving staff receiving traditional professional development without the PLC structure. Without such a comparison, it is not possible to determine whether observed changes would have occurred naturally through experience and maturation over the five-week program, whether PLCs produced greater impact than alternative professional development approaches, or what specific components of the PLC intervention drove outcomes relative to non-

specific factors such as regular meeting time, peer connection, or supervisor attention. While the study provides in-depth descriptive and associational data about PLCs in practice, causal claims about PLC effectiveness are not supported by the design.

Variability in PLC Implementation. Despite the use of a structured intervention protocol, substantial variability emerged in how PLCs were enacted across groups, with some groups changing topics of their sessions and the structure of their meetings. While this implementation variability was analytically informative, revealing facilitation quality as a critical moderator of effectiveness, it also means that participants across groups received meaningfully different actual interventions, undermining the ability to make clean statements about the effects of PLC participation as a uniform treatment.

Measurement Limitations

Treatment Integrity Form Reliability. The Treatment Integrity Form used to assess staff adherence to STP procedures has not been extensively validated, and inter-rater reliability data specific to this study were not available. Without established psychometric properties, conclusions about implementation fidelity must be interpreted with caution. The significant associations observed between fidelity and student peer relationships and belongingness may reflect true substantive findings, but could alternatively be inaccurate due to measurement error, rater bias, or the absence of systematic reliability testing.

Absence of Staff-Reported Student Outcome Measures. Student outcome data were collected exclusively from students themselves rather than from staff, meaning that staff perspectives on the relational quality of student-staff interactions and student social functioning were not directly captured in the quantitative analyses. This limits the degree to which student outcome findings can be fully interpreted within the staff-centered framework of the broader study, and prevents direct analysis of whether staff perceptions of student functioning aligned with student self-reports. Future research should incorporate staff-reported measures of student behavior and relationship quality alongside

student self-report to enable multi-informant comparison and more comprehensive assessment of intervention impact at the student level.

Student Outcome Measurement Challenges. The group-level aggregation of student outcome data was a necessary decision given the de-identified and secondary nature of the data, but it prevented examination of individual-level variability in student outcomes and substantially reduced statistical power for all student-level analyses. With only one bunk-level observation per PLC group per timepoint for alliance and belongingness, and a maximum of nine bunks for peer relationship analyses, the analytic sample was too small to reliably detect anything other than large effects. This limitation likely accounts for several non-significant findings in the student outcome models and should be interpreted as a constraint on what the current analyses could detect rather than as definitive evidence of no effect. Future research with larger individual-level samples and multi-method student outcome assessment, including observational measures of staff-student interactions, peer nomination procedures, and behavioral data, would substantially improve the accuracy and sensitivity of student outcome evaluation in this context.

Future Research Directions

The findings of this study open several possibilities for future inquiry. The following directions are presented in order to better address the limitations of the current work and contribute to the broader literature on professional development and professional learning communities.

Replication and Extension Across Multiple Sites

The most pressing future research need is replication of this study's findings across multiple STP sites with diverse organizational structures, student populations, and geographic contexts. As a single-site study, the current work cannot establish whether the patterns observed at Camp ANDY represent generalizable features of PLC implementation within the STP context or reflect idiosyncrasies specific to this program's structure and staff composition. A multi-site convergent mixed methods study

implementing PLCs across several STP programs, including sites with and without academic learning centers, would establish which of this study's patterns are universal versus context-specific. Such a study would be particularly valuable for determining whether the absence of the academic learning center component at Camp ANDY meaningfully moderated the observed effects, as existing research suggests that the complexity and contextual demands of professional learning environments significantly shape what practitioners can gain from structured PD activities (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024).

Experimental Evaluation of PLC Effectiveness

Another important direction for future research is the development of experimental or quasi-experimental designs capable of supporting causal inference about PLC effectiveness. The current study's methodology cannot meaningfully differentiate the effects of PLC participation from maturation, practice effects, or other unmeasured factors that naturally co-occur across a five-week intensive program. A randomized controlled trial assigning STP bunks to a standard PLC condition, a workshop-based PD condition, and a no-additional-PD control condition would provide the strongest evidence for whether PLCs produce greater gains in staff knowledge, attitudes, practice, and student outcomes than alternative or no professional development. This design would also clarify whether any observed effects are attributable to the specific structural and relational features of PLCs or simply to the presence of additional professional learning time and peer interaction, a distinction that the current study cannot resolve (Borko, 2004; Desimone, 2009; Gersten et al., 2010). Given the research demonstrating that traditional training approaches such as manualized protocols and didactic workshops yield only modest improvements when used alone, and that positive effects of consultation may diminish once support is withdrawn (Bearman et al., 2017; Chambers & Azrin, 2013; Stirman et al., 2012), establishing the comparative advantage of PLC participation over these alternatives would make an important empirical contribution to the STP professional development literature.

Investigation of PLC Implementation Fidelity and Quality

The current study identified facilitation quality and structural consistency as critical moderators of PLC effectiveness yet lacked systematic observational measures of PLC implementation quality itself. A dedicated line of research developing and validating an observational measure of PLC quality, assessing dimensions such as content focus, active learning, group climate, psychological safety, and structural adherence, would address this gap and advance understanding of the specific mechanisms through which PLCs produce their effects. Research has established that PLCs are most effective when conversations are structured around research-based best practices with a skilled discussion leader to guide and focus the group (Gersten et al., 2010), and that the degree to which staff feel ownership over PLC processes and perceive alignment between PLC content and their professional needs significantly shapes engagement and outcomes (Palinscar et al., 1998; Schaap & de Bruijn, 2018). Developing validated observational tools that can reliably assess these dimensions would allow future research to examine relationships between PLC quality and staff outcomes, distinguishing effects of high-quality implementation from those of poorly enacted PLCs, a distinction that the current study's design could identify descriptively but not formally test. Such tools would also support facilitator training and professional development design by identifying the specific practices and structural features that differentiate high-impact from low-impact PLC sessions (Stoll et al., 2006; Vescio et al., 2008).

Conclusion

Attention Deficit Hyperactivity Disorder is among the most prevalent neurodevelopmental disorders in childhood (American Psychiatric Association, 2013; Barkley, 1990; Loe & Feldman, 2007; Terry & Coie, 1991). One of the most rigorously validated interventions for this population is the Summer Treatment Program, an evidence-based intensive summer program that applies behavioral analytic principles to reduce maladaptive behaviors and improve prosocial functioning in children with ADHD and related neurodevelopmental conditions (Chronis et al., 2004; Pelham et al., 1997). Despite its

demonstrated effectiveness, the STP places exceptionally high demands on staff, and research has identified persistent gaps in in-program professional development, including insufficient feedback and supervision, limited structured problem-solving opportunities, and inadequate attention to equity and cultural responsiveness that undermine staff capacity to maintain consistent, high-quality implementation (Obee et al., 2024; Tannenbaum et al., 2022). This study was designed to address that gap by investigating how the integration of a structured Professional Learning Community into an STP setting functions as a targeted in-program professional development strategy, examining its impact on staff knowledge and skills, professional attitudes, and application of learned skills, as well as its downstream associations with student social outcomes. In doing so, it responds to a gap in the literature for more examination of whether current STP professional development practices are effective and whether structured in-program supports are linked to meaningful variation in staff practice and student outcomes across groups, contributing to the limited research base on PLCs in programs serving children with complex behavioral and social-emotional needs (Borko, 2004; Desimone, 2009; Donath et al., 2023).

The findings of this study make several important contributions to understanding professional development within intensive intervention settings. Most notably, the study demonstrates that PLCs can be successfully implemented within the time-compressed structure of a five-week summer program and can produce measurable improvements in staff knowledge and skill confidence as well as self-reported application of learned practices, providing evidence that even brief, structured collaborative learning experiences can support meaningful practitioner development when core features of effective professional development are present (Borko, 2004; Darling-Hammond et al., 2017; Desimone, 2009). Critically, however, the study also reveals that PLC structure alone is insufficient, implementation quality emerged as a powerful moderator of outcomes, with groups experiencing strong facilitation, psychological safety, and coherent content demonstrating substantially greater gains than those

encountering logistical barriers and unclear goals, despite participating in an identical structural intervention (Gersten et al., 2010; Schaap & de Bruijn, 2018). The finding that observed implementation fidelity, rather than self-reported knowledge, attitudes, or application, was the most consistent staff-level predictor of student social outcomes further clarifies that translating professional learning into high-quality practice requires more than knowledge acquisition, it requires the organizational supports that bridge learning and consistent instructional change (Desimone et al., 2005; Franke et al., 2001). Together, these contributions extend the Core Conceptual Framework (Desimone, 2009) by revealing recursive rather than strictly linear relationships among its phases, and by identifying implementation fidelity and professional identity development as critical but underspecified mechanisms linking professional development to student impact.

The practical implications of these findings are clear and actionable. Organizations implementing PLCs in STP and similar intensive settings must invest meaningfully in facilitator development, recognizing that training Head Counselors in group facilitation skills, psychological safety creation, and responsive content adaptation is not a secondary consideration but a prerequisite to effectiveness (Liu et al., 2022; Stoll et al., 2006). Structural commitment to protecting PLC time, through the elimination of competing demands, adequate session length, and organizational endorsement of reflective practice as a valued professional activity, is equally essential, as logistical barriers repeatedly emerged in this study as compounding constraints that undermined even well-intentioned professional learning efforts (Prenger et al., 2018). Finally, the significant gender difference in PLC satisfaction observed in this study demands attention to equity in professional development design, as research consistently emphasizes that effective PD must be contextually relevant, responsive to the diverse needs of professional learners, and designed to ensure that all staff can meaningfully engage in and benefit from the learning process (Collins et al., 1991; Desimone, 2009; Learning Forward, 2024).

Professional development is too often treated as a box to check through workshops and orientations with limited attention to whether practitioners actually learn, change their practice, or ultimately improve outcomes for the youth they serve. This dissertation demonstrates that thoughtful, structured collaborative learning through PLCs can meaningfully enhance staff competency and support more consistent, high-quality implementation of manualized intervention, but only when enacted with genuine organizational commitment, skilled facilitation, and integration into broader systems of support and accountability (Hord, 1997; McLaughlin & Talbert, 2001; Vescio et al., 2008). The staff who participated in this study are at the front lines of intervention delivery, making moment-to-moment decisions that shape whether youth with complex needs experience connection or isolation, growth or frustration, acceptance or rejection. Their professional learning matters deeply, not as a peripheral concern but as the foundation upon which effective intervention delivery rests. This dissertation contributes to understanding how to build that foundation more intentionally, more equitably, and more effectively, and in doing so advances the field's capacity to support the practitioners who make evidence-based programming possible.

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Appendix A

Camp ANDY Professional Learning Community (PLC) Implementation Fidelity Checklist

The Camp ANDY Professional Learning Community Implementation Fidelity Checklist was designed to assess the extent to which weekly PLC sessions are delivered according to the established protocol. The fidelity checklist will be completed by an observer during or immediately after each session, the checklist will evaluate key components of the PLC structure, including pre-session planning, session opening, core content delivery, session closure, group climate, and documentation practices, using a standardized 3-point scale (0 = Not Implemented, 1 = Partially Implemented, 2 = Fully Implemented). The tool will capture fidelity to critical elements such as role assignment, use of interactive activities, staff engagement, and maintenance of a psychologically safe environment. Fidelity scores will be used to monitor implementation quality across groups, provide feedback to facilitators, and support continuous improvement of the PLC model.

Observer Name: _____

Date: _____

Week #: _____

PLC Group: _____

Facilitator: _____

Session Topic: _____

Instructions: For each item, circle the appropriate score:

- **2 = Fully Implemented**
- **1 = Partially Implemented / Inconsistent**
- **0 = Not Implemented**
- **N/A = Not Applicable**

1. Pre-Session Preparation

Component	Criteria	Score (0–2/N/A)			
Topic Selection	Topic selected based on feedback, observations, forum input, or identified need	0	1	2	N/A
Topic Relevance	Topic aligns with STP manual, challenges, or PD needs	0	1	2	N/A
Role Assignment	All roles assigned (Facilitator, Host, Liaison, Exemplar, Note Taker)	0	1	2	N/A
Role Rotation	Roles rotated appropriately according to schedule	0	1	2	N/A

2. Session Opening

Component	Criteria	Score (0–2/N/A)			
Host Introduction	Host introduced topic, agenda, and session goals	0	1	2	N/A
Counselor Check-In	Host facilitated counselor “battery” and stress check-in	0	1	2	N/A

3. Core PLC Content

Component	Criteria	Score (0–2/N/A)			
Staff Exemplar	Shared a success or challenge relevant to STP	0	1	2	N/A
Topic Relevance	Example was tied to current PLC topic	0	1	2	N/A
Interactive Activity	One or more activities used (e.g., discussion, journaling, mindfulness, walk & talk)	0	1	2	N/A
Engagement	Staff were actively engaged during activity	0	1	2	N/A

4. Session Closure

Component	Criteria	Score (0–2/N/A)			
Shout-Outs	Host led shout-outs recognizing contributions during PLC/camp day	0	1	2	N/A

5. Supportive Environment

Component	Criteria	Score (0–2/N/A)			
Psychological Safety	Staff were able to share openly in a non-evaluative space	0	1	2	N/A
Leadership Distribution	Staff (not Head Counselor) led discussion where appropriate	0	1	2	N/A

6. Documentation & Continuity

Component	Criteria	Score (0–2/N/A)			
Notes Taken	Note Taker recorded key discussion points	0	1	2	N/A
Notes Shared	Notes were uploaded/shared with staff	0	1	2	N/A
Materials Available	Topic materials/resources available in shared folder	0	1	2	N/A

Total Score: _____ / _____

(Optional: Calculate % fidelity by dividing total by # of applicable items)

Observer Comments:

Appendix B

CAMP ANDY PLC Facilitator Checklist

The PLC Facilitator Checklist was developed to guide and document the delivery of weekly Professional Learning Community sessions within the Summer Treatment Program. This checklist will support staff facilitators in planning, executing, and reflecting on each session by outlining key responsibilities and required components, including role assignments, topic introduction, interactive activities, and session closure. It will also include space to detail the PLC activity used and reflection on facilitation qualities. Completed checklists will help ensure consistency across PLC groups and promote distributed leadership.

Facilitator Name: _____

Date: _____

PLC Group: _____

Session Topic: _____

Week #: _____

Pre-PLC Preparation

Task	✓	Notes
Met with Head Counselor to confirm this week's PLC topic	☐	
Topic selected based on:		
• Previous session feedback	☐	
• Counselor forum submission	☐	
• Observed staff challenges	☐	
• Feedback from PLC Liaison	☐	
Chose an interactive activity format:		
• Discussion	☐	
• Case vignette/role play	☐	
• Journal	☐	
• Walk and talk	☐	
• Mindfulness	☐	
• Other: _____	☐	

Task	✓	Notes
Confirmed roles are assigned for:		
• PLC Host	☐	
• PLC Liaison	☐	
• Staff Exemplar	☐	
• Note Taker	☐	
PLC Activity Details		
Describe the interactive activity used during this session. Include format, purpose, and timing:		
During PLC Session		
Task	✓	Notes
Host introduced topic, agenda, and goals	☐	
Check-in completed (Battery and Stress Level)	☐	
Staff Exemplar shared experience for group reflection	☐	
Interactive activity was completed	☐	
Host facilitated co-staff shout-outs at closing	☐	
Post-Session		
Task	✓	Notes
Followed up with Note Taker to ensure notes were shared/uploaded	☐	
Redirected conversation when needed	☐	
Reinforced that PLC is a non-evaluative space	☐	
Kept session on time and focused	☐	
Encouraged participation from all staff	☐	

Appendix C

Camp ANDY Staff Pre-Camp Questionnaire

The Camp ANDY Staff Questionnaire was developed to assess staff members' experiences and perceptions related to their roles within the Summer Treatment Program (STP). The survey includes items measuring constructs such as knowledge and skills, professional attitudes, PLC satisfaction, and application of skills within their implementation. Responses will be collected anonymously at three separate time points (pre-program, week 3 of program, post-program) and used to inform program evaluation and improvement efforts.

Staff Number: _____

Group #: _____

Pre-camp/Mid-camp/Post-Camp (Circle One)

Date: _____

Intro

This survey will inform the training and development of the STP program. You were selected to participate in this study because you are a current counselor at Camp ANDY. All current counselors over the age of 18 are eligible to participate. This survey will take approximately 10 minutes. No identifying information will be collected. Your decision whether or not to participate in the research will not affect your current educational or professional standing.

Participation will earn you a raffle opportunity to earn a \$30 gift card to the retail company of your choice. Participation is for a research study and participation is voluntary. Your responses, including de-identified responses may be kept for use in future research. Please email Jason Schwartz at JCS001@uw.edu with any questions about this research.

Consent

1. Please indicate below whether you would like to participate in this research study.
 - a. Yes
 - b. No

Background Information

2. Please enter your 6-digit staff identification #.
 - a. Open response
3. I am a...
 - a. First-time STP counselor
 - b. Returning STP counselor
 - i. How many years have you served as STP staff?
4. What group are you in?

- a. Open response
- 5. Have you worked with neurodiverse youth (e.g. youth with ADHD, ASD, learning disabilities, etc.) before this summer?
 - a. No
 - b. Yes
 - i. How many years of experience do you have working with neurodiverse youth?
- 6. What is the highest level of education you have completed?
 - a. High School
 - b. Undergraduate
 - c. Masters
 - d. Doctorate
- 7. Please indicate your ethnicity below.
 - a. Hispanic and Latino Americans
 - b. Black / African American
 - c. White
 - d. American Indian, Alaskan Native, or Native Hawaiian
 - e. Asian / Pacific Islander.
 - f. Multiracial
 - g. Other
 - h. Prefer not to say
- 8. Please indicate your gender identity below.
 - a. Cis-male
 - b. Cis-female
 - c. Trans-male
 - d. Trans-female
 - e. Non-binary
 - f. Other
 - g. Rather not say

Knowledge and Skills (Q8-13)

I am able to...	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Follow the STP manual exactly as it is written.	1	2	3	4	5
Express care about my campers even when they do something that upsets me.	1	2	3	4	5
Follow the STP manual, even during escalated behaviors.	1	2	3	4	5
Facilitate peer relationships amongst campers.	1	2	3	4	5
Implement the manualized program with campers from all cultural backgrounds.	1	2	3	4	5

Implement the manualized program with campers of all neurodevelopmental levels.	1	2	3	4	5
---	---	---	---	---	---

Application of Skills (Q14-24)**Returning staff only**

Please indicate the frequency with which you engaged in the following camp activities during your last year as staff at an STP.	Never	Rarely (< once per week)	Sometimes (1-3 times per week)	Often (3-5 times per week)	Always (daily)
Taken real-time camper behavioral data (point counselor)	1	2	3	4	5
Led a group transition.	1	2	3	4	5
Led a group discussion.	1	2	3	4	5
Helped plan a social skills lesson.	1	2	3	4	5
Helped plan a sports skills drill.	1	2	3	4	5
Led a sports skills drill.	1	2	3	4	5
Led a sports game.	1	2	3	4	5
Led a full activity other than a sports game (e.g. counselor's choice, board games, skills drill)	1	2	3	4	5
Independently administered a timeout.	1	2	3	4	5
Asked my lead or head counselor for specific feedback	1	2	3	4	5

Professional Attitudes (Q25-33)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I think that the STP is a useful tool to aid in neurodiverse youth's development of social skills.	1	2	3	4	5
I think that the STP is a useful tool to improve neurodiverse youth's developmentally appropriate behaviors.	1	2	3	4	5
I think that most counselors at Camp ANDY find it difficult to implement the STP.	1	2	3	4	5

The support of my colleagues and supervisors is critical to how well I am able to implement the STP.	1	2	3	4	5
I enjoy working at Camp ANDY.	1	2	3	4	5
I can effectively self-advocate to a supervisor.	1	2	3	4	5
I seek, and effectively respond to, supervisor feedback.	1	2	3	4	5
I seek out collaboration/consultation with peers and supervisors.	1	2	3	4	5
I have a voice within Camp ANDY.	1	2	3	4	5

Additional Support (Q34)

- 41.** What other resources or knowledge do you wish was shared with you prior to starting camp?
- a. Open response

Appendix D**Camp ANDY Staff Mid-Camp and Post-Camp Questionnaire**

The Camp ANDY Staff Questionnaire was developed to assess staff members' experiences and perceptions related to their roles within the Summer Treatment Program (STP). The survey includes items measuring constructs such as knowledge and skills, professional attitudes, PLC satisfaction, and application of skills within their implementation. Responses will be collected anonymously at three separate time points (pre-program, week 3 of program, post-program) and used to inform program evaluation and improvement efforts.

Staff Number: _____

Group #: _____

Pre-camp/Mid-camp/Post-Camp (Circle One)

Date: _____

Intro

This survey will inform the training and development of the STP program. You were selected to participate in this study because you are a current counselor at Camp ANDY. All current counselors over the age of 18 are eligible to participate. This survey will take approximately 10 minutes. No identifying information will be collected. Your decision whether or not to participate in the research will not affect your current educational or professional standing.

Participation will earn you a raffle opportunity to earn a \$30 gift card to the retail company of your choice. Participation is for a research study and participation is voluntary. Your responses, including de-identified responses may be kept for use in future research. Please email Jason Schwartz at JCS001@uw.edu with any questions about this research.

Consent

9. Please indicate below whether you would like to participate in this research study.
- a. Yes
 - b. No

Background Information

10. Please enter your 6-digit staff identification #.
- a. Open response
11. I am a...
- h. First-time STP counselor
 - i. Returning STP counselor
 - i. How many years have you served as STP staff?
12. What group are you in?
- a. Open response

13. Have you worked with neurodiverse youth (e.g. youth with ADHD, ASD, learning disabilities, etc.) before this summer?
- j. No
 - k. Yes
- i. How many years of experience do you have working with neurodiverse youth?
14. What is the highest level of education you have completed?
- l. High School
 - m. Undergraduate
 - n. Masters
 - o. Doctorate
15. Please indicate your ethnicity below.
- p. Hispanic and Latino Americans
 - q. Black / African American
 - r. White
 - s. American Indian, Alaskan Native, or Native Hawaiian
 - t. Asian / Pacific Islander.
 - u. Multiracial
 - v. Other
 - w. Prefer not to say
16. Please indicate your gender identity below.
- x. Cis-male
 - y. Cis-female
 - z. Trans-male
 - aa. Trans-female
 - bb. Non-binary
 - cc. Other
 - dd. Rather not say

Knowledge and Skills (Q8-13)

I am able to...	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Follow the STP manual exactly as it is written.	1	2	3	4	5
Express care about my campers even when they do something that upsets me.	1	2	3	4	5
Follow the STP manual, even during escalated behaviors.	1	2	3	4	5
Facilitate peer relationships amongst campers.	1	2	3	4	5
Implement the manualized program with campers from all cultural backgrounds.	1	2	3	4	5

Implement the manualized program with campers of all neurodevelopmental levels.	1	2	3	4	5
---	---	---	---	---	---

Application of Skills (Q14-24)

Please indicate the frequency with which you have engaged in the following camp activities.	Never	Rarely (< once per week)	Sometimes (1-3 times per week)	Often (3-5 times per week)	Always (daily)
Taken real-time camper behavioral data (point counselor)	1	2	3	4	5
Led a group transition.	1	2	3	4	5
Led a group discussion.	1	2	3	4	5
Helped plan a social skills lesson.	1	2	3	4	5
Helped plan a sports skills drill.	1	2	3	4	5
Led a sports skills drill.	1	2	3	4	5
Led a sports game.	1	2	3	4	5
Led a full activity other than a sports game (e.g. counselor's choice, board games, skills drill)	1	2	3	4	5
Independently administered a timeout.	1	2	3	4	5
Asked my lead or head counselor for specific feedback	1	2	3	4	5

Professional Attitudes (Q25-33)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I think that the STP is a useful tool to aid in neurodiverse youth's development of social skills.	1	2	3	4	5
I think that the STP is a useful tool to improve neurodiverse youth's developmentally appropriate behaviors.	1	2	3	4	5
I think that most counselors at Camp ANDY find it difficult to implement the STP.	1	2	3	4	5
The support of my colleagues and supervisors is critical to how well I am able to implement the STP.	1	2	3	4	5

I enjoy working at Camp ANDY.	1	2	3	4	5
I can effectively self-advocate to a supervisor.	1	2	3	4	5
I seek, and effectively respond to, supervisor feedback.	1	2	3	4	5
I seek out collaboration/consultation with peers and supervisors.	1	2	3	4	5
I have a voice within Camp ANDY.	1	2	3	4	5

Satisfaction with PLC (Q33-40)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Our PLC achieved as much, or more, than I had anticipated before participating.	1	2	3	4	5
Our PLC produced high-quality strategies for our daily implementation of the STP.	1	2	3	4	5
Our PLC used our meeting time efficiently.	1	2	3	4	5
Our PLC used our meeting time effectively.	1	2	3	4	5
Our PLC focused on relevant, content-specific, topics.	1	2	3	4	5
Our PLC was sustained over a long enough period to support implementation and reflection.	1	2	3	4	5
Our PLC encouraged participation from all staff within the group.	1	2	3	4	5
Our PLC incorporated elements of active learning (e.g., participated in role plays, received feedback, engaged in group discussions)	1	2	3	4	5
I would recommend including PLCs in future STP programs.	1	2	3	4	5

Additional Support (Q41)

42. What other resources or knowledge do you wish was covered in your Professional Learning Community sessions?
- Open response

Appendix E

Camp ANDY Student Questionnaire

The Camp ANDY Student Questionnaire is a weekly tool designed to gather information on student outcomes during the Summer Treatment Program. It includes items assessing the quality of student-staff relationships, students' perceived sense of belonging, and the number of mutual peer relationships formed. This survey provides insight into the social and emotional climate of the camp from the student perspective.

Student Number: _____

Group #: _____

Week: _____

Date: _____

Student-Staff Relationships

Instructions: The following questions are sentences that describe some of the different ways you might have thought or currently feel about your counselors as a group. In answering each statement, circle a number from 1 to 5, where 1 indicates you strongly disagree with the statement and 5 indicates you strongly agree with the statement.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
My counselors and I trust one another.	1	2	3	4	5
I feel that my counselors understand me.	1	2	3	4	5
I am confident in my counselor's ability to help me.	1	2	3	4	5
I feel that my counselors take the time to get to know me.	1	2	3	4	5
I feel my counselors care about me even when I do things that they do not approve of.	1	2	3	4	5

Perceived Sense of Belongingness

We would like to know about your sense of belonging at Camp ANDY across the five weeks

of camp. Do you feel like you belong to the camp community?

	No!	No	Yes	Yes!
I feel comfortable at Camp ANDY	1	2	3	4
I am a part of Camp ANDY	1	2	3	4
I am committed to Camp ANDY	1	2	3	4
I am supported at Camp ANDYI am accepted at Camp ANDY	1	2	3	4

Peer Relationships

List A: Friends in Group	List B: Negative Peer Relationships in Group
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

Appendix F

Camp ANDY Staff Demographic Questionnaire

Question	Response Options
Background Information	
3. What bunk are you in?	Open-ended (numeric)
4. Have you worked with neurodiverse youth (e.g. youth with ADHD, ASD, learning disabilities, etc.) before this summer?	No Yes
5. How many years of experience do you have working with neurodiverse youth?	Open-ended (numeric)
6. What is the highest level of education you have completed?	High School Undergraduate Masters Doctorate
7. Please indicate your ethnicity below.	Hispanic and Latino Americans Black / African American White American Indian Alaskan Native, or Native Hawaiian Asian / Pacific Islander Multiracial Prefer not to say Other
8. Please indicate your gender identity below.	Cis-male Cis-female Trans-male Trans-female Non-binary Rather not say Other
9. I am a...	First-time STP counselor Returning STP counselor
10. How many years have you served as STP staff prior to this summer?	Open-ended (numeric)

Appendix G

Camp ANDY Treatment Integrity and Fidelity: Sports Game Fidelity Checklist

The Camp ANDY Treatment Integrity and Fidelity: Sports Game Fidelity Checklist is a weekly tool completed by Head Counselors to evaluate staff adherence to the Summer Treatment Program behavioral protocols during structured sports activities. The checklist assesses implementation of core components such as behavior management strategies, rule enforcement, and positive reinforcement, ensuring alignment with the STP manual.

Instructions-

Before beginning, have a cheat sheet for the sport, fill out scheduled arrival/departure times, ideal interval times, camper names and counselor names/roles. Make sure you have a watch ready to go; times that must be recorded in real time are highlighted grey, with change of intervals highlighted yellow. Wait until the game period is over to calculate total times, percentages, and points!

Fill out fidelity check based on **ideal** interval times but take note in indicated places of actual intervals called in game.

Ideal interval times:

Interval 1	Interval 2	Interval 3	Interval 4
_____ - _____	_____ - _____	_____ - _____	_____ - _____

Interval 1 – Arrival, Pre-Activity Discussion and GD SAQs

Arrival-

Scheduled bunk arrival time: _____

Actual bunk arrival/interval start time: _____

☐ On – time (3 points)

☐ 7-10 minutes Late (1 point)

☐ 5-6 minutes Late (2 points)

☐ >10 minutes Late (0 points)

Pre-activity Discussion

Start time: _____

Discussion Leader: _____

Discussion requirements (1 point each)-

☐ Reviewed all rules for group discussion

☐ Reviewed at least 2 subsections of game

☐ Discussed social skill and ways it can be used

rules

in game play

(see rules cheat sheet for specific sport)

☐ Reviewed all rules of recreational activities

Rule 1: _____

☐ Discussed ways skills drills can be used in

Rule 2: _____

sport

☐ All counselors sitting in circle (unless doing setup, T.O., I.P., etc.)

☐ Announced “good sportsmanship begins no

Pre-activity Discussion Standardized Attention Questions-

Camper	Level	(✓/X)	Camper	Level	(✓/X)

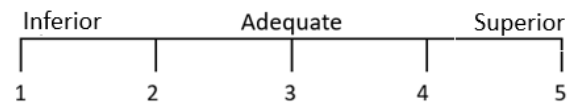
Discussion end time: _____

Total discussion time: _____

Pre-Activity Discussion Qualitative Measures-

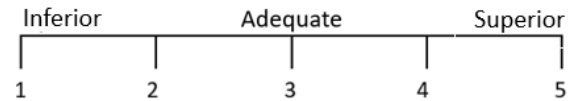
Consideration of attention span and age group

- Length suitable for age group (8-12 minutes)
- Pacing appropriate
- Around 80% of campers appear to be attending
- Age-appropriate language



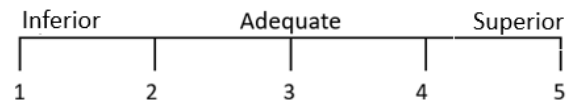
Animation and enthusiasm

- Enthusiasm in voice (variation in tone and animation)
- Enthusiasm through non-verbal communication (head nods, eye contact, etc.)
- Use of non-verbal cues with campers
- Appropriate voice volume (all campers can hear)



Feedback to Campers

- Delivers positive reinforcement when awarding points
- Stays neutral when informing campers of point losses
- Redirects non-useful/inappropriate comments
- Paraphrases campers' contributions



Total Points for Qualitative measures: _____ / 15

Interval 1 **ideal** end time: _____

Interval 1 **actual** end time: _____

Total time for interval 1: _____

Commentary-

Interval 2 actual start time: _____

☐ Counselor made new interval announcement (1 point)

Game Setup (1 point each)-

☐ Materials were present and set up by end of discussion

☐ Counselors were assigned as team captains

☐ Teams were assigned and made in advance

☐ All counselors appear to have an assigned position

Game Start (ball put into play): _____

Sports Instruction (1 point each)-

☐ Counselors played in game and modeled proper skills

☐ Sport leader narrated game and made note of camper's performance

☐ Sports leader had appropriate voice level

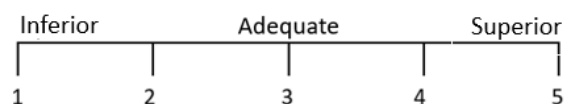
☐ When informing campers of VAR for violating game rules, counselors provided neutral explanation of rules

☐ No incorrect point calls were observed

☐ Sports leader modeled enthusiasm

Qualitative Rating for quality and frequency of instruction (0-5 points):

of times sport lead stopped game to provide group feedback/instruction:



Game Awareness Standardized Attention Questions

Camper	Level	(✓/X)	Camper	Level	(✓/X)

_____ (campers asked GA SAQs)/ _____ (total campers) = _____ %

☐ 80 – 100 % (3 points)

☐ 20 – 49 % (1 points)

☐ 50 – 79 % (2 points)

☐ 0 – 19 % (0 points)

Interval 2 **ideal** end time: _____

Interval 2 **actual** end time: _____

Total time for interval 2: _____

Commentary:

Total points for interval: _____ / **19**

Interval 3 – Social Reinforcement

Interval 3 **ideal** start time: _____

Interval 3 actual start time: _____

☐ Counselor made new interval announcement (1 point)

Counselor name	Sport Lead:	T1 Captain:	T2 Captain:	Point:	
Frequency of positive reinforcement					
Rating/Points (0-5)					

Counselor name					
Frequency of positive reinforcement					
Rating/Points (0-5)					

_____ (total points earned among counselors) / _____ (total possible points) = _____%

☐ 80 – 100% (10 points)

☐ 40 – 59 % (6 points)

☐ 10 – 19 % (2 points)

☐ 60 – 79% (8 points)

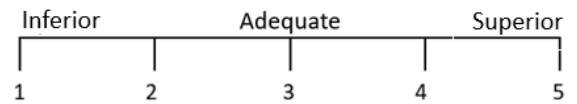
☐ 20 – 39 % (4 points)

☐ 0 – 9 % (0 points)

Social Reinforcement Qualitative Measures-

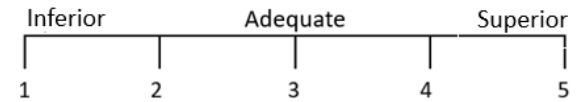
Specificity and Content

- Behavior specific praise used
- Increased praise for new skills
- Increased praise for campers struggling with enthusiasm
- Both group and individual feedback given



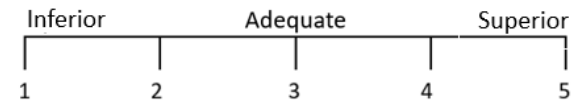
Enthusiasm and Tone

- Enthusiasm in voice (variation in tone and animation)
- Enthusiasm through non-verbal communication
- Appropriate voice volume



Negative Point Calls and Behaviors

- Attention seeking negative behaviors ignored
- Negative feedback given neutrally
- Awarded ignoring points only to campers ignoring negative behaviors



Interval 3 **ideal** end time: _____

Interval 3 actual end time: _____

Total time for interval 3: _____

Commentary:

Total points for interval 3: _____ / ____26____

Interval 4/Post-Game – Post-Activity Discussion, GD SAQs and Departure

Interval 4 **ideal** start time: _____

Interval 4 actual start time: _____

☐ Counselor made new interval announcement (1 point)

Game end time/group discussion start: _____

Total game play time (ball in play to game end): _____

☐ at least 25 minutes of active game play (2 points)

Discussion requirements (1 point each)-

☐ Announced “good sportsmanship is final”

☐ Discussed ways points were earned and lost

☐ Reviewed all rules for group discussion

☐ Reviewed point check rules

☐ Reviewed social skill and ways it was used in
game play

☐ Point check was conducted

☐ Discussed progress and problems in game

☐ All counselors sitting in circle (unless doing
cleanup, T.O., I.P., etc.)

Post-activity Discussion Standardized Attention Questions-

Camper	GD in pre? (✓)	Level	(✓/X)	Camper	GD in pre? (✓)	Level	(✓/X)

_____ (Campers asked GD SAQs in **EITHER pre/post** discussion)/_____ (total campers) = _____%

☐ 75 – 100% (3 points)

☐ 25 – 49 % (1 points)

☐ 50 – 74% (2 points)

☐ 0 – 26 % (0 points)

Departure-

Scheduled bunk departure time: _____

Actual bunk departure time: _____

☐ On time (2 points)

☐ >5 minutes early (1 points)

☐ >5 minutes late (0 points)

Interval 4 **ideal** end time: _____

Interval 4 end time: _____

Total time for interval 4: _____

Post-Game (complete after time and percentage calculations, 2 points each)-

- ☐ Intervals were evenly timed
- ☐ General enthusiasm was high
- ☐ Game was well paced
- ☐ Counselors all participated
- ☐ Team worked collaboratively
- ☐ Point calls were generally accurate
- ☐ Appropriate water breaks were given

Total points for interval 4/post-game: _____/___30___

Commentary on game as a whole:

(can be filled out post-game and also during check-in)

- Feedback to counselors should be specific, and constructive feedback should be balanced out with a higher rate of positive feedback
- Counselors should be encouraged to share how the game felt to them and what they felt they did well and can improve on, try to have a conversation rather than just giving one sided feedback
- Specific counselors should be given shout-outs for skills that need to be highlighted to the group
- Lead counselors can be given more specific feedback privately if necessary

--

Total points for entire game: _____ / **100** = _____ %

Rater signature: _____

Date reviewed with counselors: _____

Appendix H

Camp ANDY Staff Interview Protocol

The Camp ANDY Staff Interview Protocol is a semi-structured interview conducted post-program to gather staff perspectives on their experience with the Professional Learning Community. The interview explores staff satisfaction with the PLC, perceived facilitators and barriers to PLC effectiveness, levels of engagement, and the perceived impact of the PLC on their professional growth and implementation of STP practices.

Interview Protocol: Evaluating Professional Learning Communities (PLCs) in a Summer Treatment

Program (STP)

Interviewee #: _____
 Position/Role: _____
 Date: _____
 Interviewer: _____

Introduction (Scripted)

Hi my name is _____, thank you for taking the time to speak with me today. I'm a research assistant for the current study on Professional Learning Communities (PLC) in the context of the Summer Treatment Program (STP) at the ANDY Center. I have also previously been a staff member at an STP, working at _____ for _____ year(s). So please feel free to use any STP jargon as a part of this conversation.

A reminder, everything you share as a part of this interview will be kept confidential and used solely for research purposes. You don't have to answer any question you don't feel comfortable with, and you can stop the interview at any time.

Additionally, this session will be audio-recorded for transcription and analysis. The audio recordings will be uploaded immediately to a secure, encrypted drive accessible only to the research team. No names or identifying information will be linked to quotes or findings in the final report.

What is a good number to reach you at in case we get disconnected?

Do you have any questions before we get started?

Great, let's begin. Do I have your consent to record?

*****PRESS RECORD*****

Participant Information

1. What is your unique six-digit staff identification number (your birthday in the form of mm/dd/yy)

Example: a person born July 6th, 2004 would be 070604

2. What bunk were you predominantly a part of this summer?
3. How many years have you been working at a Summer Treatment Program (including this year)?
4. What was your role within Camp ANDY this summer (i.e., counselor, lead counselor, research counselor)?

Part 1: Participants' Reactions

Focus probes on: Engagement, satisfaction, and perceived relevance of the PLC.

1. What aspects of participating in the PLC felt most helpful to you?
2. What aspects of participating in the PLC felt least helpful to you?
3. Do you have any other general impressions you would like to share about participating in the PLC sessions?

Part 2: Participants' Learning

Focus probes on: Knowledge, skills, and attitudes gained.

4. What were some key takeaways or insights that you gained from the PLC discussions?

Part 3: Organizational Support and Change

Focus probes on: Institutional support and resources.

5. What components of your PLC sessions made it more or less meaningful?
6. Describe any challenges related to time, resources, or leadership support that pertain to your participation in the PLC and your ability to transfer what you learned to your STP implementation.

Part 4: Participants' Use of New Knowledge and Skills

Focus probes on: Application and transfer into professional practice.

7. How did you apply what you learned from the PLCs to your work with campers?
8. What influenced how consistently you used these new strategies?

Part 5: Student Social and Behavioral Outcomes

Focus probes on: Impact on student performance, behavior, or engagement.

9. Do you believe the PLC had an influence on camper outcomes or experiences?
 - a. **If YES:** Share an example of a time when a PLC strategy positively affected camper behavior, relationships, or engagement.
 - b. **If NO:** "Is there an alternative professional development experience you feel would have been more helpful for both staff and, by extension, campers?"

Part 6: Social Validity Questions

Focus probes on: Relevance, usefulness, and satisfaction with the PLC experience as perceived by participants.

10. In what ways, if any, did the PLC affect your motivation, confidence, or approach to working with campers during the program?
 11. Do you have any suggestions for future PLCs within the STP setting?
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Closing (Scripted)

That concludes my questions. Is there anything else you'd like to share about your experience with this professional learning community or its impact?

Thank you again for your time and insights. Your feedback is very valuable and we appreciate your participation!