UNIVERSITÉ DU QUÉBEC À MONTRÉAL

# EVALUATING THE PYRAMID MODEL AND COACHING EDUCATORS IN EARLY CHILDHOOD SETTINGS FOR PROMOTING SOCIAL-EMOTIONAL COMPETENCE AND DECREASING CHALLENGING BEHAVIOURS IN YOUNG CHILDREN

THESIS

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# L'ÉVALUATION DU MODÈLE PYRAMIDE ET DU COACHING DES ÉDUCATEURS DE LA PETITE ENFANCE POUR PROMOUVOIR LES COMPÉTENCES SOCIO-ÉMOTIONNELLES ET RÉDUIRE LES COMPORTEMENTS PROBLÉMATIQUES CHEZ LES JEUNES ENFANTS

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## FOREWORD

This thesis is composed of two articles that evaluate an empirically based intervention designed to promote the social-emotional competencies and prevent challenging behaviors in young children attending early childhood settings.

The first article examined the impact that a two-day training on the Pyramid Model (PM) had on educators' attitudes toward inclusion and their implementation of practices. It is entitled *Evaluation of the effects of the pyramid model training on the attitudes and practices of educators* and was accepted in Exceptionality Education International in April 2021.

The second article entitled *Evaluating the effectiveness of the pyramid model training and coaching to educators working in early childhood settings,* supported the educators' implementation of practices by applying Practice-Based Coaching (PBC), with nine educators who participated in the initial PM training. The study assessed the effects of the PM's implementation on the educators' practices as well as the children's social skills and challenging behaviours. This article was submitted to Journal of Developmental Disabilities in November 2021.

To put this work in context, the thesis begins with an overview of evidence-based practices for involving young children in early childhood settings. More specifically, it examines the current literature relating to the inclusion of children with disabilities in inclusive settings, high quality childcare services, and professional development. Both articles are followed by a general discussion that summarizes the results, the contributions and limitations of the thesis, and suggestions for future research. This thesis concludes by providing recommendations on how PM can support the implementation of high-quality early childhood education in Quebec, and how early detection systems can be developed for children at risk for developmental disabilities.

**TABLE OF CONTENTS**

**LIST OF FIGURES**

**LIST OF TABLES**

## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ASD | Autism Spectrum Disorder |
| CB | Challenging behaviour |
| ECE | Early childhood education |
| ECTA Center | Early Childhood Technical Assistance Center |
| DD | Developmental disabilities |
| KP | Key practices |
| MSSS | Ministère de la Santé et des Services sociaux |
| NCPMI | National Center for Pyramid Model Innovations |
| PBC | Practice based coaching |
| PM | Pyramid model |
| PSB | Positive social behaviour |
| RF | Red flags |

**RÉSUMÉ**

Au cours de la dernière décennie, une augmentation significative du nombre d'enfants fréquentant les milieux de la petite enfance a été observée. Par ailleurs, avec l'introduction des politiques et des subventions accordées à ces milieux pour encourager l'intégration des enfants ayant des besoins particuliers, de plus en plus d'enfants ayant différents diagnostics de troubles neurodéveloppementaux, comme le trouble du spectre autistique (TSA) ou la déficience intellectuelle (DI), sont accueillis dans les milieux de la petite enfance. Ces enfants peuvent présenter des besoins de soutien et d'accompagnement différents, notamment en lien avec la présence de certains comportements défis, plus fréquents que chez les enfants tout-venants. En effet, la présence de comportements problématiques (CP) est de deux à quatre fois supérieure chez les enfants ayant un diagnostic de trouble neurodéveloppemental comparativement aux enfants sans diagnostic. Une formation spécialisée chez le personnel accompagnant ces enfants est nécessaire afin de pouvoir intégrer des outils basés sur les meilleures pratiques dans la gestion de ces CP et adapter les activités aux enfants ayant des difficultés d'apprentissage. Au Québec, les éducateurs qui travaillent dans ces milieux manquent souvent de formation adéquate pour faire face aux CP et pour accompagner les enfants présentant des particularités développementales en contexte d'intégration. Pourtant, l'intervention précoce et l'inclusion sont recommandées pour les enfants ayant un diagnostic de trouble neurodéveloppemental comme le TSA et la DI et les milieux de la petite enfance devraient pouvoir les accueillir dans les meilleures conditions. Ces interventions sont notamment essentielles à la réussite de la transition de ces enfants vers l'école primaire. Il est ainsi impératif d'assurer une formation de qualité pour les éducateurs des milieux de la petite enfance afin qu'ils puissent adopter les meilleures pratiques pour accompagner ces enfants, notamment par des stratégies permettant la prévention des CP, des stratégies pour apprendre aux enfants à communiquer efficacement et à acquérir des compétences sociales en contexte d'inclusion. La présente thèse vise de façon globale à répondre à ce besoin d'offrir une formation de qualité sur un programme basé sur les données probantes pour soutenir les éducatrices en garderie dans la gestion des CP et le soutien au développement socio-émotionnel chez les enfants présentant des particularités développementales et comportementales.

Cette thèse contient deux études. La première étude a évalué un programme de formation développé pour les éducateurs sur la base des meilleures pratiques, soit le Pyramid Model (PM). Ce programme vise à outiller les éducateurs des milieux de la petite enfance dans le développement socio-émotionnel des enfants avec lesquels ils travaillent. Les effets de cette formation ont été mesurés en regard des pratiques des intervenants dans leur groupe (type d'interventions utilisées) et de leurs attitudes face à l'inclusion d'enfants ayant des particularités développementales. La validité du sociale du programme de formation et de la formation comme telle a aussi été évaluée selon le point de vue des parties prenantes. La deuxième étude visait ensuite à évaluer les effets d'un programme de supervision suivant la formation (Practice based coaching) sur la mise en œuvre des stratégies du PM par les éducateurs et sur les comportements socio-émotionnels et CP des enfants.

Les résultats de ces études sont détaillés dans les deux articles de cette thèse et soulignent l'importance de fournir une formation et un soutien individualisé aux éducateurs pour répondre aux besoins des enfants ayant un TSA ou une DI et de CP. Les premiers résultats de l'étude soulignent que même si les éducateurs perçoivent la formation et le programme PM hautement valide et répondant à leurs besoins, un soutien et des ressources plus important est nécessaire pour avoir des effets sur la disposition des éducateurs face à l'éducation inclusive.

Par conséquent, la deuxième étude visait à évaluer les effets d'un programme de supervision individualisé et soutenu suivant l'application du PM auprès de neuf éducateurs, afin de les soutenir dans la cadre de l'application du PM à même leur groupe. Les résultats de l'étude montrent des améliorations significatives dans les pratiques de PM des éducateurs et les compétences socio-émotionnelles des enfants. De plus, les éducateurs étaient très satisfaits de l'intervention et l'ont trouvée hautement valide.

Les recommandations issues des deux études soulignent l'importance d'organiser un système de soutien qui se concentre sur les procédures d'identification, d'évaluation et d'intervention basé sur les meilleures pratiques pour les enfants ayant un diagnostic de trouble neurodéveloppemental. La structure proposée dans la thèse, qui intègre le PM et un programme de supervision individualisée et continue, offre une solution pratique pour relever les défis actuels auxquels fait face le système d'éducation de la petite enfance au Québec.

Mots clés : attitudes, comportements problématiques, milieux de la petite enfance, éducateurs, inclusion, Pyramid Model, coaching basé sur la pratique, compétences sociales.

**ABSTRACT**

Over the past decade, early childhood settings have seen a significant increase in children enrolled. Moreover, since the introduction of the policies and subsidies provided to these settings to encourage integration and meet the needs of these children, there has been an increase in the integration of children with disabilities (e.g., global developmental delays (GDD), autism spectrum disorders (ASD)). Integrating children with developmental delays into early childhood settings is associated with behavioural problems and academic difficulties. The proportion of young children with developmental delays exhibiting challenging behaviours is two to four times greater than typically developing children. Specialized training is required to manage these challenging behaviours and adapt activities for children with learning difficulties. In Quebec, educators working in these settings often lack adequate training to deal with challenging behaviours. Early childhood programs are the ideal places to provide early intervention for children with GDD and ASD. These interventions are essential for the successful transition of these children into elementary school since elementary schools lack the resources for children with challenging problems. Therefore, educators must receive training and acquire skills in evidence-based practices that encourage the prevention of challenging behaviour and strategies for teaching children to communicate effectively and achieve social competence. The goal of this thesis was to respond to this need.

This thesis contains two studies. The first study evaluated a training program developed for educators based on an empirically based intervention, called the Pyramid Model (PM), which promotes social, emotional skills and prevents challenging behaviour among young children. The PM training was evaluated in terms of its effects on implementing the strategies, educators' attitudes towards inclusion, and social validity. The second study assessed the impact of Practice-Based Coaching (PBC) on educators' implementation of PM strategies in the classroom and its effect on children's social-emotional and challenging behaviours.

The results of these studies are detailed in the two articles of this thesis and emphasize the importance of providing empirically based training and support to educators adapted to meet the needs of children with DD and challenging behaviours. The first study results highlight that even though educators' perceptions of the PM training's usefulness and social validity showed positive results and their implementation of PM practices significantly increased following the training, no differences were found in their overall attitudes toward inclusion.

To improve educators' attitudes toward inclusion, they must receive sufficient and ongoing training in evidence-based practices, continued support, and resources. Therefore, the second study addressed this issue by implementing PBC, with nine educators who participated in the initial PM training to help support their application of the PM practices. The study assessed the effects of the PM's implementation on the educators' practices, children's outcomes, and the intervention's feasibility and acceptability. The results show significant improvements in educators' PM practices and children's social skills. In addition, educators were highly satisfied with the intervention and found it very feasible to implement.

The recommendations deriving from both studies highlight the importance of organizing a system of supports that focuses on procedures for the identification, evaluation, and intervention for children with DD. This proposed structure, which incorporates the PM and PBC, offers a practical solution for addressing the current challenges faced by Quebec's early childhood education system.

Keywords: Attitudes, challenging behaviours, early childhood settings, educators, inclusion, pyramid model, practice-based coaching, social skills.

## INTRODUCTION

In recent years, throughout the world, including in Quebec, there has been a considerable rise in the number of children entering daycare and early childhood programs. A growing percentage of those children present with special needs. In the modern world, women are having babies later in life and returning to the workforce before their children have turned five years old. More than 71% of mothers are now working outside their homes (Institut de la statistique du Québec, 2014), thus increasing the need for good quality early childhood programs. This expanding segment of the labour force population is diverse and has varying needs, imposing extra demands on early childhood programs. In addition to ensuring the children's safety, early childhood settings and the educators working there must provide conditions that foster child development and support them to integrate harmoniously into Québec society. A province-wide survey revealed that a quarter of Quebec families live with a child with special needs (e.g., developmental disabilities [DD]; Institut de la statistique du Québec, 2013). Considering both the increase in young children attending early childhood programs and the fact that around 25% of them have DD, the number of children with DD being integrated into these settings has increased accordingly. However, the Quebec education system does not adequately address how educators can deal effectively with these children and detect their needs early enough to provide beneficial interventions.

Approximately 40% to 64% of young children with DD engage in challenging behaviours, up to four times higher than typically developing children (National Research Council & Institute of Medicine, 2009). Specialized training is required to adapt activities to meet the needs of these children and manage their challenging behaviours. Some studies have highlighted that educators lack training in addressing challenging behaviours (Dunlap et al., 2013, 2019; Rivard et al., 2015). In relation to this need, one training intervention for early childhood educators that has received empirical support is the pyramid model (PM; Fox, 2011), which is a multi-level support system focusing on promoting supportive classroom environments, teaching social-emotional skills, and reducing or eliminating young children's challenging behaviours. To apply PM practices within the classroom, educators require additional support, such as practice-based coaching, which is a collaborative method for personalizing training protocols and facilitating the implementation of these practices (Snyder, Hemmeter, & McLaughlin, 2011; Snyder & Wolfe, 2008). In response to the evolving training needs of educators to integrate children with more diverse profiles into their work, the current project assessed the use of practice-based coaching method for teaching educators how to implement specific PM practices in their early childhood classrooms.

The current project was divided into two separate studies to achieve this goal. In study 1, a pre-and post-test design was used to evaluate the effects of a 2-day training on PM methods of educators. The training was given to 33 educators across eight different early childhood settings. In study 2, 9 educators from three early childhood settings who had participated in the initial training received live coaching based on practice-based coaching methods for implementing the PM strategies in the classroom. A non-concurrent multiple baseline design was used to assess the effectiveness of PM training and coaching on the educators' implementation of PM practices in their classrooms. Additionally, pre- and post-measures were utilized to evaluate the changes in the educators' implementation of practices and the children's social skills and challenging behaviours.

Since the implementation of the Quebec policy regarding integrating children with DD into childcare establishments and the development of additional subsidies for early childhood settings to meet the needs of these children (Ministère de la Famille et des Aînés [MFA], 2017, 2020), the number of children with DD (e.g., global developmental delays [GDD], autism spectrum disorders [ASD]) in early childhood settings has increased. In the context of integrating children with DD, inclusive education is defined as "the education of all students in age-appropriate regular classrooms, regardless of the degree or severity of a disability. It involves students accessing the regular curriculum; with the necessary support; and within a welcoming social atmosphere" (Mahat, 2008, p.84; Mejia-Cardenas et al., 2022). Effective integration of children with DD into early childhood settings benefits all children who attend (Buysse et al., 2002; Cross et al., 2004; Holahan & Costenbader, 2000; Odom et al., 2006; Strain & Hoyson, 2000). For children with DD, inclusive programs provide increased opportunities for developing social and play skills with their peers (Buysse et al., 2002; Strain & Hoyson, 2000). Furthermore, these children have also reported increased IQ scores and decreased symptom severity (Strain & Hoyson, 2000). Additionally, neurotypical children often assist their peers with DD, which thus supports them to develop increased compassion and empathy (Cross et al., 2004).

Although this inclusion process has many benefits, mothers and childcare providers have highlighted that increased integration of children with DD in early childhood settings is also associated with a rise in challenging behaviours and academic issues (National Research Council & Institute of Medicine, 2009). Early childhood centres and home-based settings provide full-time childcare services for young children aged 0 to 5 years old in Quebec (MFA, 2017), and the prevalence of social, emotional, and behavioural challenges in young children aged 2 to 5 is approximately 10% to 20% (Lavigne et al., 2009). This rate is even higher for children with disabilities, at 3 to 7 times higher than the rate observed in typically

developing children (Bailey et al., 2019; Jang et al., 2011; Maskey et al., 2013; National Research Council & Institute of Medicine, 2009).

In Quebec, specialized rehabilitation centres have reported that early childhood settings integrating children with DD often feel helpless, and educators do not have sufficient training for managing challenging behaviours (Rivard et al., 2015). Following government requirements, educators in early childhood settings must take classes in psychology, education, sociology, nutrition, health, and communication in a college-level program (MFA, 2017). However, the program does not offer courses on behaviour management and teaching children with DD. Indeed, Quebec has no specific directives or regulations regarding how educators could manage challenging behaviours or promote social skills in early childhood settings. Furthermore, the province lacks programs designed to target the development of these skills.

Evidence-based early intervention is most optimal for children with DD within early childhood settings (Guralnick, 2019), as it is crucial to act early and intervene quickly, to avoid challenging behaviours becoming ingrained. Therefore, settings that welcome children with special needs must adopt evidence-based practices for early intervention and promote preventative approaches to managing challenging behaviour (Dunlap et al., 2019). It is also imperative for educators to integrate strategies to teach children social competence and effective communication since these skills benefit children throughout their lives (Domitrovich et al., 2017; Jones et al., 2015). However, this is often challenging, as resources, training, and evidence-based practices adapted for inclusive early childhood settings are limited. The PM (Fox, 2011) promotes young children's social-emotional skills, offers universal support for all children in the classroom, and involves more specific or intensive services for children who require more support. Many studies have evaluated the PM in early childhood settings in the United States (Hemmeter et al., 2014, 2016, 2021; Steed & Roach, 2017) and worldwide (Heo et al., 2014; Lam & Wong, 2017; Rakap et al., 2018). However, no studies have been conducted on the PM in the province of Quebec. This model may help to address the current needs of the system of early childhood settings in Quebec.

Considering the increase in the number of children with special needs integrated into early childhood settings and the challenges outlined above, it is essential to understand the development of inclusive practices. The following section summarizes the literature and evidence-based practices for inclusion in early childhood settings. This section highlights the following themes: integrating children with disabilities into inclusive settings, high-quality childcare services, and professional development.

## 0.1 Integrating Children with Disabilities into Inclusive Settings

In North America, educators have assumed greater responsibility for students with disabilities since the enactment of the No Child Left Behind Act (2001) and the Individuals with Disabilities Education Improvement Act (2004). These laws require educators to implement evidence-based or scientifically based practices to improve student outcomes (Spencer et al., 2012).

In Québec, the Ministry of Education implemented the Education Act (1998) stating that every person is entitled to educational services, student services, and special education services (Projet de loi 143, 2017). This initiative was followed by the adoption of a special education policy entitled "A school adapted to all students" (Ministère de l'Éducation, 1999), which stressed the importance of prevention and creating optimal conditions that are conducive to learning, as well as the need to intervene rapidly following the first signs of the difficulties. Despite this, some studies in both Quebec and the international literature have indicated that most educators experience difficulties identifying which practices are evidence-based, lack the optimal circumstances for implementing them, and do not receive enough guidance or support for assessing how these practices impact child performance (Begeny & Martens, 2006; Burns & Ysseldyke, 2009; Japel et al., 2005; Maheady et al., 2013; Paquet, 2008). Although educators face these difficulties, they are aware of the necessity to meet the increasing demands arising from integrating children with disabilities and challenging behaviours into early childhood programs (Brownell et al., 2006; McCabe & Frede, 2007; Rivard et al., 2015; Ruel, 2014). For example, it is essential to focus on prevention and teach children the skills necessary to succeed before they enter elementary school, where 50% of children with special needs are integrated into regular classes (Ministère de L'Éducation, 1999).

Children with disabilities can effectively be integrated into inclusive settings with specialized support (Division for Early Childhood of the Council for Exceptional Children et al., 2014; Rafferty et al., 2003; Strain & Bovey, 2011) and individualized instruction (Daugherty et al., 2001; Grisham-Brown et al., 2000, 2009; Robertson et al., 2003; Venn et al., 1993). However, many elements should be considered for the inclusion to be effective (Buysse & Hollingsworth, 2009; National Professional Development Center on Inclusion [NPDCI], 2009; Odom, 2002; Odom et al., 2011). Firstly, various factors affect how inclusion is implemented and viewed by families and practitioners, including child and adult characteristics, attitudes, beliefs about inclusion, policies, and resources (Diamond & Huang, 2005; Frankel et al., 2010; Innes & Diamond, 1999; Okagaki et al., 1998).

In terms of attitudes, parents of children with and without disabilities generally have positive attitudes toward inclusion (Kasari et al., 1999; Rafferty & Griffin, 2005). In addition, educators report positive attitudes about inclusion and believe that children with disabilities should be integrated into educational settings (Eiserman et al., 1995; Gal et al., 2010), but are concerned regarding their lack of knowledge about children with disabilities (Dinnebeil et al., 1998). Educators' perceptions of their competency for teaching children with disabilities and their views about inclusion strongly impact the effectiveness of inclusion for these children (Hunter-Johnson et al., 2014; Unianu, 2012). However, until recently, most research on the topic had been conducted with elementary and secondary school teachers. Since children's first experiences of inclusion occur in early childhood settings, researchers have begun to investigate the attitudes of educators working in these settings (Dias & Cadime, 2016; Engstrand & Roll-Pettersson, 2014; Liu et al., 2016; Lohmann et al., 2016). Given the importance of educators in the success of inclusive education and the associated benefits for children and their families (Diamond et al., 2013; Lee et al., 2015), it is crucial to consider the attitudes of educators and administrators in childcare settings (Gregory, 2018).

Secondly, the collaboration between professionals highly impacts the effectiveness of inclusion. For example, a specialized professional may provide coaching (e.g., modelling, feedback) and mentoring for educators in inclusive programs (Leiber & Woodrick, 1997). Effective inclusion requires ongoing coaching, specialized support, and interventions, including opportunities for planning, communication, and developing resources for professional development. Without this support, educators lack the preparation that is vital for satisfying the individual needs of children with disabilities (Chang et al., 2005). Therefore, professional development is crucial for educators to gain the knowledge, skills, and ongoing support needed to implement inclusion effectively (Akalın et al., 2014; Gal et al., 2010).

The PM model framework integrates these necessary components, including collaboration between team members, specialized interventions, professional development, and support, to ensure successful inclusion and integration in early education settings.

### 0.2 High-Quality Childcare Services

One of the main objectives of the Quebec educational program is to ensure that children receive high-quality childcare services (MFA, 2020). A high-quality early childhood setting can recognize and address the needs of children and provide interventions for children by considering their level of development. Moreover, one or more adults work together with the parents of the children attending the childcare

establishment (MFA, 2020). The main factors of a high-quality childcare establishment include the quality of interactions between educators, children, and their parents, a safe environment responsive to children's social, emotional, and pre-academic developmental needs, and the diversity of activities offered, incorporating instructional and classroom management strategies that promote child engagement and learning (Abry et al., 2013; Curby et al., 2013; Williford et al., 2013). Educators must have a strong understanding of these critical elements and be proficient in applying them in their classrooms to ensure their successful implementation. However, even with all these elements in place, it may still be challenging for educators to ensure quality environments that can provide more intensive interventions for children experiencing learning and behavioural challenges. To create these high-quality learning environments that meet the children's needs, educators often require intensive and specific training to strengthen their knowledge and skills for implementing the evidence-based practices in their classrooms (Becker & Domitrovich, 2011; Conroy, Alter et al., 2014; Snyder & Wolfe, 2008; Trivette et al., 2010).

One challenge of inclusion is delivering quality educational services that maximize the development of all the children in the classroom (Bricker, 1995; Guralnick, 1999). However, a study examining subsidized early childhood settings in Quebec and their quality (Lapointe & Gingras, 2015) demonstrated that educators failed to provide adequate teaching opportunities targeting problem-solving skills, collaborative working, developing autonomy, and independent decision-making. Children's language development was not supported, as neither verbal nor nonverbal communication was directly taught or fostered. Additionally, classrooms were not organized to allow children to manipulate the toys directly and did not offer quiet spaces for when they wished to be away from the group. To maximize the effectiveness of inclusion and ensure quality in these settings, educators should implement supports, such as visuals to depict the daily schedule, posted clear behavioural expectations and social stories (Bricker, 2000; Dunlap et al., 2013; Rafferty et al., 2003). Indeed, the PM can successfully provide educators with the required strategies to implement such supports within the classroom.

### 0.3 Response to Intervention Model

In accordance with the criteria for providing high-quality childcare services, Response to Intervention (RtI) offers a comprehensive model for preventing delays in learning and behaviour. It was first created as a special education policy in the Individuals with Disabilities Education Improvement Act of 2004. RtI involves a systematic decision-making process designed to provide early intervention to prevent and ameliorate learning and behavioural delays in children. Although it was initially developed for

implementation in elementary and secondary school programs, there is also empirical support for its application in early childhood programs (Fox et al., 2009).

Specifically, RtI is a multi-tier framework that includes three levels of intervention. The primary tier provides preventative interventions for all children by exposing them to the standard curriculum. Through this, children experiencing difficulties are identified within this tier. The secondary tier is targeted at children who are at risk and require additional instructional support. Finally, the third tier offers more intensive and individualized support to improve academic performance and reduce challenging behaviours (Fox et al., 2009). The emphasis of RtI is on early screening, ongoing progress monitoring, and making data-based decisions to provide effective interventions for children who experience learning and behavioural challenges and require more support (Sugai, 2007). The goal is to maximize the development of all children and prevent learning difficulties and challenging behaviours. Based on previous research, RtI is effective for improving children's academic performance (e.g., O'Connor et al., 2005; Vaughn et al., 2003) and reducing referrals for placement in special education settings (e.g., Bollman et al., 2007; Marston et al., 2003; O'Connor et al., 2005).

Overall, in early childhood programs, the RtI model provides a framework for delivering high-quality education and support to all children, as well as procedures for identifying and assisting young children who require additional intervention (Coleman et al., 2006; Greenwood et al., 2011). The PM (Fox et al., 2003) incorporates the critical components of RtI and offers a tiered intervention model that guides the implementation of evidence-based interventions with young children in early childhood settings.

### 0.4 The Pyramid Model

The PM provides evidence-based interventions designed to promote children's social, emotional, and behavioural development in early childhood settings through a multi-tiered framework (Fox et al., 2003; Hemmeter, Ostrosky, & Fox, 2006). The model incorporates promotion, prevention, and intervention strategies that organize and guide the delivery of practices that both support children's acquisition of social-emotional skills and prevent or reduce challenging behaviour (Fox et al., 2003, 2010; Hemmeter, Cheatham, & Corso, 2006; Hemmeter et al., 2013).

The three tiers of the intervention included in the model are universal support that meets the base needs of all children, secondary preventative interventions that address the needs specific to children with a high

risk of social-emotional delays, and tertiary supports for children with more challenging behaviour that are more intensive and tailored to each child. All tiers of the PM integrate effective teaching methods and guidance for young children that have been developed based on research (Burchinal et al., 2010; National Research Council, 2001). These approaches encourage appropriate behaviour and engagement within educational settings in children (Conroy et al., 2008) and the development of social skills (Brown et al., 2008). Additionally, they involve using personalized behaviour support plans for children exhibiting challenging behaviours (Blair et al., 2010; Dunlap et al., 2013; McLaren & Nelson, 2009).

Nurturing and responsive relationships and high-quality, supportive classroom environments are two main aspects of the universal practices highlighted in the base tier of the PM. Indeed, building positive relationships with children is integral for guiding their social, emotional, and behavioural development because educators can influence children's behaviour when they develop strong relationships with them (Fox et al., 2003). Children can identify caring and nurturing educators and are likely to seek positive attention from them. As such, creating opportunities for developing positive self-concepts, confidence, and feelings of safety in children will reduce challenging behaviours and the probability of them occurring in the future (Fox et al., 2003). When educators provide children with clear expectations, structure and routine, and positive reinforcement, children's engagement increases, thus preventing challenging behaviour (Strain & Hemmeter, 1997).

The second tier focuses on specific practices that aim to develop social and emotional skills, including replacing or entirely preventing challenging behaviour. Indeed, to increase their chances of success in school, children must learn to regulate their emotions and behave appropriately. However, emphasis is more often placed on cognitive and academic success, which overlooks the importance of children's social-emotional development (Raver & Knitzer, 2002). Children often require direct instruction to recognize others' emotions, control their impulses and anger, solve problems, and develop friendships (Webster-Stratton, 1999). For example, children need to identify emotions in themselves and others and behave accordingly. They are also taught strategies to support them to calm down when frustrated and to engage in problem-solving. Finally, friendship skills can also be encouraged through different learning opportunities, such as turn-taking, requesting, receiving, and offering help, complimenting others, and reacting appropriately when teased or bullied (Fox et al., 2003). Overall, the second tier of the PM provides practices that allow these critical social-emotional skills to be taught to children.

The third tier has the narrowest scope, aiming to individualize interventions for children with considerable social or emotional difficulties and persistent challenging behaviour through providing targeted social, emotional, and behavioural support (Fox, 2011). Even when educators effectively utilize the strategies from the first two tiers, challenging behaviour may persist in some children. When this occurs, Positive Behaviour Support (PBS) plans can be individualized for each child. PBS is an evidence-based method for developing strategies to teach new skills, prevent challenging behaviour, and identify the environmental events, circumstances, and interactions that trigger challenging behaviour (Dunlap et al., 2013; Fox et al., 2002). PBS helps children improve their quality of life by developing communication skills, social skills, and improved relationships with peers and adults.

A recent study conducted by Hemmeter et al. (2016) evaluated the efficacy of implementing the PM in early childhood settings. The researchers applied the PM in the classroom, targeting young children's social-emotional competence and challenging behaviours. A randomized controlled design was utilized with a sample of 40 educators and 494 children. In the intervention group, 20 educators participated in a workshop designed to help them to apply PM methods in their classrooms. The other 20 educators were in the control group, and they only attended the workshops once the study data collection was complete. The results indicated that educators who participated in the workshops showed a significant improvement in their use of PM practices, as measured by the Teaching Pyramid Observation Tool (TPOT), which assesses how many PM practices are utilized in a classroom (Fox et al., 2008). The children enrolled in the classes with PM were reported to have improved social skills and fewer challenging behaviours by their educators, as measured by the Social Skills Improvement Scale (Gresham & Elliott, 2008). Overall, this study by Hemmeter et al. (2016) shows positive results regarding the effectiveness of the PM in early childhood settings.

The National Center for Pyramid Model Innovations (formerly the Center on the Social and Emotional Foundations for Early Learning [CSEFEL] and the Technical Assistance Center on Social Emotional Interventions for Young Children [TACSEI]) provides several resources for professionals and implementation guidelines for the PM, offered in several languages, which can be easily accessed through their website. This allows the PM to be replicated across settings and means that it is widely available for educators, administrators, parents, and other professionals. The accessibility of PM resources addresses the gap in training and knowledge of Quebec educators regarding the inclusion of children with special needs in early childhood settings across the province. Through the application of professional development training in

conjunction with PM guidelines, Quebec educators can maintain a positive attitude towards inclusion, thus increasing the likelihood of inclusion being successful (Akalın et al., 2014; Gal et al., 2010).

However, multiple studies have shown that educators who lack support and training apply less than 40% of PM practices in the classroom (Artman, 2010; Hemmeter et al., 2010; Hemmeter & Fox, 2009). Furthermore, these educators rarely use practices associated with the PM and do not consistently apply these practices (Artman, 2010; Hemmeter et al., 2010; Hemmeter & Fox, 2009). Importantly, one intervention that has successfully changed educators' behaviour is coaching with performance feedback. Indeed, numerous studies have demonstrated the effectiveness of coaching with performance feedback through different methods, such as email, video, or live observations (Artman-Meeker et al., 2014; Fox et al., 2011; Hemmeter et al., 2011). The current project aims to incorporate practice-based coaching with PM training, as this coaching method includes performance feedback and a step-by-step approach to teaching specific PM strategies.

### 0.5 Professional Development

For the PM to be practiced with both accuracy and consistency, it is essential to have continuous training and support (Hemmeter et al., 2015). High-quality professional development should be a transactional process that provides educators with the structure and support for learning and applying knowledge and skills within their classrooms (NPDCI, 2008). Currently, there is an increased need for effective and efficient professional development to equip educators to incorporate strategies for managing challenging behaviour in young children (Hemmeter, Corso, & Cheatham, 2006).

Researchers have questioned the effectiveness of providing workshops to educators regarding their impact on modifying educators' practices and supporting them to implement the skills in applied contexts (Martinez-Beck & Zaslow, 2006; Snyder & Wolfe, 2008). However, a growing research base exists that describes the effective characteristics of professional development in the early childhood field. Indeed, current guidelines recommend that professional development should be implemented over time, grounded in educator practice, linked to outcomes, and be both collaborative and interactive (National Staff Development Council, 2001; Snyder, Denney et al., 2011). Despite these guidelines, the most frequent forms of training reported by educators include lectures, handouts, and modelling during workshops (Guskey, 2003; Winton & McCollum, 2008).

## 0.6 Practice-Based Coaching

Practice-based coaching is a method that uses collaboration to tailor the coaching to each educator and, thus, best support the application of PM strategies in their classrooms (Snyder, Denney et al., 2011; Snyder, Hemmeter, & McLaughlin, 2011; Snyder & Wolfe, 2008). A PM-trained coach guides and teaches the educators to use evidence-based practices that encourage positive child outcomes. The coach also works with educators in three ways: helping them recognize and establish their classroom's needs, developing and implementing a plan that utilizes targeted practices, and evaluating the effects of these practices on child and educator outcomes (for a discussion, see Snyder, Hemmeter, & McLaughlin, 2011; Snyder & Wolfe, 2008). In this way, the practice-based coaching framework usually incorporates a three-step process. Firstly, the educator and the coach conduct a needs assessment to identify their goals and the necessary strategies to achieve these goals. Secondly, an action plan is developed to outline how these strategies will be implemented in the classroom. Thirdly, the coach observes the educators' implementation of the strategies and provides them with performance feedback and support, supporting them to reflect on their practice. These three steps are then repeated until the goals have been achieved. Alongside other forms of professional development, educators who receive coaching are more likely to implement the practices in their classrooms (Joyce & Showers, 2002).

In several studies, practice-based coaching has been utilized as a model to support educators' use of effective practices to improve child outcomes (Conroy et al., 2015; Conroy, Sutherland et al., 2014; Donegan-Ritter & Van Meeteren, 2018; Fox et al., 2011; Hemmeter et al., 2011; Snyder et al., 2015; Sutherland et al., 2015). These studies demonstrate that practice-based coaching is effective for increasing the fidelity of educators' implementation of practices in their classrooms and, consequently, improving child outcomes.

However, there are also several limitations of the Hemmeter et al. (2016) study, evaluating the effectiveness of the PM, which present issues regarding generalization to the province of Quebec. Therefore, the present thesis aims to extend the work of Hemmeter et al. (2016) by both addressing their limitations and applying the PM in the context of Quebec's early childhood settings. To achieve this aim, the first change is that the educators participating in this project have lower levels of education than those in the study from Hemmeter et al. (2016). Educators in the Hemmeter et al. (2016) study were highly trained teachers and had obtained university degrees. However, in Quebec, it is standard for most educators in early childhood settings to hold a college-level early childhood education degree, which does

not necessarily include courses on special education or the management of challenging behaviours. Secondly, in the Hemmeter et al. (2016) study, the observation periods for the participating children who exhibited challenging behaviours were not during times that were identified as problematic. That limitation will be addressed in the current study by using observation periods for the target children during activities when they are more likely to exhibit challenging behaviours. A third limitation of Hemmeter et al. (2016) is that only the educators evaluated the social skills and behaviours of the children using the SSIS. Therefore, the results regarding child outcomes may have been biased and subjective. In the current study, educators and naive observers evaluate the social skills and challenging behaviours of target children by completing observation forms.

Currently, in Quebec, there are no specific evidence-based approaches for professional training or standardized methods for teaching children with social-emotional deficits and challenging behaviours in early childhood settings. This thesis aims to extend the previous findings and offer an empirically based intervention, the PM, to be applied in early childhood settings in Quebec. In addition, this thesis provides educators with practice-based coaching to support them to generalize the knowledge taught in training and effectively apply PM practices in the classroom.

**CHAPTER 1**

**ARTICLE 1**

# EVALUATION OF THE EFFECTS OF THE PYRAMID MODEL TRAINING ON THE ATTITUDES AND PRACTICES OF EARLY CHILDHOOD EDUCATORS

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## 1.1 Abstract

There has been growing evidence on the effectiveness of the Pyramid Model (PM) for promoting young children's social-emotional competence and reducing challenging behaviours. In the province of Quebec (Canada), as in many other regions, many children with developmental disabilities (DD)s are integrated into early childhood settings where educators do not have specific training in managing challenging behaviours. The current project's objective was to evaluate, using a quasi-experimental design, the effects of a two-day training in PM practices provided to 33 educators working in inclusive early childhood settings in the province of Quebec. Before the training, educators reported that inclusion is beneficial for the child but not for the educators, demonstrating a need for more training and resources to be provided to early childhood educators. Educators' perceptions of the PM training's usefulness and social validity showed positive results. Educators' implementation of PM practices significantly increased following the training. Educators' attitudes improved their perceptions of how inclusion affects them; however, no differences were found in their overall attitudes when comparing results from pre to post-test, showing the need for further support.

Keywords: Attitudes, challenging behaviours, early childhood settings, inclusion, pyramid model.

## 1.2 Introduction

During the past decade, there has been a substantial increase in the number of children enrolled in early childhood settings[1] due to more than 71% of mothers working outside of their home (Gingras et al., 2015). A population survey across the province of Quebec (Canada) revealed that 26% of families have a child at home with developmental disabilities (DD)[2] (e.g., Global Developmental Delays [GDD], autism spectrum disorders [ASD]) or mental health problems, which represents a potential of one in four families who receive early childhood services (Simard et al., 2013). The inception of a government policy of integrating children with special needs into regular early childhood settings, as well as increased subsidies allotted to provide for these needs (Ministère de la Famille et des Aînés [MFA], 2017, 2020), have contributed to the significant rise in enrollment. As such, there has been a growing need for evidence-based training for early childcare educators to ensure the education and successful inclusion[3] of children's more heterogeneous behavioural and developmental profiles. Children with DDs are 3-7 times more at risk to present challenging social and emotional behaviour (e.g., noncompliance, aggression, hyperactivity, tantrums) than typically developing children (Baker et al., 2002; National Research Council & Institute of Medicine, 2009). Thus, more expertise must be developed to manage these behaviours better.

Though studies of school inclusion are readily available (Coelho et al., 2017; Galaterou & Antoniou, 2017; Hebbeler & Spiker, 2016), in North America, few have been published on the factors influencing the successful inclusion of DD children in early childhood settings (Brown et al., 1999; Cross et al., 2004). There is a dearth of information on inclusion policies to best support young children with DDs in early childhood settings (Odom et al., 2011). In the school environment, four factors impact inclusion: staff attitudes, staff training and their implementation of evidence-based practices, and family collaboration (Buysse & Hollingsworth, 2009; Coelho et al., 2017; National Professional Development Center on Inclusion, 2009; Niemeyer & Proctor, 2002; Odom et al., 2011). The present study is specifically interested in the first two factors, educator[4] attitudes and implementation of evidence-based practices in early childhood settings.

[1] The term early childhood settings will be used to refer to daycares, early childhood centers, early childhood programs and preschools.

[2] Developmental disabilities are a group of conditions due to an impairment in physical, language, learning or behavior areas.

[3] Inclusion refers to the practice of having children with developmental disabilities attend the same educational setting as their typically developing peers and participating in the same daily activities and routines.

[4] The term educator refers to early childhood educators working in early childhood settings.

It aims to describe educators' attitudes regarding inclusion and evaluate the effects of empirically validated training that promotes social-emotional competencies and prevents challenging behaviours, the Pyramid Model (PM; Fox et al., 2003; Hemmeter et al., 2006), on their attitudes. When children with DDs leave early childhood settings and begin school, the inclusion experience received in their early years will leave a lasting impact on their future trajectories and history of social integration in the school setting (Division for Early Childhood [DEC] & National Association for the Education of Young Children [NAEYC], 2009; Guralnick, 2005; Hanson et al., 2001; Hebbeler & Spiker, 2016; Odom, 2000). Therefore, promoting positive attitudes towards inclusion amongst educators is so essential.

### 1.2.1 Training and Implementation of Evidence-Based Practices in Early Childhood Settings

The international scientific literature and some specific studies in Quebec have shown that most general educators in early childcare settings do not know which practices are evidence-based, receive few opportunities to use these practices, and receive little assistance and support in monitoring their impact on student performance (Begeny & Martens, 2006; Burns & Ysseldyke, 2009; Japel et al., 2005; Maheady et al., 2013; McCabe & Frede, 2007; Paquet, 2008). Faced with the increase in the rate of students with disabilities attending inclusive early childhood settings, educators are concerned with their ability to meet these students' needs (Brownell et al. 2006; Ruel, 2014).

In the province of Quebec, for children aged 0-5 years old, childcare services are provided full time in either a center or a home-based setting (MFA, 2017). Educators who work in these facilities must complete a college-level program, including classes in psychology, education, sociology, nutrition, health, and communication (MFA, 2017). The program does not include courses in behaviour management that specifically show how to teach children with DD, relying on educators to gain experience during their practicums. Currently, no specific directive exists to manage challenging behaviours and promote social skills in early childhood settings. Some studies reported that educators whose classes include children with DD often feel helpless, as they do not have sufficient training on managing challenging behaviours (Rivard et al., 2013, 2015). A study evaluating the quality of subsidized early childhood settings in Quebec revealed that educators do not provide sufficient opportunities to teach children how to problem solve, communicate, work collaboratively, become autonomous, or make their own choices (Gingras et al., 2015). Given that early childhood settings are optimal environments for early intervention for children with DD, educators working in these environments need to become skilled in evidence-based practices that promote preventative approaches to challenging behaviour. Furthermore, they need to learn strategies to teach children how to communicate effectively and become socially competent (Hemmeter et al., 2006).

### 1.2.2 Pyramid Model and Positive Behaviour Support

The PM is a multi-tiered framework of evidence-based interventions for promoting the social, emotional, and behavioural development of young children in preschool settings. The Pyramid Model is based on the same underlying principles as Positive Behavior Interventions and Supports and for Response to Intervention, which has been widely implemented in elementary and high schools (Fox et al., 2010). However, the practices and strategies have been adapted in a way that is developmentally appropriate for young children to implement and teach in early childhood settings. Many studies have demonstrated its efficacy (Fox et al., 2003, 2010; Hemmeter et al., 2006, 2013). Several resources and implementation guidelines exist on the National Center for Pyramid Model Innovations (2020), which can assist organizations in implementing the PM within early intervention and early education programs. They allow the PM to be replicated with ease and obtainable for educators, school administrators, parents, and other professionals. The first tier of the program teaches educators to use universal practices to promote all children's social and emotional development in a highly supportive classroom environment. The focus is on forming nurturing responsive relationships between educator and child. The second tier addresses the intervention needs for children at risk of social-emotional delays. It focuses on targeted practices that impart social and emotional skills, including skills to prevent or replace challenging behaviour. The third tier focuses on developing individualized interventions for children with significant social or emotional skill deficits and persistent challenging behaviour (Dunlap et al., 2013; Fox et al., 2002).

A recent randomized control design study was conducted in two US states to evaluate the PM's effectiveness on social-emotional competencies and challenging behaviours in 494 young children in preschool classrooms (Hemmeter et al., 2016). Twenty teachers in the intervention group received a workshop to support them in implementing PM practices in their classrooms. The other twenty teachers were part of the control group, which received workshops only after the study. The results demonstrated that teachers who received the workshop showed a significant improvement in implementing the PM practices as measured by the Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2008). Their teachers reported that the children enrolled in the PM classes had improved social skills and demonstrated fewer challenging behaviours as measured by the Social Skills Improvement Scale (SSIS; Elliott & Gresham, 2008). Children in the intervention group who were evaluated as being at risk for behaviour disorders demonstrated improvements in their social skills compared to children in the control group. In another study, Lam and Wong (2017) evaluated the effects of PM training on kindergarten students' social-

emotional competencies in Hong Kong, using a pre-post design. Teachers participated in a two-month training program on the PM practices followed by curriculum designing workshops. Results demonstrated an improvement in children's social-emotional competencies and a reduction in their challenging behaviours. These studies (Hemmeter et al., 2016; Lam & Wong, 2017) show promising results of the PM's efficacy when applied in early childhood classrooms.

### 1.2.3 Objectives

Despite the fact that there is a rapidly increasing number of children with DDs and challenging behaviours entering early childhood settings in the province of Quebec, there continues to be a lack of evidence-based training mandated by the ministry to educators to help provide them with the resources required to support the integration of children with DDs (Rivard et al., 2013, 2015). Furthermore, few studies exist on the attitudes of inclusion among educators, which is greatly affected by their education, previous training, and prior experiences with inclusion (Dias & Cadime, 2016; Lee et al., 2015; Lohmann et al., 2016). Therefore, the current project's general goal was to describe educators' attitudes toward inclusion and evaluate the PM training for educators working in inclusive early childhood settings in Quebec. The study had five specific objectives, to evaluate: 1) educators' attitudes towards inclusion; 2) the factors that contribute to their attitudes towards inclusion; 3) educators' perceptions of their implementation of PM practices; 4) educators' perceptions of the PM and 5) the social validity of the training.

## 1.3 Method

The study utilized a mixed design to answer the objectives, including quantitative and qualitative data. The authors used a quasi-experimental waitlist design and quantitative data to measure PM training's effects on educators' attitudes towards inclusion and their perception of their behaviours associated with PM practices. The measurements of the quantitative data were taken at baseline (T0), at the beginning of the training following a two-week waiting period (T1), and at the end of the two-day training (T2). Three months after the training, a qualitative measure (semi-structured interviews) was used to describe the opinions of the PM training for a self-selected subgroup of the participating educators.

### 1.3.1 Participants

This research project received ethical approval from the Université du Québec à Montréal's Research Ethics Committee for Projects Involving Humans (CERPE) in October 2018. Educators and parents of the children participating in the project were required to sign a consent form.

The participants were recruited through the Quebec Association of Professional Preschool Development and Agence Ometz. An email was circulated throughout the organizations to the early childhood settings' directors. The email contained the experiments' details and what would be required from educators to participate. The directors were provided with the principal researcher's contact information and asked to contact her if they were interested in participating.

Thirty-three educators from eight different subsidized early childhood settings participated in the training. The inclusion criteria for educators to participate in this study were: (1) having obtained a minimum of a college degree in early childhood education or a related field, (2) working in a subsidized center-based program that includes children with DDs and challenging behaviours, (3) having classrooms divided into different age groups, (4) being able to attend two days of training provided in English. Any educator or early childhood setting that did not meet these criteria was not included in this study.

Table 1.1 shows demographic information for the 33 educators who participated in the study. All educators were female and held a minimum attestation degree in early childhood education. On average, educators worked in early childhood education for 22 years (range = 1-42 years). Nine educators agreed to participate in the qualitative interviews to measure the program's social validity after three months.

### 1.3.2 The Setting

The training was provided in a large conference room at the researchers' university. The educators that participated in the study worked in eight subsidized early childhood settings that provided early childhood education to children from 18 months to 5 years old in Montreal, Quebec.

### 1.3.3 Measures

#### 1.3.3.1 Sociodemographic Questionnaire

A sociodemographic questionnaire was provided to each educator before the training to obtain background information for each participant, such as age, level of education, years of experience working in the field, level of comfort working with children with DDs, level of knowledge in how to manage challenging behaviours and children with DDs, previous experience with inclusion, and knowledge of children with DDs. The questionnaire included multiple-choice and open-ended questions. Some examples of questions are: "How would you rate your level of knowledge in how to manage children with challenging behaviours?", "How would you rate your level of comfort when working with children with DDs?", "How many children with DDs or challenging behaviour have you worked with?".

#### 1.3.3.2 Impact of Inclusion Questionnaire

The Impact of Inclusion Questionnaire (IIQ; Hastings & Oakford, 2003) was used to measure early childhood educators' attitudes towards inclusion. The scale contains twenty-four items; six items in each of four potential impact domains: the children with DDs themselves, other children in the classroom, the teacher, and the school or classroom environment. Each item was rated on a five-point agreement scale ranging from "strongly agree" to "strongly disagree". For the child with DDs domain, items included the impact upon acceptance/rejection by classmates, children's personal development, and children's academic development. An example of a statement is "Having a child with DDs, and challenging behaviours in my school holds back their academic performance". For the other children domain, items included the impact upon contact time with the teacher, children's behaviour problems, and children's learning opportunities. Items in the teacher domain included stress, tiredness, and workload. Finally, items in the school or classroom environment domain included the impact upon school finances, classroom routines, and parent and community perceptions. Scores are summed for each of the domains to provide a total score for attitude. Hastings and Oakford (2003) explored preliminary psychometric properties of internal consistency for each of the scales using Cronbach's alpha. They found all the domains of the IIQ (child with DDs, 0.74; other children, 0.65; teacher, 0.73; and environment, 0.81) and the total scale score (0.92) to have acceptable levels of internal consistency. In the current study, Cronbach’s alphas were evaluated for each of the domains of the IIQ at pre-test and post-test (respectively, child with DDs, 0.62 (pre), 0.71 (post); other children, 0.65 (pre), 0.61 (post); teacher, 0.43 (pre), 0.34 (post); and environment, 0.68 (pre), 0.67 (post)) and the total

scale score (0.88 (pre), 0.88 (post)) reached acceptable levels of internal consistency. The scale takes approximately twenty minutes to complete. There is no reliability or validity reported on this tool.

#### 1.3.3.3 Inventory of Practices for Promoting Social-Emotional Competence

The Inventory of Practices for Promoting Social, Emotional Competence (IPPSEC; Center on the Social and Emotional Foundations for Early Learning [CSEFEL], n.d.) was designed to be used by educators and teams of staff to identify the training needs to target in the following areas of the Pyramid Model: (a) building positive relationships; (b) creating supportive environments; (c) social-emotional teaching strategies, and (d) individualized intensive interventions. The Inventory encourages self-reflection and collaborative opportunities between team members and coaches. Each of the four areas includes several skills and indicators of practices that promote young children's social-emotional competence. Each indicator contains an exact phrase (e.g., verbally interacts with individual children during routines and activities, removes obstacles that make it difficult for children with physical disabilities to move around the room), allowing the educator to reflect and identify skills that may or may not be present. A column entitled observations/evidence enables the educator to write suggestions and their strengths and needs concerning each of the skills. There are three levels of skill performance: (1) seldom, (2) occasionally, and (3) consistently, allowing educators to record their perceived level for each skill. The last column allows the educator to indicate which skill should be targeted. There is presently no reliability or validity on this tool; however, it has been used as a self-reported measure for educators to assess their implementation of practices during professional development (CSEFEL, 2006; Quesenberry & Doubet, 2006).

#### 1.3.3.4 Treatment Acceptability Rating Form-Revised

The Treatment acceptability rating form-revised (TARF-R; Carter, 2007; Reimers et al., 1991) was used to assess the educators' acceptance of the PM in the classroom. The TARF-R contains 23 questions and 20 questions related to treatment acceptability, targeting problem severity, understanding the intervention, and including factors such as effectiveness and cost of treatment. Three short answer questions ask participants for their comments and feedback. Questions are rated on a five-point Likert-type scale. Total scores are obtained by summing all items with higher summed scores representing higher acceptability levels. This TARF-R takes approximately 10-15 minutes to complete. This instrument has excellent internal consistency (Cronbach's $\alpha$=0.92) and it is appropriate for use in clinical populations (Carter, 2007).

#### 1.3.3.5 Semi-Structured Interview

A semi-structured interview was created for this study to evaluate educators' perceptions of the training. The interview is a slightly adapted version of the Client Satisfaction Questionnaire (Attkisson & Greenfield, 2004) and has already been implemented in previous studies (Redacted for blind review, 2015, 2017). Nine educators agreed to participate and were interviewed individually by a research assistant in an office in the early childhood setting where they worked. Each interview was tape-recorded and then transcribed verbatim by the research assistant. The interview consisted of nine questions about their satisfaction with the PM training and how it impacted their practices. The interview took approximately 5 minutes to complete (range = 2:30-8:24 minutes). The following questions were asked: In general, are you satisfied with the training received? Has it made any changes in the way you work or approach challenging behaviours? Did the exercises included during the training help you better understand the content? Would you add one or more elements to the training? Would you remove one or more elements from the training? What, if any, components of the training were you able to implement immediately following? Were they effective, and how did they impact your classroom? Do you have any suggestions for the future implementation of the training?

### 1.3.4 Procedure

#### 1.3.4.1 Times of Measures and Training

This procedure for this study included the baseline measures, group training, and pre-and post-test at three different periods. The training was divided into two cohorts based on when the directors could send the educators to attend the training. Cohort 1, which included 12 educators, began baseline (T1) immediately before starting the training in January 2019. Cohort 2 had 21 educators and received training in February 2019 and completed two baselines (T0, T1). They began baseline two weeks prior to the training (TO) and then immediately before the training (T1), to control for the possibility that time passing affected the educators' changes in their attitudes toward inclusion.

For both cohorts, educators completed the sociodemographic interview at baseline. Both cohorts completed the post-test measures (T2) immediately after the training. The IIQ and the IPPSEC were administered at each time of measure (T0, T1, T2) for both the cohorts. The TARF-R was completed following the training to evaluate the training's social validity (T2). See Figure 1.1 for more details regarding

the procedure. Research assistants collected qualitative data via an interview for the nine educators three months following the training to assess the educators' perceptions of the training.

#### 1.3.4.2 Training

The training included two consecutive days of workshops, seven hours each, in a university setting. The first author, who was trained and experienced in applying and supervising the PM, conducted the workshops. Each PM component was described using PowerPoint slides, video examples, case studies, small group discussions, role play, and rehearsal. Three modules were covered, which present the PM practices for each tier of the model. Module 1 focused on promoting children's success: building relationships and creating supportive environments. Module 2 discussed different social-emotional teaching strategies. Module 3 focused on individualized intensive interventions, determining the meaning of challenging behaviour and developing a behaviour support plan. At the beginning of the training, the first author provided each educator with a binder that included the presentation and supplemental material to support them in applying the strategies presented. Educators were shown materials such as posters, visual systems, and social stories to implement the practices in their classroom, and the presenter demonstrated how educators could use the materials. All educators were provided website links to obtain these materials (CSEFEL, n.d.).

### 1.3.5 Quantitative Data Analyses

All statistical analyses were performed using SPSS statistical software. A Matched-Pairs t-test was used to compare cohort 2 educator's IIQ scores at T0 and T1. Descriptive statistics were used for baseline data and the results of the TARF-R. Spearman Rank-Order Correlations were conducted to investigate the relationship between the educators' sociodemographic variables and their attitudes as measured by IIQ at pre-test. A two-way ANOVA was used to analyze the group training's effectiveness and determine if there was a difference in the IIQ subscales at pre- versus post-test. For the IPPSEC, a Friedman Test was conducted for the pre-and post-test scores.

### 1.3.6 Qualitative Analyses of Interviews

The interview transcripts were analyzed using a thematic analysis method (Braun & Clarke, 2006), which involved several phases. The first phase included developing codes based on what was interesting and pertinent in the interviews. The second phase involved examining the data extracts that were already

coded and sorting them into different themes. The third phase involved refining the themes and ensuring that they had sufficient data to support them. The fourth phase included naming and defining the themes by creating a thematic map. To ensure reliability, three people analyzed the data separately.

The first author and two fellow doctoral students trained in qualitative data analysis independently produced their preliminary version of a coding grid based on a first transcript. They compared and combined their versions into a single, shared coding grid. They independently tested this grid on another interview transcript, compared their results, and discussed the coding scheme's modifications. Once the team discussed the changes, they created a thematic map where they named and defined each theme. The team analyzed all interview transcripts with the final grid. The team met again to ensure that they had reached a consensus and inter-rater reliability at 90%. Once inter-rater reliability was achieved at 90% for all nine transcripts, each theme's frequency counts were computed to identify salient themes.

## 1.4 Results

Results are presented in the following order based on the objectives of the study: 1) educators' attitudes towards inclusion; 2) the factors that contribute to their attitudes towards inclusion; 3) educators' perceptions of their implementation of PM practices; 4) educators' perceptions of the PM and 5) the social validity of the training.

### 1.4.1 Educators' Attitudes Toward Inclusion

To measure the PM training impacts on educators' attitudes toward inclusion, we first looked at cohort 2. A Shapiro-Wilk test was conducted to determine that the data at T0 and T1 were normally distributed, $p > .23$. Therefore, we ran a Matched-Pairs t-test to see if time passing affected the educators' data on the IIQ (Impact of Inclusion Questionnaire). There was no effect seen, $t(17) = 0.78$, $p > .44$. Since there were no differences found in the pre-test results for the cohort 2 (T0, T1), IIQ data for both cohorts were evaluated at T1.

We then examined what were educators' initial attitudes toward inclusion prior to receiving the training. Overall, educators' attitudes, as measured by general IIQ score, were near neutral at pre-test ($M = 3.12$, $SD = 0.48$). Following training, no significant change in the educators' general attitudes was shown at post-test ($M = 3.15$, $SD = 0.47$), as there was no main effect of training, $F(1,32) = 0.00$, $p > .96$.

A (2x4) ANOVA was conducted to investigate differences in subscales and the training effect on the IIQ scores. There was a main effect of the subscale, confirming that IIQ scores on the teacher subscale ($M$ = 2.80, $SD$ = 0.50) were lower than scores on the target child subscale ($M$ = 3.47, $SD$ = 0.69) $F(3,96) = 25.69$, $p < .01$. These results suggest that educators believe that inclusion is beneficial for the target child but not for the educators. Figure 1.2 suggests this difference subsided following the training. However, there was no interaction between time of measure and subscale, $F(1,32) = 0.00$, $p > .96$, confirming that the difference remains significant following training.

### 1.4.2 Factors that Contribute to Educators' Attitudes

A Spearman Rank-Order Correlation was conducted to investigate the relationships between educators' ages, total years of experience, the number of children that they have included with DD, level of knowledge and level of comfort working with children with DDs, and their attitudes as measured by the IIQ at pre-test. Significant correlations were found between educators' overall attitudes and the number of children they have included with DD ($r = .41$ $p < .00$), as well as their level of knowledge of inclusion ($r = .38$ $p < .00$). These results demonstrate that the more experience and knowledge educators have with inclusion, the more positive their attitudes towards inclusion are. There were no significant correlations found between educators' attitudes and their ages, total years of experience, and level of comfort working with children with DD (respectively, $r = -.11$ ($p > .53$); $r = .01$ ($p > .96$); $r = .18$ ($p > .32$)).

### 1.4.3 Educators' Perceptions on Implementation their Implementation of PM Practices

Data for the IPPSEC (Inventory of Practices for Promoting Social, Emotional Competence) were analyzed using a Friedman test for the 28 participants that completed both the pre-test and post-test forms in their entirety. Mean scores of IIPSEC post-test ($M$ = 2.64, $SD$ = .20) were significantly higher than mean scores at pre-test ($M$ = 2.50, $SD$ = .22), $p < .00$, suggesting that with their increased knowledge regarding the PM practices, educators implement more PM practices. A Wilcoxin post-hoc analysis was conducted confirming statistical significance, ($Z = -4.55$, $p < .00$). These results suggest that with their increase of knowledge regarding the PM practices, they believed that they implement more PM practices in their early childhood classrooms.

### 1.4.4 Educators' Perceptions of the PM Training

Individual interviews were conducted with nine educators. Based on the research objectives for conducting the interviews, two main themes were identified when analyzing the transcripts: effectiveness of the training and implementation possibilities. Table 1.2 shows themes, sub-themes, and examples of educators' responses.

#### 1.4.4.1 Effectiveness of Training

All educators reported that the training was helpful, and their responses are described was subdivided into the following groups: Children, educators, parents, and all stakeholders. The sub-themes that emerged according to each group are described below.

##### 1.4.4.1.1 Children

The sub-themes related to children include improved social-emotional skills, greater autonomy, and a reduction in problem behaviours. Eight out of nine educators reported that the training allowed the children to improve their socio-emotional skills by fostering their identification of emotions and ability to self-regulate, promote autonomy with the integration of various tools and strategies provided and reduce challenging behaviors by increasing their compliance to educators' instructions and ability to problem solve.

##### 1.4.4.1.2 Educators

Eight out of nine educators reported that the strategies allowed them to manage their classroom better as they improved their reactions to challenging behaviors, decreased repetition of instructions, organized their classrooms by including visuals, and clear behavioral expectations, which facilitated the prevention of challenging behaviors from occurring.

##### 1.4.4.1.3 Parents

Two out of nine educators reported that they observed improvements in the social-emotional interactions between the parents and the children as some parents implemented the strategies at home.

##### 1.4.4.1.4 Stakeholders

Two out of nine educators reported that the model helped create consistency between all stakeholders.

#### 1.4.4.2 Implementation of the PM

The possibilities of implementation were described according to the following: elements favourable to the implementation and elements that can be improved to facilitate the implementation further. Table 1.3 shows themes, sub-themes, and examples of educators' responses.

##### 1.4.4.2.1 Elements Favourable to Implementation

Two sub-themes were identified as being favourable to implementing the model including post-training follow-up and the fact that the model is simple to use and effective. Three out of nine educators identified that the post-training follow-up facilitates the implementation, positively influencing the integration of the model at several levels: feedback on practices implemented, modeling by the trainer, and better retention of the content. The support of the materials provided was appreciated and encouraged the model's implementation. Six out of nine educators described the model as simple and effective, yet it requires time and effort to be implemented.

##### 1.4.4.2.2 Elements to Improve Implementation

While many facilitating factors have been identified, two sub-themes have been identified to improve its implementation: training should be longer and offered systematically to all educators in each setting. Six out of nine educators described that the training should be longer to further facilitate its implementation by including more examples with concrete situations and practice while role-playing to optimize learning. Also, three out of nine educators reported that training should be given systematically to all educators in each early childhood setting to promote the implementation. Table 1.3 shows examples of educators' responses.

### 1.4.5 Social Validity of the Training

The TARF-R (Treatment Acceptability Rating Form-Revised) results indicate that all 33 educators found the PM training a very useful program (*M = 70*, *SD = 5.95*, range = 52-79). Overall, educators reported high levels of willingness to apply the program and believed that it was an effective and appropriate program to implement in the classroom. Table 1.4 represents the mean scores for each question from highest to lowest.

As part of the TARF-R, participants were asked for their suggestions, improvements, and additional comments on the training's content and format. Only 19 participants answered this section. Two main themes emerged: Feedback on the content and the format, with sub-themes for each. Table 1.5 shows examples of educators' responses.

#### 1.4.5.1 Content of the Training

In terms of the content, several sub-themes emerged. Educators felt that the content was clear and thorough but would have liked the training to be longer and to be provided with more time to share issues in their classroom with the group. They were pleased that some of the content was repeated throughout the training, which helped them learn the material. They would have liked more time for group activities to discuss more classroom situations and role-play how to use the strategies.

#### 1.4.5.2 Format of Training

Overall, in terms of the format, educators appreciated the resources provided and described that the videos and content were clear. They expressed that they learned a lot and were excited to implement the strategies. However, they would have benefited from an additional day of training to discuss and solve challenging behaviors in their classroom, practice, and role-play the strategies.

## 1.5 Discussion

In the Province of Quebec, as in other provinces and countries, there is an increase in children with DD and challenging behaviors attending early childhood settings (MFA, 2007; 2020). However, there is a lack of information about educators' attitudes about inclusion (Odom et al., 2009) and a lack of support and standardized training provided to educators (Leatherman & Neimeyer, 2005; Maheady et al., 2013; Rivard et al., 2013; 2015). As such, this study did two things: it described early childhood educators' attitudes towards inclusion and evaluated the effects of the PM training provided to 33 educators in eight different subsidized early childhood settings in the city of Montreal.

The first objective of this study was to evaluate educators' attitudes toward inclusion. In general, educators' overall attitudes towards inclusion at pre-and post-test were neutral. They did not have a particularly positive or negative attitude of inclusion before and after the training. However, when examining the attitude subscales individually, significant differences were found within the impact of

inclusion on the teacher domain versus the target child domain. In other words, educators reported more cynical (and negatively oriented) attitudes when asked about the potential impact that including a child with DD has on them, compared to the positive effects that they report for the child. Interestingly, the PM training improves, albeit non-significantly, educators' attitudes on this subscale, suggesting that evidence-based training that provides information and resources to manage challenging behaviors may positively influence educators' perceptions of the impacts of inclusion on themselves. These results are promising as they seem to support previous findings suggesting that providing training and resources to educators increases their knowledge and perception of inclusion, changing their attitudes (Campbell & Gilmore, 2003; Kwon et al., 2017). In addition, research has demonstrated that when educators receive continued professional development training in DD (Coehlo et al., 2017; Dias & Cadime. 2016), as well as support from administrators and resource personnel, they demonstrate more positive attitudes about inclusion (Leatherman & Neimeyer, 2005).

The second objective evaluated the factors that contributed to educators' attitudes. Educators who had more knowledge and experience in working with children with DD held more favourable views toward inclusion. These results are consistent with previous research indicating that educators who had positive experiences with inclusion, demonstrate more positive attitudes (Boyle et al., 2013; Hsieh & Hsieh, 2012).

The third objective evaluated educators' perceptions about implementing PM practices pre-and post-training as measured by the IIPSEC. Overall, there were significant changes in educators' perceptions of PM practices implementation following the 2-day training. However, given that we used a self-report measure of the performance of Pyramid Model strategies and that most of the educators were not aware of the strategies before the training, it is difficult to determine if the changes in scores represent true changes in educators' perceptions of their implementations or what they intend to implement when they return to their classrooms. As the measure does demonstrate significant changes, it suggests that educators became more knowledgeable in the PM practices following the training, which will hopefully translate into their application of the strategies.

The fourth objective evaluated educators' perceptions of the training measured by an interview. Educators reported that the PM was a useful program to implement with young children in early childhood settings. They also found that the model effectively reduces challenging behaviors in their classroom, as they learned how to organize their classroom with visuals of behaviour expectations, allowing them to reduce

their repetition of instructions and use of reprimands. As such, the educator's reported that children demonstrated improved social-emotional skills and greater autonomy.

The fifth objective evaluated the social validity of the training as measured with the TARF-R. Overall, the educators were extremely satisfied with the training received. They felt that the program was easy to execute, and they were comfortable applying the strategies. Many of them thought that the training should have been three days rather than two, as the extra day would have provided them with more time to process the information and ask specific questions related to their own classrooms.

## 1.6 Limitations and Suggestions for Future Research

The present study was part of a thesis research project and included several limitations that should be addressed in future studies. Firstly, the training was provided in English to educators working in early childhood settings within predominantly Anglophone communities, which is not representative of the population in Quebec, where the predominant language is French. The results may not be generalizable to the rest of the population. However, currently, several research projects are being implemented across Quebec's province (Argumedes et al., 2021; Rivard et al., 2021) implementing the PM practices within early childhood settings. Materials and resources are being translated into French and readily available for educators to access and implement in their classrooms. Secondly, the sample size for the training was of moderate scope and may have impacted the study results. In the future, it would be beneficial to train all the educators from each of the settings at the same time to increase the sample size and ensure consistency among educators (Hemmeter et al., 2016). Thirdly, as mentioned previously, the amount of time between measures was not long enough to detect changes in educator's attitudes. Perhaps if there was more time between the measures and larger sample size, a statistical significance might have been demonstrated. However, those results and the data on the social validity measures (TARF and interviews) suggest that attending the training alone is insufficient to change educators' overall attitudes. Future research should measure educator's attitudes toward inclusion after having had the opportunity to implement PM practices in their classrooms.

The results highlight the fact that educators' attitudes towards inclusion could be strengthened by follow-up training in the form of supervision or coaching (Artman-Meeker et al., 2014; Fettig & Artman-Meeker, 2016; Hemmeter et al., 2011; 2021), which was supported by the results of the interviews conducted with the educators and previous research (Akalın et al., 2014; Hemmeter et al., 2021).

Therefore, future research should implement live coaching with educators based on the PM practices (Artman-Meeker et al., 2014; Fettig & Artman-Meeker, 2016; Hemmeter et al., 2011; 2021).

## 1.7 Conclusion

Despite the fact we did not see significant changes in educators' overall attitudes towards inclusion following the training, the strategies and the knowledge gained are of practical significance. Consequently, when educators apply the strategies effectively, the children in their classroom will benefit significantly with increased social-emotional competencies, autonomy, and a reduction in challenging behaviors. Therefore, the training provided can have a much larger impact, as the benefits can be generalized to all the children, those with and without DD, attending early childhood settings. Furthermore, as the educators will hopefully continue to use the strategies the following year, the skills will be generalized to the educators' new groups of children and other educators working in the setting.

The essential components of effective inclusion are specialized interventions and support, such as professional development, ongoing coaching and collaboration, and communication and planning (Chang et al., 2005; DEC & NAEYC, 2009; 2009; Mincic et al., 2009). Professional development is necessary to ensure educators acquire knowledge, skills, and ongoing support to implement inclusion effectively (Akalın et al., 2014; DEC & NAEYC, 2009; Gal et al., 2010; Mincic et al., 2009). The PM model framework incorporates the elements mentioned above, such as collaboration between team members, professional development, specialized interventions, and supports to ensure that inclusion is successful (Odom, 2009). In addition, inclusion must provide children with DD a sense of belonging, access to positive social relationships, and learning (Hebbeler & Spikes, 2016). Children's experiences in early childhood settings impact their developmental trajectory and can affect whether they require specialized services when transitioning to elementary school (Guralnick, 2005; Hebbeler & Spikes, 2016). It is critical that educators receive sufficient and ongoing training in evidence-based practices, continued support, and resources to improve their inclusion attitudes to be successful.

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## 1.9 Tables

Table 1.1 Sociodemographic Information of Participants

| | Number of participants (N = 33) | Percentage |
|---|---|---|
| Age | | |
| 18-25 years old | 1 | 3.03 |
| 26-35 years old | 3 | 9.09 |
| 36-45 years old | 6 | 18.18 |
| 46-55 years old | 15 | 45.45 |
| 56-65 years old | 8 | 24.24 |
| Total Years of Experience | | |
| 0-5 years | 3 | 9.09 |
| 6-10 years | 3 | 9.09 |
| 11-15 years | 7 | 21.21 |
| 16-25 years | 4 | 12.12 |
| 26-35 years | 14 | 42.42 |
| 36 + years | 2 | 6.06 |
| Number of children with special needs worked with | | |
| 1-5 | 2 | 6.06 |
| 6-10 | 14 | 42.42 |
| 11-15 | 5 | 15.15 |
| 16-20 | 1 | 3.03 |
| 20 or more | 8 | 24.24 |
| No response | 3 | 9.09 |
| Experience with type of developmental disability | | |
| Attention Deficit Hyperactivity Disorder (ADHD) | 24 | 72.72 |
| Global Developmental Delay (GDD) | 22 | 66.66 |
| Autism Spectrum Disorder (ASD) | 31 | 93.93 |
| Intellectual Disability (ID) | 9 | 27.27 |
| Genetic Disorder | 9 | 27.27 |
| Other | 14 | 42.42 |
| Level of comfort with children with developmental disabilities | | |
| Very uncomfortable | 2 | 6.06 |
| Uncomfortable | 0 | 0 |
| Neutral | 9 | 27.27 |
| Comfortable | 12 | 36.36 |
| Very comfortable | 10 | 30.30 |
| Level of knowledge in inclusion | | |
| No knowledgeable at all | 0 | 0 |
| Little knowledge | 11 | 33.33 |
| Knowledgeable | 21 | 63.63 |
| Very knowledgeable | 0 | 0 |

Table 1.2 Themes Regarding Effectiveness of PM from Educators' Perspectives (n = 9)

| Sub-Theme | Example quote | *n* (%) |
|---|---|---|
| | Children | |
| Allows children to improve their socio-emotional skills. | "I think it changed the way that the children speak to each other. I see that now they stop and think about what they are going to say a bit more and are able to regulate their emotions before reacting. For example, when the children are playing, and there is a conflict before, it would escalate quickly, but now, they are stopping themselves and trying to calm down and think like in Tucker the Turtle." | 8 (89) |
| Promotes children's autonomy. | "Asking about how you're feeling in this moment, taking the deep breaths are important. They're now very used to that, even they start that on their own." | 8 (89) |
| Promotes the reduction of challenging behaviors. | "We would walk in the hallway, and it was an expected behavior to be quiet in the hallway, and I kept saying, quiet, quiet, quiet," and the kids, of course being kids were rambunctious and happy that they were transitioning to a new place. So now, just having a sign held up, that visual cue really stopped the behaviours from escalating." | 8 (89) |
| | Educators | |
| The model allows educators to organize their class better. | " I was able to manage the classroom better, able to have better classroom management with the children, and able to help them problem-solve." | 8 (89) |
| | Parents | |
| Improvements in the interaction between parent and child | "Parents have since come into the center and asked for visual aids so that they can bring it home and teach the method to their school-aged children. Backpack connections have been sent out. One on labeling and identifying emotions, one on clear directions, and another one on understanding expectations. After these links were sent to parents by email, a parent reported that she was very happy to have received and read the links and felt that they would be useful." | 2 (22) |
| | All members of the CPE | |
| Consistency between all members | "Since the start of the implementation, the rules in our center are being taught and respected by all children and parents." | 2 (22) |

Table 1.3 Themes Regarding Implementation of PM from Educators' Perspectives (n = 9)

| Sub-Theme | Theme<br>Example quote | *n* (%) |
|---|---|---|
| | Elements favorable to the implementation | |
| Model is simple and effective | "We implemented all of the pictograms right away." | 6 (67) |
| Post-training follow-up facilitates the implementation | "How to implement it is also a big thing, so the training is awesome on its own, but when it comes to implementing it, you need that follow up. You need someone to follow through with you because the information is there but to do it on your own, it doesn't go hand in hand." | 3 (33) |
| | Elements to improve in the implementation | |
| Training should be longer | "I think a 2-day workshop was great, but there was a lot of information, and there were a lot of experiences that I was listening to from other educators that were there, and I think that maybe if we had 3 or 4 days, we would have been more relaxed to hear that information and enjoy the experiences of everyone else." | 6 (67) |
| Training should be offered systematically to all educators | "I would suggest to the daycares to have all of the educators trained because it would make life so much easier in daycares." | 3 (33) |

Table 1.4 TARF-R Mean Scores per Item from Highest to Low

| Item | Mean | *SD* |
|---|---|---|
| How much do you like the strategies used in the proposed treatment? | 4.52 | .71 |
| How likely do you think it is that this intervention will lead to permanent improvements in your student's behaviours? | 4.45 | .67 |
| How acceptable did you find this intervention for the students in your classroom? | 4.42 | .72 |
| How ready are you to change your routine to implement this treatment? | 4.42 | .79 |
| Given the challenging behaviours of your student, do you find this a reasonable treatment? | 4.39 | .75 |
| How ready are you to put the intervention in place? | 4.36 | .86 |
| How confident are you that this treatment will be effective? | 4.36 | .65 |
| How likely do you think that the treatment will be effective for your students? | 4.33 | .89 |
| How clear is your understanding of this intervention? | 4.18 | .63 |
| How well does this treatment fit into your classroom routine? | 4.13 | .67 |
| How affordable is this treatment for your organization? | 3.97 | .92 |
| How ready are your co-workers to help you put in place the proposed treatment? | 3.79 | .99 |
| In comparison to other children with challenging behaviours, how serious are your student's problems? | 3.27 | .88 |
| How severe are your student's challenging behaviours? | 3.27 | 1.07 |
| How long will it take each day for you to put this treatment in place? | 3.18 | .88 |
| How expensive will it be to put this treatment in place? | 2.39 | .86 |
| How likely is your student to experience discomfort during this treatment? | 2.24[a] | .97 |
| How likely is it that adverse side effects result from this treatment? | 1.91[a] | .89 |
| How disruptive will applying this treatment be to your classroom? | 1.79[a] | .96 |
| How likely do you think there might be disadvantages to implementing this treatment? | 1.79[a] | .93 |

[a] Reverse-scored item.

Table 1.5 Themes on Content and Format of the Training (N = 19)

| Sub-Theme | Theme<br>Example quote | *n* (%) |
|---|---|---|
| | Content of training | |
| More time allotted to the training. | "Too much info in 2 days", "2 days was rushed for the training", "maybe done over 3 days instead of 2", "lots of content and strategies to implement, I would add an extra day of training." | 7 (37) |
| More time to share classroom issues with the group. | "I wanted more time to talk about issues in our class," "I wanted to include more personal stories," "more time on strategies, observation tools, and red flags," "more time to brainstorm our real-life situations," "more group work on scenarios to be able to practice what has been taught." | 5 (26) |
| The content was clear and thorough. | "Very clear and straightforward," "very thorough," "clear and to the point," "excellent content." | 4 (21) |
| | Format of the training | |
| Appreciation of the resources provided. | "Videos and examples were great resources," "videos were clear and to the point." | 3 (16) |
| More time is needed to practice examples. | "Maybe 1 more day to go over the content and more examples of live situations." | 3 (16) |

## 1.10 Figures

Figure 1.1 Procedure of the Study

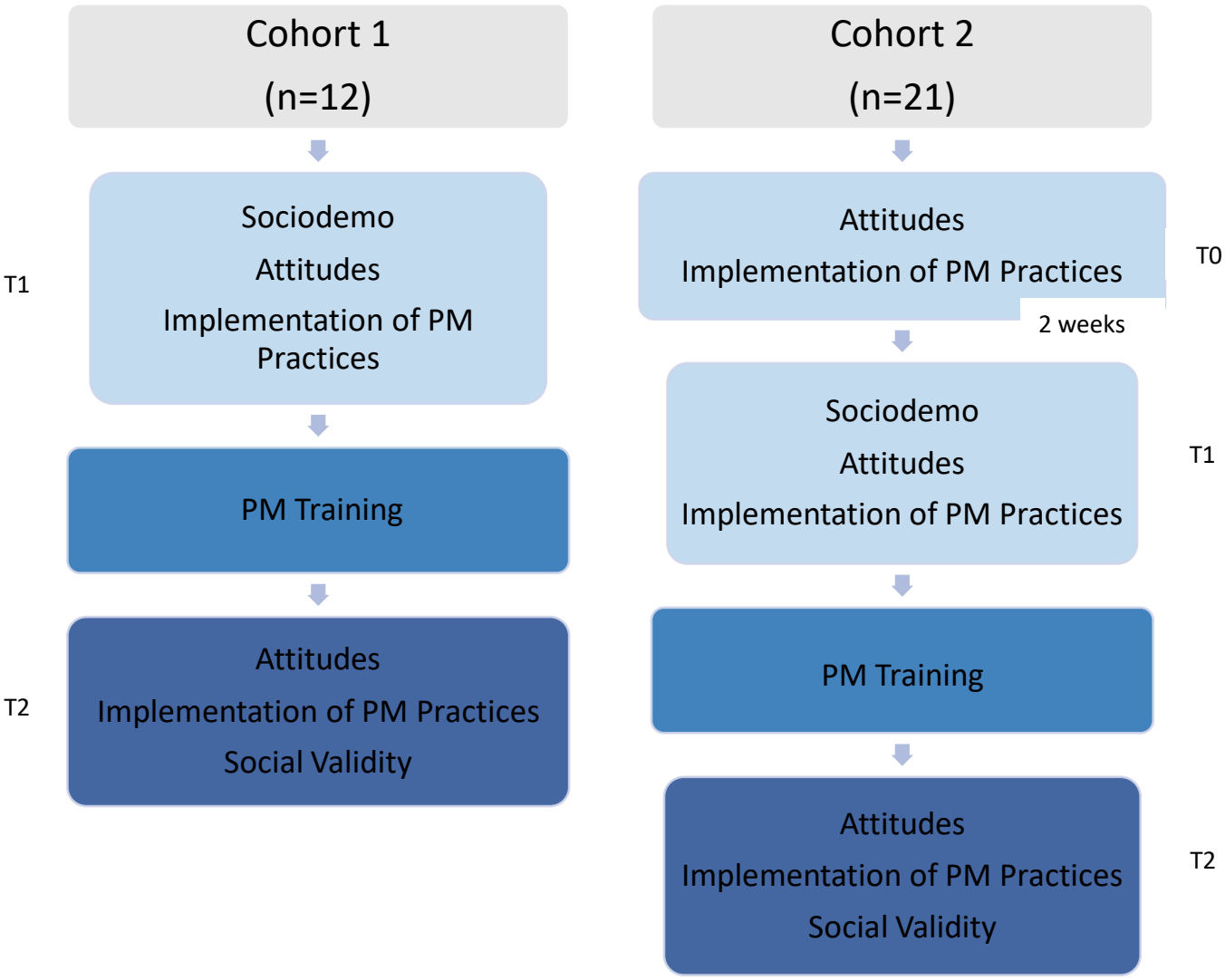
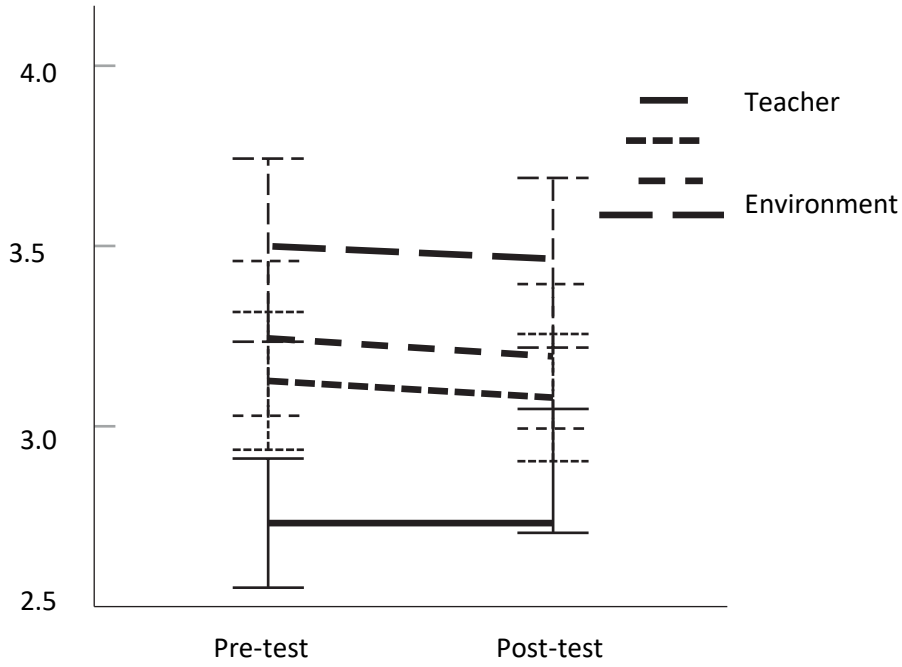


Figure 1.2 Mean of Attitudes by Subscale on IIQ



**CHAPTER 2**

**ARTICLE 2**

# EVALUATING THE EFFECTIVENESS OF THE PYRAMID MODEL TRAINING AND COACHING TO EDUCATORS WORKING IN EARLY CHILDHOOD SETTINGS

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## 2.1 Abstract

Throughout the past decade, research has demonstrated the importance of addressing young children's social-emotional development. Therefore, educators require knowledge on interventions designed to improve social-emotional learning. The present study evaluated the effectiveness of the implementation of the Pyramid Model (PM), a multi-tiered framework that promotes the social-emotional competencies and prevents challenging behaviours in young children attending early childhood settings. Nine educators and ten children participated in the study. During the study, the educators were provided with 2-day PM training followed by coaching. A mixed-method design was used to assess the effects of PM implementation on the educators' practices, as well as the intervention's feasibility and acceptability. A multiple baseline across participants design was also utilized to examine target behaviours in the educators and children. Significant improvements were identified in the educators' PM practices and the children's social skills. Educators reported that the intervention was feasible and expressed high levels of satisfaction with its implementation.

Keywords: challenging behaviours, coaching, early childhood settings, educators, Pyramid Model, social skills.

## 2.2 Introduction

Across many jurisdictions internationally, there has been a substantial increase in the development of policies concerning integrating children with developmental disabilities (DD) (e.g., global developmental delays [GDD], autism spectrum disorders [ASD]) into regular early childhood settings[1] (Ainscow & César, 2006; Division for Early Childhood & National Association for the Education of Young Children [NAEYC], 2009; Guralnick, 2001; Norwich, 2008; United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2015, 2017). This positive change in inclusive practices provides several benefits for all stakeholders, including the child, family, peers, and educators[2]. However, this change also presents challenges and requires early childhood settings to plan and coordinate support to ensure its success. For example, studies have shown that the integration of children with DD increases the training and support needs of stakeholders regarding the appropriate management of challenging behaviours (CB) and academic issues (McCabe & Frede, 2007; National Research Council & Institute of Medicine, 2009; Rivard et al., 2015). In neurotypical children between the ages of 2 and 5, social and emotional behavioural challenges are common, as these are estimated to be present in between 10% to 20% of children (Lavigne et al., 2009). However, these challenges are more frequent (e.g., 60% to 90 % of children with ASD; Jang et al., 2011), intense, and complex in children with DD.

Research has demonstrated that early childhood settings are the optimal environments for early intervention with children with DD as they provide children with structured learning activities and experiences (Guralnick, 2005; Peisner-Feinberg, 2007). Furthermore, many studies have highlighted the importance of intervening during the first three years of a child's life, as early experiences significantly affect their brain development and impact their future learning (Guralnick, 2001; Norwich, 2008). Therefore, educators must be trained and supported to implement evidence-based practices promoting preventative approaches to CB, as well as to utilize strategies for teaching children to communicate effectively and develop age-appropriate social skills. Studies have indicated that most educators in early childhood settings are not aware of which practices are evidence-based and receive minimal assistance and support in terms of monitoring their impact on children's performance (Begeny & Martens, 2006;

[1] The term early childhood settings is used in this study to refer to early childhood centers, early childhood programs, daycare, and preschools.

[2] In Quebec's (Canada) early childhood settings, where the current study was conducted, children are taught by early childhood educators. Therefore, for consistency throughout the article, teachers, educators, and early childhood educators are all referred to as educators.

Burns & Ysseldyke, 2009; Japel et al., 2005; Maheady et al., 2013). As a result of the increasing numbers of children with DD attending inclusive settings, educators have concerns about their abilities to meet these children's needs (Brownell et al., 2006; McCabe & Frede, 2007; Rivard et al., 2015; Ruel, 2014).

In the United States, increasing emphasis is being placed on providing high-quality early childhood services, as government funding has been granted to early childhood programs to improve access for children and their families. Research evidence supports the long-term benefits for children of attending early childhood settings, thus suggesting that high-quality early childhood education may enhance the school experience of all children, including those in at-risk groups (Yoshikawa et al., 2013). Indeed, children who attend high-quality early childhood settings have better long-term academic achievement, resulting in a lower need for special education services (Peisner-Feinberg et al., 2001). However, since the curriculum in these settings often predominantly focuses on academia (Bassok et al., 2016), less emphasis has been placed on children's social, emotional, behavioural development.

Importantly, previous research has revealed the significance of addressing young children's social-emotional development, as 10-20% of children aged 2 to 5 years present with social-emotional delays and challenging behaviour (Brauner & Stephens, 2006; Egger & Angold, 2006). Notably, preschool-aged children are three times more likely to be expelled than children in elementary and high school settings (Gilliam, 2005). However, removing young children from these settings is counterintuitive, as these represent the environments in which they can learn the crucial social-emotional skills required for them to be successful in later life. Young children who exhibit aggressive and anti-social behaviours have a higher likelihood of continuing in the same manner in future, thus resulting in school and social difficulties that impact their overall well-being (Brennan et al., 2012; Dodge et al., 2014; Jones et al., 2015). As a result, concern is growing regarding the need to promote young children's social, emotional, and behavioural development.

During the preschool years, there is significant development in children's social-emotional skills. Indeed, this period is critical for children to obtain the necessary skills to support both positive social interactions and effective learning (Bierman et al., 2018; Denham & Burton, 2003). For example, when children can follow classroom rules and routines, interact well with others, focus, and be persistent while engaging in challenging tasks, they have more positive school experiences and are more likely to graduate from high school and find long-term employment (Bierman et al., 2018; Jones et al., 2015).

### 2.2.1 The Context of Early Childhood Settings in Quebec

In the province of Quebec in Canada, there has been an increase in children with DD attending early childhood settings since the implementation of the policy on integrating children with DD into childcare establishments and the increase in subsidies for early childhood settings to support these children (Ministère de la Famille et des Aînés [MFA], 2017). Children aged 0-5 years old can access full-time childcare services in either early childhood centers or home-based settings (MFA, 2017). In addition, educators who work in these facilities must complete a 3-year college-level program, including classes in psychology, education, sociology, nutrition, health, and communication (MFA, 2017). However, the program does not include behaviour management or precise methods for teaching children with DD. Furthermore, no specific directive currently exists for the management of CB and the promotion of social skills in early childhood settings, and there is a lack of available programs or initiatives that target these skills.

Specialized rehabilitation centers in Quebec report that educators working in early childhood settings often feel helpless as they do not have sufficient training for managing CB (Rivard et al., 2015). Indeed, a study evaluating the quality of subsidized childcare centers in Quebec showed that educators do not provide adequate opportunities for children to learn to solve problems, work collaboratively, be autonomous, and make independent choices (Gingras et al., 2015). For example, communication training, including both verbal and nonverbal, is not a direct instruction target for educators. Additionally, the arrangement of many early childhood classrooms does not allow for immediate access to toys, and children rarely have access to a quiet space in which they could self-regulate. Overall, a support system that provides appropriate training and services must be provided for inclusion to be successful (Dunlap et al., 2013; Rafferty et al., 2003).

### 2.2.2 Social-Emotional Learning in Early Childhood Settings

A recent policy statement in the United States emphasized the importance of incorporating social-emotional learning into early childhood settings and provided guidance on the delivery of tiered interventions that foster children's social-emotional competence (U.S. Department of Health and Human Services & U.S. Department of Education, 2014).

Although there has been significant focus on tiered frameworks in the school system, there is a lack of research concerning early childhood settings. Indeed, despite the evidence supporting tiered frameworks,

there are several important considerations in terms of their implementation within early childhood settings (Hemmeter & Conroy, 2018).

Firstly, young children are in the early stages of learning social-emotional competencies, meaning they have not yet mastered the skills required to express their emotions, take turns, and solve problems. Therefore, it is common for young children to display CBs because they lack the necessary skills to engage in more appropriate behaviours. Based on this, educators' teaching practices should include approaches to support their social-emotional development (Hemmeter & Conroy, 2018).

Secondly, early childhood settings differ in terms of their structures and environments (Hemmeter & Conroy, 2018). For example, children can attend settings including public schools, private, partially subsidized, or fully subsidized center-based institutions, or home-based settings. These settings differ in terms of their type and amount of funding, staff qualifications, resources for educators, and day length. Moreover, there are discrepancies in the types of support and interventions available in these contexts for promoting young children's social competence. Taken together, these factors represent important considerations when designing supports for young children's social-emotional development. Indeed, the design of such interventions must consider the qualifications of the educators and the range of early childhood settings to provide effective intervention practices (Hemmeter & Conroy, 2018).

As a result, the current study incorporated the use of an evidence-based intervention, the Pyramid Model (PM), and support for its implementation in an early education setting. This model aims to offer educators a framework to bridge the current gap in knowledge by providing them with resources and assistance.

### 2.2.3 The Pyramid Model to Promote Social-Emotional Competencies and Prevent Challenging Behaviours in Early Childhood Settings

One of the essential components of effective inclusion is the use of specialized interventions and supports, such as providing resources for professional development, utilizing ongoing coaching and collaboration, and making time for communication and planning (Akalın et al., 2014; Gal et al., 2010). Without these supports, educators may not feel adequately prepared to meet the individual needs of children with disabilities (Chang et al., 2005).

The PM represents an evidence-based tiered intervention framework that aims to promote young children's social, emotional, and behavioural development in preschool settings (Fox et al., 2003, 2010; Hemmeter et al., 2006, 2013). The first tier of the PM specifies two key features of universal supportive practices relevant for all children: (a) nurturing and responsive relationships and (b) high-quality supportive classroom environments (Strain & Hemmeter, 1997). The second tier addresses the intervention needs of children at risk of delays in social-emotional development. This tier focuses on targeted practices that teach social and emotional skills, including those that allow children to prevent or replace CB. For example, children are taught strategies to identify their emotions and adapt their behavioural responses accordingly, such as by calming down when frustrated and engaging in problem-solving. The third tier focuses on practices related to personalizing the social, emotional, and behavioural support interventions for individual children with significant deficits in social or emotional skills and persistent CB (Fox, 2011). On occasion, some children may continue to engage in CB even though the educators have effectively applied the strategies from tier 1 and tier 2. Therefore, in tier 3, Positive Behaviour Supports (PBS) are implemented and individualized to each child. Indeed, PBS is an evidence-based method that includes the identification of the environmental events, circumstances, and interactions that trigger CB and the development of strategies for teaching new skills and preventing CB (Dunlap et al., 2013; Fox et al., 2002).

Several studies have been conducted to assess the efficacy of the PM model in both the United States (Hemmeter et al., 2015, 2016, 2021; Steed & Roach, 2017) and worldwide (Lam & Wong, 2017; Rakap et al., 2018). Recently, Hemmeter et al. (2016) conducted a randomized control trial to evaluate the implementation of the PM with 40 preschool educators and 494 children between the ages of 2 to 5 years old. Twenty educators in the intervention group engaged in a workshop to support them to implement PM practices in their preschool classrooms. The results revealed that educators who engaged in the workshop demonstrated significant improvements in their implementation of the PM practices. Additionally, the children enrolled in the PM classes were reported to show improved social skills and reduced CB by their educators. Overall, this study provides promising results regarding the efficacy of the PM when applied in early childhood settings (Hemmeter et al., 2016).

However, for the PM to be implemented with fidelity, continuous training and support are required (Hemmeter et al., 2015). Several studies have examined the implementation of the Teaching Pyramid Observation Tool (TPOT), which is a measure indicating the number of PM practices implemented in a classroom, and they demonstrated that educators who did not receive training and support implemented

less than 40% of the practices. Furthermore, educators were inconsistent in their application of the PM and their practices were not always associated with the PM (Artman, 2010; Hemmeter et al., 2010).

### 2.2.4 Practice-Based Coaching

For evidence-based practices to be implemented effectively, educators must receive consistent professional development (Halle et al., 2013). One professional development method that has been shown to be effective is practice-based coaching (PBC). Coaching is a relationship-based process facilitated by an expert that aims to increase a professional's competencies, skills, and behaviours (NAEYC & National Association of Child Care Resource and Referral Agencies, 2012; Snyder et al., 2015). PBC is a cyclical process, as it supports educators' use of effective teaching practices and, thus, leads to positive outcomes for children (Snyder et al., 2015). Specifically, these teaching practices refer to the educators' specific actions or behaviours that adapt the environment to support child outcomes, and which are both observable and measurable (e.g., the educator labels their emotions and the emotions of children, the educator provides children with positive descriptive praise when following classroom rules). Indeed, the basis of PBC is effective teaching practices, and it is characterized by its focus on supporting the fidelity of educators' implementation of evidence-based teaching practices (Snyder et al., 2015).

The three components of practice-based coaching include shared goals and action planning, focused observation, and reflection and feedback. These components, along with coaching effective teaching practices, are utilized as part of a collaborative partnership between the coach and the individual. Each of the components can be implemented through various coaching formats, including expert face-to-face coaching, expert web-based distance coaching, self-coaching with web-based support, and self-coaching with expert self-monitoring support. Studies have demonstrated that, when training was followed by PBC, improvements were observed in both the fidelity of educators' implementation of teaching practices and the child outcomes (Artman-Meeker et al., 2014; Bishop et al., 2015; Conroy et al., 2014, 2015; Fox et al., 2011; Hemmeter et al., 2015; Snyder et al., 2015).

In PBC, the teaching practices are made clear for both the coach and individual. Following this, the practices can be developed using measures that are designed to evaluate the fidelity of educators' implementation of these practices, such as the Classroom Assessment Scoring System (CLASS; Pianta et al., 2008) and the Teaching Pyramid Observation Tool (Hemmeter et al., 2014). In this study, both measures are utilized to evaluate educators' practices.

PBC involves a three-step process: 1) goal setting and action planning, 2) focused observation, 3) reflection and feedback. During the goal setting and action planning step, data is collected regarding the educators' current practices (e.g., Inventory of Practices for Promoting Social-Emotional Competence [IPPSEC]) to determine which practices they need to improve upon. Based on their identified needs, measurable and achievable goals can be created for the educators to focus on. The next step, action planning, involves developing the procedure for how to achieve these goals, and this includes five components: goal (e.g., *I will teach children to identify 3 emotions in themselves and others*), action steps (e.g., *I will post pictures of the emotions on the wall*), resources (e.g., *I will download pictures of emotions from the National Center for Pyramid Model Innovations [NCPMI] website and laminate them*), timelines (e.g., *I will have it completed in 7 days*), and a goal achievement statement (e.g., *I will provide descriptive praise to children who are identifying emotions*; Snyder et al., 2015). The steps in the plan should be directly related to the outlined goal and be based on realistic expectations.

In the next step, focused observation, information is collected regarding the goals and action steps to measure the fidelity of the implementation of the practices. During the observation stage, the coach may provide additional support to the individual by providing modelling strategies, problem-solving situations, and further resources, such as videos, checklists, reading materials, and visual aids. This step is crucial for preparing educators to implement the practices with fidelity.

The last step of PBC is reflection and feedback. During the reflection stage, the coach and the individual discuss the information collected during the observation and the implemented strategies to determine the aspects that worked and the improvements and modifications that should be made. The feedback is provided based on the educator's performance in applying the strategies and action plan. Reflection and feedback procedures involve watching videos of the educator's implementation of practices, reviewing the data, utilizing modelling and role-playing strategies, engaging in problem-solving discussions, and providing practical and supportive feedback (Snyder et al., 2015). Importantly, performance-based feedback has been demonstrated to improve the fidelity of the implementation of evidence-based practices (Artman-Meeker & Hemmeter, 2013; Barton et al., 2011; Fox et al., 2011; Hemmeter et al., 2011).

In summary, there is no specific evidence-based approach for the professional training for educators or unified methods for teaching children with social-emotional deficits and CB in early childhood settings in Quebec. However, internationally, evidence supports the effectiveness of the PM in early childhood

settings (Hemmeter et al., 2015, 2016, 2021; Lam & Wong, 2017; Rakap et al., 2018; Steed & Roach, 2017). Significantly, numerous studies exist that demonstrate the effectiveness of PBC (Artman-Meeker & Hemmeter, 2013; Fox et al., 2011; Hsieh et al., 2009; Scheeler et al., 2004). Therefore, this study aims to extend previous findings on PM and PBC and offer an evidence-based intervention for use in Quebec's early childhood settings. Additionally, this study is conducted in real-life settings, which include aspects that were not part of previous research, such as daily chores (e.g., preparing and serving snacks and meals, arranging the furniture for lunch and rest periods, changing diapers, assisting with toileting, and dressing), and administrative duties (submitting written observations about children, maintaining early childhood equipment, assisting with housekeeping, and cooking duties).

### 2.2.5 Research Objectives

This study is the second part of a larger project. The first part of the project assessed educators' attitudes toward inclusion, their implementation of PM practices, and their evaluations of the social validity of the PM with 33 educators following 2-day PM training (see Redacted for blind review). The general goal of the current study is to evaluate PM training with coaching for educators working in inclusive early childhood settings in Quebec. The project aims to extend the findings of Hemmeter et al. (2016) by applying the framework in real-life settings with college-level educators and including direct observations. The study has three specific objectives, including to evaluate: 1) the effects of coaching on educators' implementation of PM strategies, 2) the impact that the PM training with coaching has on the social skills and CB of children in the classroom, and 3) the social validity of PM training with coaching.

## 2.3 Method

### 2.3.1 Research Design

A concurrent multiple baseline design (MBL) across subjects was used to implement coaching for educators within each of the three early childhood settings. Concurrent multiple baseline designs are used to apply interventions to several individuals simultaneously (Christ, 2007; Slocum et al., 2022). Therefore, the coaching was given to each educator in a synchronized manner.

### 2.3.2 Ethical Approval

This research project received ethical approval from the Université du Québec à Montréal's research ethics committee for projects involving humans (CERPE) in October 2018. The educators and the parents of the children participating in the project were required to sign a consent form.

### 2.3.3 Participants: Educators

The educator participants included 10 educators who had taken part in the initial PM training, which included a total of 33 educators (see Table 2.1 for sociodemographic information). One educator had to withdraw from the study as she went on preventative maternity leave. The inclusion criteria for educators to participate in the study included (a) having obtained a minimum of a college degree in early childhood education or a related field, (b) working in a subsidized center-based program that integrates children with special needs and CB, (c) having classrooms divided into different age groups, (d) being able to attend two days of training conducted in English, (e) allowing the principal investigator to provide live coaching in the classroom settings, and (f) teaching children aged 2 to 5 years old.

### 2.3.4 Participants: Children

Ten children participated in the study. The inclusion criteria for children to participate in this study included (a) being aged between 2-5 years old, (b) being identified by the educators as having an elevated risk for CB, or (c) having a diagnosis of ASD, GDD or another DD. Parental consent was obtained for all the children who participated in the study. No sociodemographic information was obtained for the children.

## 2.4 Materials

### 2.4.1 Educator Data Collection Tools

#### 2.4.1.1 Inventory of practices for promoting social-emotional competence

The Inventory of Practices for Promoting Social-Emotional Competence (IPPSEC; Center on the Social and Emotional Foundations for Early Learning [CSEFEL], 2006) is designed to be used by educators or staff teams to identify training needs in specific areas of the PM: (a) building positive relationships, (b) creating supportive environments, (c) social-emotional teaching strategies, and (d) individualized intensive interventions. The use of the inventory encourages self-reflection, as well as collaboration and discussion

between the team members and coaches. Each of the four areas includes several skills and indicators related to practices that promote young children's social-emotional competence. Additionally, each indicator contains a detailed phrase (e.g., *verbally interacts with individual children during routines and activities, removes obstacles that make it difficult for children with physical disabilities to move around the room*) that allows the educator to reflect on and identify skills that they may or may not have. A column entitled "*observations/evidence*" enables the educator to write about their suggestions, strengths, and difficulties concerning each of the skills. There are three levels of skill performance: (1) seldom, (2) occasionally, (3) consistently. Finally, the last column allows the educator to indicate which skills they should target. The inventory may be completed several different times to evaluate the educator's progress with the targeted skills, and it should be completed in differently coloured ink to highlight the changes in the skills over time. Currently, there is no reliability or validity of this tool however, it has been used as a self-reported measure for educators to assess their implementation of practices during professional development (CSEFEL, 2006; Quesenberry & Doubet, 2006).

#### 2.4.1.2 Teaching pyramid observation tool

The Teaching Pyramid Observation Tool (TPOT; Hemmeter et al., 2008) was first developed as an instrument to measure intervention fidelity in a randomized controlled trial in preschool classrooms. The objective of the TPOT was to assess the fidelity of implementation of intervention during baseline and treatment conditions (Fox et al., 2011) and to evaluate the correlation between the fidelity of intervention and child outcomes (Hemmeter et al., 2011; Snyder et al., 2013). Additionally, the TPOT was used by coaches to provide feedback to the educators implementing PM practices (Hemmeter et al., 2018). The TPOT includes 2-hour observations during teacher-directed activities, child-directed activities, and transitions in the classroom setting. Additionally, a 15- to 20-minute structured interview is conducted with the teacher, which includes questions regarding key practices, red flags, and environmental arrangements. Specifically, key practices refer to PM strategies (e.g., *teacher validates children's emotions by labelling them and helping children talk about their emotions)* and red flags are aspects that are either inconsistent or incompatible with PM practices (e.g., *teacher reprimands or admonishes children for expressing their emotions*). Environmental arrangements refer to physical strategies implemented in the classroom (*clear boundaries, lack of large open spaces*). The TPOT has 108 indicators that are scored either as *Yes* (when the educator is observed or reported to have implemented the practice) or *No* (when the practice was not observed or was reported to not have occurred). Each section has a specific range of scores: key practice items range from 0 to 108, red

flag items range from 0 to 16, and environmental arrangement items range from 0 to 7. The TPOT has been examined as part of a study involving 50 preschool settings. Results from the generalizability analyses showed less than 1% of error variance attributed to occasions and raters, and the G coefficient was .94 averaged over occasions and raters. (Snyder et al., 2013)

#### 2.4.1.3 Classroom assessment scoring system

The Classroom Assessment Scoring System (CLASS; Pianta et al., 2008) is an observational, judgment-based rating scale designed to assess classroom quality, and this system focuses on the interactions and curricular materials used in preschool to third-grade classrooms. The CLASS involves four cycles of 15-minute observations, comprises ten dimensions linked to student achievement, and is organized based on three domains: (a) emotional support, (b) classroom organization, and (c) instructional support. Scores for the dimensions and domains on the CLASS range from 1 (*low*) to 7 (*high*). The CLASS has been validated in over 2,000 classrooms. Therefore, it can be used reliably to assess the quality of programs and to support teachers to make their practices more effective (Center for Advanced Study of Teaching and Learning, 2021; La Paro et al., 2004).

### 2.4.2 Child Outcome Measures

#### 2.4.2.1 Social skills improvement system

The Social Skills Improvement System (SSIS; Gresham & Elliott, 2008) is a teacher-reported scale that measures children's social skills and problem behaviours in the classroom. On the SSIS, preschool children are assessed based on the two key domains of social skills and problem behaviours. This instrument takes approximately 15 minutes to complete. In the current study, the educators of each target child completed a teacher version of the SSIS to measure the children's social skills and problem behaviours observed in the classroom. The teacher version in this study consisted of 76 items, with 46 items for social skills and 30 items for problem behaviours. With a national sample of 950 children aged between 3 and 18 years old, including 200 preschoolers, the internal consistency (Cronbach's α) ranged from .75 to .97 with a median of .96 (Gresham & Elliott, 2008). Additionally, test-retest reliability on the teacher form had a median correlation of .84 (range = .74 - .93).

In addition, the parents of the target children completed a parent version of the SSIS to measure their social skills and problem behaviours observed at home. The parent version consisted of 79 items, with 46

for social skills and 33 for problem behaviours, and this scale included supplemental questions regarding self-help skills (e.g., *has eating problems).* The internal consistency (Cronbach's α) was 0.96 (Gresham & Elliott, 2008). Test-rest reliability on the parent form had a median correlation of .86.

### 2.4.3 Observational data for educators and children

An observation grid was developed to record the target behaviours of the participating educators and children. Observational data were collected daily for two specific target skills of the educator and child. Firstly, the educators identified one child in their classroom who displayed CBs or had a DD. Following this, one positive social behaviour (PSB) and one CB were chosen as the behavioural targets for each child based on the information gathered from the SSIS. Moreover, the principal author chose one key practice (KP) and one red flag (RF) for each educator based on the information gathered from the TPOT. Each child and educator were observed for two 5-minute intervals, separated by a delay, during structured and unstructured activities, transitions, and specific times that had been reported as challenging by the educators. For each of the two 5-minute intervals, there was a total of 10 intervals of 30 seconds each (20 intervals in total per day).

All target behaviours were measured using partial interval recording (Cooper et al., 2007). Each behaviour was scored as either *occurring (Y)* or *not occurring (N)* during the 30-second intervals. The percentage of intervals when the behaviours occurred was calculated by dividing the number of intervals in which the behaviour occurred by the total number of intervals.

### 2.4.4 Treatment acceptability rating form – revised

The Treatment Acceptability Rating Form-Revised (TARF-R; Reimers et al., 1991) was used to measure the acceptability of the intervention. Specifically, it assessed the educator's acceptance of the PM for use in the classroom. The TARF-R contains 20 questions, with 17 questions relating to intervention acceptability (e.g., *how acceptable did you find this intervention for the students in your classroom?)*, and other questions relating to problem severity (e.g., *given the challenging behaviours of your student, do you find this a reasonable treatment?),* understanding of the intervention *(e.g., how clear is your understanding of this intervention?*) and the effectiveness and cost of the intervention (e.g., *how likely do you think that the treatment will be effective for your students?).* The responses to the questions were rated on a 5-point Likert-type scale (1= *not at all clear, not at all acceptable*, 5= *very clear, very acceptable*). Total scores were obtained

by summing all the items, with higher total scores representing higher levels of acceptability. In the literature, this instrument's internal consistency has been reported to be between .90 to .92 (Reimers et al., 1991).

### 2.4.5 Procedure

Following the 2-day training that formed the first part of this project conducted in January 2019 and February 2019, the educators were contacted and asked if they wanted to participate in the second part of the study, involving the implementation of PBC. Ten educators from three different early childhood settings agreed to participate (one withdrew as she went on preventative leave), and the coaching began two to three months following the training. Baseline measures were conducted for each educator (i.e., IPPSEC, TPOT, CLASS) and child (i.e., SSIS), and then coaching sessions with the principal investigator began (see Figure 2.1 for more details). The procedure took on average 11 weeks to complete (range 10-13 weeks). Early childhood setting 1 included four educators, and they began the coaching intervention in March 2019; early childhood setting 2 included three educators, and they began in April 2019; early childhood setting 3 included three educators, and they began in April 2019.

#### 2.4.5.1 Baseline (Time 1)

To evaluate the effects of the group training on the implementation of the PM strategies, each educator was observed teaching in their classroom and scored using the CLASS measure and the TPOT. Following the observations, a brief 15-minute interview was conducted, which forms part of the TPOT. Each educator completed the SSIS for a target child in their classroom to evaluate the impact of the intervention on the specific child. Parents of the target children were also asked to complete the parent version of SSIS to assess the effect of the intervention on their children's behaviours at home. Once the information was gathered from the TPOT and the SSIS, the target behaviours for each educator and child were chosen and daily observations began in the classroom. Additionally, the educators completed the IPPSEC following the completion of the training.

#### 2.4.5.2 Intervention: Practice-Based Coaching (Time 2)

Educators received individualized coaching based on the three main components of PBC: planning goals and action steps, engaging in focused observation, and reflecting on and sharing feedback about teaching practices. The coaching sessions were individualized, lasted 30 minutes each, and were conducted weekly for eight sessions. For the sessions, the coach and the educator met in a quiet room in the early childhood

setting and collaborated to create a goal to implement in the classroom. These goals were created based on information gathered from the observations conducted in the classroom (TPOT, CLASS) regarding the educators' implementation of PM practices. During this process, the coach suggested goals that could be targeted based on the observations, and the educators chose the ones they would like to target for the week. Jointly, the coach and educator wrote the goal in observable and measurable terms and determined the steps to achieve the goals, the required resources, and a date by which they would complete it. Each goal had an achievement criterion, which was formulated based on the classroom's needs and the feasibility of reaching the goal within the timeframe. A typical example of an educator's goal was, "*I will teach behavioural expectations until I achieve a criterion of 80% over two consecutive days*". The steps to achieve this goal were to visually post behavioural expectations during circle time, post visuals of the daily schedule, and place visuals of footprints on the floor to indicate where the children should stand when lining up. Following the identification of the steps, the resources, such as visuals, were provided to the educator, and a date was determined for when the goal should be achieved. The following week, the coach and educator reviewed the goal, feedback was provided, and they decided whether to continue with the same goal or to commence another one.

#### 2.4.5.3 Post-intervention data collection (Time 3)

After completing the coaching sessions, all measurements were repeated (IPPSEC, CLASS, TPOT, SSIS). The TARF-R was also administered to measure the social validity of the intervention.

#### 2.4.5.4 Inter-observer agreement for observations

Inter-observer agreement was collected for the observations of educators (KP, RF) and children behaviours (PSB, CB). Two research assistants were assigned to collect data at each of the three early childhood settings, and all five research assistants and the principal investigator met before data collection in the classroom to ensure consistency. During this session, videos of educators and children in a classroom were examined, and each assistant practiced recording data on specific behaviours using the datasheets. The inter-observer agreement was measured by calculating the total number of agreements divided by the total number of agreements plus disagreements (Cooper et al., 2007). This process was repeated until there was 100% consistency among the group. During the first week of data collection, the principal investigator attended each early childhood setting to assess inter-observer agreement with the research

assistants. Two weeks later, the principal researcher met with each research assistant team to review the datasheets and address any issues with data collection that they were experiencing.

### 2.4.6 Data analyses

For all quantitative measures (IIPSEC, TPOT, CLASS, SSIS), a matched-pairs *t*-test was conducted with the pre- and post-test scores. Statistical analyses were performed using SPSS statistical software version 26.

To analyze the individual results based on each educator's and child's multiple baseline data, a conservative dual criterion method (CDC; Fisher et al., 2003; Swoboda et al., 2010) was utilized. The CDC method calculates the mean line based on the baseline data and then superimposes this onto the subsequent data path. The CDC is an extension of the dual-criterion method (DC), for which 0.25 standard deviations elevate the mean and split-middle lines for behavioural acquisition graphs compared to the baseline data. The CDC is superior to the DC method, as it has greater power and results in fewer false positives (Swoboda et al., 2010). An effect size is demonstrated when a specific number of data points fall above each of the lines according to an equation (Stewart et al., 2007). The CDC analyses were performed using SSDforR v1.5.20 software (Zeitlin & Auerbach, 2019).

A randomization test was conducted to globally analyze the multiple baselines for all the educators in each early childhood setting. Randomization tests compute the distribution of the test statistic under the null hypothesis by calculating all observed data point permutations (Bulté & Onghena, 2009). This test reflects the assignment process in experimental designs, for which treatments are randomly allocated to the subjects. The phase order cannot be altered for multiple baseline designs as the baseline always precedes the intervention. Therefore, only the timing of the first intervention point for each of the participants can be manipulated and randomized. If the starting points of intervention are interchangeable under the null hypothesis, then the randomization test will yield a significant result. Analyses for the randomization were conducted using SCRT v1.3.1 (Bulté & Onghena, 2009).

Data analyses for the randomization tests were conducted using Rv3.5.3 software (R Core Team, 2018).

## 2.5 Results

The various data collection tools assessing the impact of PM training with coaching demonstrated significant increases in the implementation of PM practices and the positive target behaviours of educators and children. Firstly, to evaluate the educators' perceptions of the implementation of PM practices, data from the IPPSEC were analyzed using a matched-samples *t*-test. The mean post-test IIPSEC (*M* = 2.82, *SD* = 0.14) were higher than mean pre-test scores (*M* = 2.57, *SD* = 0.36), although this pattern did not reach significance, *t*(9) = -1.99, *p* = .08. The mean post-test IPPSEC (*M* = 2.82, *SD* = 0.14) were higher than mean pre-test scores (*M* = 2.57, *SD* = 0.36), *t*(9) = -1.99, *p* = .08. Secondly, the TPOT was analyzed using a matched-samples *t*-test to assess the educators' implementation of PM practices. The mean post-test TPOT scores (*M* = 93.57, *SD* = 5.62) were significantly higher than mean pre-test scores (*M* = 72.07, *SD* = 9.24), *t*(6) = -13.44, *p* < .001 (see Table 2.2), meaning educators implemented more PM strategies following the intervention.

Thirdly, the CLASS measure data were analyzed using a matched-samples *t*-test to investigate the effect of coaching on the quality of educator-child relationships and classroom organization. The mean post-test CLASS scores (*M* = 53.57, *SD* = 3.04) were significantly higher than mean pre-test scores (*M* = 43.57, *SD* = 6.02), *t*(6) = -4.58, *p* < .001, suggesting the classroom quality was higher following the intervention.

Finally, to assess the impact of the intervention on the children's behaviours, data from the SSIS were divided into two sections, including social behaviours and problem behaviours, and analyzed separately (see Table 2.3).

Regarding children's social behaviours, the mean SSIS scores, as measured by educators at post-test (*M* = 77.44, *SD* = 27.99), were significantly higher than at pre-test (*M* = 62.67, *SD* = 30.19), *t*(8) = -2.40, *p* = .04 (see Table 2.3), meaning children's social behaviours improved following the intervention. However, regarding children's problem behaviours, the mean SSIS scores at post-test (*M* = 24.67, *SD* = 12.86) were similar to the scores at pre-test (*M* = 24.33, *SD* = 13.23), *t*(8)= -0.97, *p* = .93. In terms of the parent measure, for social behaviours, the mean SSIS scores at post-test (*M* = 2.02, *SD* = 0.51) were slightly higher than at pre-test (*M* = 1.93, *SD* = 0.45), *t*(7) = -8.86, *p* =.41. For the children's problem behaviours, the mean SSIS scores at post-test (*M* = 0.60, *SD* = 0.26) were slightly lower than at pre-test (*M* = 0.71, *SD* = 0.26), *t*(7) = 1.05, *p* = .33. However, neither of these results from the parent reports reached significance.

The social validity of the training was measured using the TARF-R. The TARF-R results indicated that all nine educators who completed the coaching sessions considered the PM a feasible intervention for implementation (*M* = 71.7, *SD* = 4.80, range = 64-83; see Table 2.4).

As part of the TARF-R, educators were asked for both their suggestions for improvements and any additional comments regarding the content and format of the coaching, and these are reported in Table 2.5.

### 2.5.1 Multiple Baseline Design

For each early childhood setting, the results of the daily observations conducted with the educators and children were presented visually, along with a description of the context and the most salient results. Regarding data analyses using the CDC method, Tables 2.6 and 2.7 describe the number of sessions required to achieve each of the children and educators' target behaviours, respectively.

#### 2.5.1.1 Early Childhood Setting 1

In this setting, educators worked in teams of two in each class. Therefore, during the observations, there were always two educators present in the classrooms. Every day, observations were collected on each educator separately for two 5-minute intervals. Coaching sessions were conducted with both educators (see Figure 2.2). Additionally, in each classroom, each educator chose one child who engaged in CBs, meaning that two children per classroom were observed daily. As with the educators, the observations were conducted on each child separately for two 5-minute intervals per day (see Figure 2.3).

All the educators in this setting (educators 1-4) had the same KP and RF (see Table 2.7), and similar patterns of behaviour were observed for each educator. Following the coaching sessions, the educators demonstrated an increase in their KPs. These results suggest that the coaching sessions supported their implementation of the practices. The educators' RFs remained low until the last two weeks of the intervention when there was a marked increasing trend in their RFs. This increase was due to a change in the daily schedule as it was summer, meaning the weather became warmer and the children spent more time playing outdoors and less time engaging in structured activities.

Each target child in this setting had the same PSB (children 1-4) but different CBs (see Table 2.6). For all four children, their PSBs remained at a moderate to a high level throughout the intervention. Although

none of the children's CBs decreased to a statistically significant level, the children showed decreasing trends in their CBs, which were approaching statistical significance. It is interesting to note that, for child 1, the graph indicates a mirror effect between PSB and CB, with an increase in the PSB being associated with a decrease in the CB, thus suggesting a potential correlation between the two behaviours.

#### 2.5.1.2 Early Childhood Setting 2

In this setting, the educators also worked in teams of two. However, the observations were conducted with one educator in each classroom, as only that educator had participated in the initial PM training. The intervention began with three educators and three target children. However, one educator had to withdraw her participation as she went on preventative leave (see Figure 2.4). Despite this, observations continued to be conducted with all three participating children (see Figure 2.5).

Both educators had the same KP and RF (see Table 2.7). For educator 5, their KP increased to a high level after the fourth coaching session. Due to this improvement, their KP was changed to introducing problem-solving solutions to the classroom following the fifth coaching session. With the introduction of the new target, their RF decreased trend to a moderate level, while their KP remained stable at a moderate level. Educator 6's KP and RF remained at a similar level until the second coaching session, after which there was a decrease in their RF. However, their KP also demonstrated a decreasing trend until the completion of the intervention. This decrease in KP may be explained by the fact that the educator was focusing more on discussing emotions in the classroom, as demonstrated by the reduction in RF; this may have then had a negative impact on their KP due to no longer focusing on the target.

All three children in this setting (children 5-7) had the same PSB and CB (see Table 2.6). For child 5, once the intervention began, their PSB decreased slightly to a moderate level and then increased to a high level, indicating attainment of this skill. Therefore, their PSB target behaviour was changed to engaging in social interaction. Once the PSB target behaviour changed, there was a decrease in the target behaviour to a moderate level, which then remained stable throughout the intervention. The CB of child 5 was variable throughout the intervention but stabilized to a moderate level toward the end.

Child 7's PSB met the skill attainment criteria of 80% over 2 consecutive sessions. Therefore, the PSB target behaviour was changed to vocal self-expression with gestures. Following this there was an immediate decrease in the target behaviour to a variable low level. Although the reductions in child 7's CB were not

statistically significant as only 13 of the 15 data points required to achieve significance were obtained, these results suggest a trend toward reductions in CB with the intervention.

#### 2.5.1.3 Early Childhood Setting 3

As with the previous settings, the educators worked in teams of two (educators 7-9). However, the observations were conducted with one educator in each classroom, as only that educator had participated in the training (see Figure 2.6). Within each classroom, one child who engaged in CB was observed daily (children 8-10, see Figure 2.7).

It is important to note that, for this setting, there was a long baseline until the intervention could begin in late May. Indeed, the intervention began three weeks before summer when the educators left for several weeks for vacation, thus meaning there were many changes in the daily schedules and routines. These vacations impacted the timeline for this project. Additionally, the research assistants who were employed to collect daily observations had to stop collecting data before the coaching sessions were completed due to prior commitments. However, the coaching sessions continued until all the educators had received the total eight sessions.

Each of the educators had different KPs and RFs (see Table 2.7). For educators 7 and 8, both of their KPs increased following the third coaching session. Specifically, in terms of educator 8, there was a decreasing trend in their RF as their KP increased. Educator 9's behaviours demonstrated variable trends and, interestingly, their RF increased as their KP decreased, thus indicating a relationship between the two behaviours.

Regarding child 8**,** their PSBs at baseline occurred at moderate to high levels with a variable trend, while their CBs occurred at a moderate level with a variable trend. Once intervention began, there was a gradual decrease followed by a sharp increase in their PSB, while their CB demonstrated a variable increasing trend. As demonstrated by the graph in Figure 2.7, there was a mirror effect between PSB and CB, as CB increased as PSB decreased. Child 8's PSB target behaviour was changed to completing a task independently, as it was thought that focusing on a skill related to CB may lead to improvements in both behaviours. Toward the end of the intervention, there was an increasing trend in the PSB from a moderate to a high level, whereas there was a decreasing trend in the CB at a moderate level.

Regarding child 9, their PSB and CB at baseline both occurred at low levels. Once intervention began, their PSB increased while their CB remained low. The results demonstrated statistical significance for both their PSB and CB (see Table 2.6).

For child 10**,** there was an increase in the PSB when the intervention began, which remained stable for three days, as well as a decrease in CB. Therefore, both the target behaviours changed in response to the intervention. Toward the end of the intervention, the PSB occurred at a low to moderate level with a stable trend, and the CB occurred at a moderate level with a stable trend.

### 2.5.2 CDC and Randomization Results

The results obtained from conducting the CDC method demonstrated that, in early childhood setting 3, child 9 improved significantly in both PSB and CB. No other CDC test results were statistically significant (see Table 2.7).

The randomization test revealed that the RFs decreased significantly for both the educators in early childhood setting 2 ($p$ = .001). For the children in early childhood setting 3, the randomization test revealed that all their PSBs increased significantly ($p$ = .010).

## 2.6 Discussion

In Quebec, the Canadian province where this study was conducted, there are a limited number of empirically based approaches for teaching young children with social-emotional difficulties and CB in early childhood settings. The present study evaluated the effects of coaching on the implementation of PM practices with nine educators working in three different early childhood settings. In addition, the impact of PM with coaching on the social skills and challenging behaviours of ten children in these settings was assessed. To complement the assessment of the PM's implementation, its social validity was also explored. This study aimed to extend previous findings regarding the PM (Hemmeter et al., 2016) by implementing this empirically based intervention with educators and addressing some of the limitations of the previous study.

Firstly, the educators in the study by Hemmeter et al. (2016) had more extensive theoretical and practical training before implementing PM (e.g., university degrees and training in special needs). In contrast, most educators working in early childhood settings are only required to obtain a college-level degree in early

childhood education, which often does not include courses focusing on special education or behaviour management. Despite this, all educators in early childhood settings in this study were able to implement the PM strategies successfully. The TPOT and CLASS measures were administered to evaluate the effects of training and coaching on the educators' implementation of PM practices and interactions with children. The results from both measures were statistically significant, demonstrating that educators improved their practices following training and coaching. These results are promising as they suggest that educators can enhance their skills and apply them in the classroom when evidence-based professional training is combined with continued support.

Secondly, the target children in the previous study who exhibited CB were not observed during specific, problematic times of the day when they were likely to engage in CB (Hemmeter et al., 2016). In the current study, the children were observed for two 5-minute intervals every morning during several activities and transitions to capture their engagement in as many interactions as possible. These observations allowed us to examine the frequency, level, and trends in the children's engagement in CB. Furthermore, daily observations were conducted regarding the educators' behaviours, which enabled the evaluation of the educator's' real-life classroom practices in a naturalistic setting. Interestingly, as noted on the multiple baseline graphs (Figures 2.2-2.7), the educators increased their implementation of the practices before the coaching sessions. Following the coaching sessions, their targeted behaviours decreased for a few days prior to the subsequent coaching session. The educators' implementation of practices followed a similar behaviour pattern to those exhibited with fixed-interval schedules of reinforcement. This type of reinforcement schedule may cause high amounts of responses near the end of the interval but slower responses immediately after the delivery of the reinforcer (Cooper et al., 2007). Therefore, this behavioural response is expected as it occurs with fixed-interval schedules of reinforcement, which are representative of reinforcement patterns in real life.

Specifically, when analyzing the daily observations of each educators' specific target behaviours, only the educators in early childhood setting 2 showed significant decreases in their RFs. However, although the data analyses did not reveal any other statistically significant changes in the educators' specific target behaviours, small changes in their practices may be significant for children in the classroom environment, as demonstrated by the results of the TPOT and CLASS measures. It is also important to note that the RFs improved when they were directly related to the educator's target KP. For example, when the educator's target KF was to discuss emotions in the classroom, the RF of never discussing emotions decreased.

Therefore, when creating goals for educators, it may be beneficial to ensure that both the KP practices to increase and the RF practices to decrease are linked. Indeed, when creating high-quality environments for children with learning and behavioural challenges, one method does not fit all individuals. Similarly, educators often require a more intensive and individualized approach to their professional development (Conroy et al., 2014) to acquire the skills to implement individualized intervention plans for children with more severe and complex CBs in their classrooms (Hemmeter et al., 2006).

Thirdly, in the previous research, only the educators evaluated the children's social skills and CBs using the SSIS (Hemmeter et al., 2016). In this study, both the educators and parents of the target children completed the SSIS measure to assess the children's progress in both the classroom and home environments. For the educator measure, the results revealed statistically significant improvements in children's social skills. This highlights the importance of ensuring that educators develop highly supportive environments when implementing the PM so that children obtain social skills. Indeed, by focusing on developing nurturing relationships and teaching social-emotional competencies, children can engage in more PSBs. However, the results were not significant in terms of the CBs, suggesting that, even with the effective implementation of tier 1 and tier 2 supports, some children still require more individualized support and interventions that target their CB. These findings are consistent with previous research stating that some children still require more intensive support despite the PM's lower levels being implemented (Benedict et al., 2007; Crone et al., 2015; Sugai & Horner, 2002). It is interesting to point out that when analyzing the observational data collected on the children's behaviours, only child 7, demonstrated a marked decrease in CBs. This is likely due to the change in his KP as, once he was able to express himself vocally with gestures, he exhibited less withdrawal from his peers. Secondly, this child attended the classroom where the educator went on preventative leave. The replacement educator may have utilized different methods to integrate him into the classroom and manage his challenging behaviours, which, in turn, had a positive impact on his behaviour.

For the SSIS parent measure, the results indicated that, overall, parents noticed only slight improvements in their children's social skills and CBs when the educators implemented the interventions. This suggests that, despite behavioural improvements being observed in the classroom, these were not generalized to the home setting. However, it is worth noting that the target behaviours were specific to the behavioural expectations of the classroom environment and, thus, may not have been applicable to the home. Additionally, children with DD often have difficulty generalizing skills from one setting to another (Falligant

& Pence, 2017; Matson et al., 2009). For this study, parents in the participating classrooms were sent resources and information about the PM via e-mail, but this was not sufficient to impact the children's behaviour at home. Some promising research has demonstrated the effectiveness of training parents on implementing positive behaviour supports in the home setting (Abouzeid et al., 2020; Rivard et al., 2021). Therefore, future research should provide parents with training and resources to enable them to apply similar strategies, thus supporting the generalization of skills across environments.

The final objective of this study focused on the social validity of the training and coaching in the classroom. In general, the educators were highly satisfied with the intervention, found it very acceptable and effective, and were highly willing to implement the strategies. They reported that the intervention had a positive impact on their classrooms. Specifically, the intervention provided them with clear expectations, and they spent more quality time interacting with the children. These findings are encouraging for the continued application of the PM model. Moreover, the results of the IPPSEC, which evaluated educators' perceptions of their implementation of PM strategies, suggest that the educators' perception of their improved practices may reinforce their practice-related behaviours and enhance their motivation to utilize the PM.

### 2.6.1 Limitations

This study was part of a larger thesis research project and has some limitations that should be addressed in future research. Regarding implementing PBC, observations are often conducted in the classrooms by the coach prior to the sessions to give immediate feedback to the educators. However, as there was only one coach, this was impossible to accommodate due to time constraints and several early childhood settings participating simultaneously with different schedules.

Furthermore, there was no second coder for 30% of the observations when assessing the inter-observer agreements. Observations were completed in early childhood settings classrooms, for which having extra individuals in the room increases the risk of reactivity of all the participants in the classroom. In addition, it would be difficult to obtain consent from all parents of the children in the participating classrooms to video record the observations. Nonetheless, the research assistants were all well-trained before collecting data and were supported throughout the intervention. Finally, it is important to note that the educators voluntarily agreed to participate in this study. Therefore, it is likely that these educators were more

motivated to implement the strategies than the general population of educators. Therefore, this represents a limitation in the generalizability of the findings.

### 2.6.2 Future Directions

This study's findings highlight some important recommendations for future implementation. The initial PM training should be extended to three days and be provided to all educators working in each early childhood setting before the school year begins, as recommended in previous literature (Hemmeter et al., 2016; The Pyramid Model Consortium, 2021). Training all educators at the same time would ensure a uniform approach within the setting and allow the educators to support each other with implementing the practices. Additionally, providing the training before the school year would enable educators to prepare the necessary resources and organize their classrooms accordingly. Indeed, in this study, two early childhood settings had already implemented some visual supports and practices in their classrooms before the coaching stage began, which proved beneficial as they progressed more rapidly and implemented more classroom strategies.

In addition to extending the initial training, the coaching sessions should be extended to a minimum of 12 weeks, as was conducted in previous studies (Hemmeter et al., 2016; Snyder et al., 2015), to allow the educators more time to master the PM strategies. Furthermore, coaching sessions should include tier 3 interventions for children with CBs who do not respond to the applied PM classroom strategies (Benedict et al., 2007; Crone et al., 2015; Hemmeter et al., 2007; Stormont et al., 2005). Upon completion of the coaching sessions, monthly follow-up sessions should be conducted to ensure maintenance of the skills and provide the educators with continued support.

## 2.7 Conclusion

In Quebec, the Ministère de la Famille et Aînés (MFA, 2020) is responsible for ensuring the quality of educational services offered to young children from birth to 5 years old. Over the past decade, early childhood settings in Quebec have undergone many changes: a substantial increase in the number of subsidized places; the publication of a survey identifying the strengths and weaknesses of the system and providing recommendations for improvement and regulation of the Educational Childcare Act (Gingras et al., 2015); and pay equity legislation, which provided professional recognition for the educators.

Most recently, the MFA (2020) mandated that early childhood settings must participate in an evaluation procedure to improve the quality of education in these settings. The goal is that all children in early childhood settings receive a high-quality education that promotes their development and helps them to reach their potential. The evaluation involves the administration of the CLASS measure in all early childhood settings across Quebec. In conjunction with the results of this project, these government policy changes are encouraging in terms of reforming the current situation in early childhood settings in Quebec.

The provincial government initiatives may enhance the daily experiences of educators and young children in early childhood settings. However, for these settings to utilize high-quality, evidence-based practices with the children, educators need continued professional development. The implementation of the PM within these settings would allow educators to gain more knowledge and expertise in evidence-based practices, as well as offer them consistent support in the form of coaching. As a result, educators will be able to promote the social-emotional competencies and prevent challenging behaviour in young children, thus improving both their short-term and long-term outcomes (Bierman et al. 2018; Jones et al., 2015).

## 2.8 References


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## 2.9 Tables

Table 2.1 Sociodemographic Information of Educators

| | Number of participants (N = 9) | Percentage |
|---|---|---|
| Age | | |
| 18-25 years old | 0 | 0 |
| 26-35 years old | 0 | 0 |
| 36-45 years old | 3 | 33.3 |
| 46-55 years old | 5 | 55.6 |
| 56-65 years old | 1 | 11.1 |
| Total Years of Experience | | |
| 0-10 years | 0 | 0 |
| 11-15 years | 3 | 33.3 |
| 16-25 years | 1 | 11.1 |
| 26-35 years | 5 | 55.6 |
| Ethnicity | | |
| Caucasian | 4 | 44.4 |
| African American | 2 | 22.2 |
| Native American | 2 | 22.2 |
| Middle Eastern | 1 | 11.1 |
| Highest Level of Education | | |
| High School | 0 | 0 |
| CÉGEP[3] | 8 | 88.9 |
| Bachelor's Degree | 1 | 11.1 |
| Annual Income[4] | | |
| $10,000-29,999 | 0 | 0 |
| $30,000-49,999 | 6 | 66.7 |
| $50,000-69,999 | 2 | 22.2 |
| Prefer not to answer | 1 | 11.1 |

[3] In Québec, CÉGEP provides postsecondary education in preparation for college studies or vocational training in preparation for a trade.

[4] Incomes are reported in Canadian dollars (CAD).

Table 2.2 Educators' Implementation of Practices

| | CLASS | | TPOT | | | |
|---|---|---|---|---|---|---|
| | Sum of Scores | | Pre-test (%) | | Post-test (%) | |
| Educator | Pre-test | Post-test | Key Practices | Red Flags | Key Practices | Red Flags |
| 1 | 37 | 50 | 77 | 6 | 94 | 0 |
| 2 and 3 | 38 | 50 | 67 | 6 | 93 | 6 |
| 4 and 5 | 41 | 54 | 82 | 0 | 100 | 0 |
| 6 | 52 | 56 | 76 | 0 | 95 | 0 |
| 7 | 40 | 59 | 78 | 0 | 97 | 0 |
| 8 | 47 | 51 | 54.5 | 0 | 82 | 0 |
| 9 | 50 | 55 | 70 | 0 | 94 | 0 |

*Note*. In early childhood setting 1, two educators per class participated. The scores represent the implementation of practices for the classroom.

Table 2.3 Children's Sum of Scores on Parent and Educator Version of SSIS

| | | Pre-test | | Post-test | |
|---|---|---|---|---|---|
| Parents SSIS | Age | Social Skills | Challenging Behaviours | Social Skills | Challenging Behaviours |
| 1 | 4 | 119 | 15 | 117 | 16 |
| 2 | 4 | 85 | 18 | 99 | 13 |
| 3 | 3 | 92 | 15 | x[5] | x[7] |
| 4 | 4 | 88 | 21 | 116 | 34 |
| 5 | 4 | 108 | 21 | 107 | 6 |
| 6 | 4 | 92 | 28 | 105 | 21 |
| 7 | 3 | 53 | 32 | 52 | 20 |
| 8 | 5 | 93 | 12 | 74 | 21 |
| 9 | 4 | 69 | 35 | 72 | 27 |
| 10 | 4 | | | 92 | 18 |
| Educator SSIS | | | | | |
| 1 | 4 | 106 | 12 | 97 | 9 |
| 2 | 4 | 67 | 35 | 72 | 30 |
| 3 | 3 | 87 | 16 | 115 | 18 |
| 4 | 4 | 77 | 32 | 105 | 35 |
| 5 | 4 | 53 | 19 | 97 | 12 |
| 6 | 4 | 43 | 19 | x[7] | x[7] |
| 7 | 3 | 90 | 6 | 76 | 29 |
| 8 | 5 | 23 | 45 | 37 | 50 |
| 9 | 4 | 38 | 17 | 54 | 16 |
| 10 | 4 | 23 | 37 | 44 | 23 |

[5] Data missing.

Table 2.4 Educators' Ratings on the Treatment Acceptability Rating Form-Revised

| | Item | Mean | SD |
|---|---|---|---|
| Affordability | How affordable is this treatment for your organization? | 4.1 | 1.1 |
| | How expensive will it be to put this treatment in place? | 2.6 | 0.9 |
| Disruption/Time | How long will it take each day for you to put this treatment in place? | 2.3 | 1.0 |
| | How disruptive will applying this treatment be to your classroom? | 1.3[a] | 0.6 |
| Effectiveness | How likely do you think this intervention will lead to permanent improvements in your student's behaviours? | 4.9 | 0.3 |
| | How likely do you think that the treatment will be effective for your students? | 4.9 | 0.3 |
| | How confident are you that this treatment will be effective? | 4.7 | 0.6 |
| Reasonableness | How much do you like the strategies used in the proposed treatment? | 4.9 | 0.3 |
| | How well does this treatment fit into your classroom routine? | 4.9 | 0.3 |
| | Given the challenging behaviours of your student, do you find this a reasonable treatment? | 4.8 | 0.4 |
| | How acceptable did you find this intervention for the students in your classroom? | 4.7 | 0.7 |
| Side effects | How likely is your student to experience discomfort during this treatment? | 1.6[a] | 1.1 |
| | How likely is it that adverse side effects result from this treatment? | 1.5[a] | 1.0 |
| | How likely do you think there might be disadvantages to implementing this treatment? | 1.3[a] | 0.9 |
| | Given the challenging behaviours of your student, do you find this a reasonable treatment? | 4.8 | 0.4 |
| Willingness | How ready are you to change your routine to implement this treatment? | 4.8 | 0.4 |
| | How clear is your understanding of this intervention? | 4.6 | 0.7 |
| | How ready are your co-workers to help you put in place the proposed treatment? | 4.1 | 1.1 |

*Note*. Ratings ranged from unsatisfactory/poor (1 = "*not at all clear*", "*not at all acceptable*") to highly satisfactory/ excellent (e.g., 5 = "*very clear*", "*very acceptable*") experiences.

[a] Reverse-scored item.

Table 2.5 Themes Identified from Educators Responses on the Treatment Acceptability Rating Form-Revised

| Themes | | Subthemes | | *n* | Educator's Comments |
|---|---|---|---|---|---|
| 1. | Improvement to the content | 1.1. | Additional materials | 2 | "Would have liked more materials as the workshop was ending, such as a starter kit with visuals." |
| | | 1.2. | Universal Training | 3 | "(….) all the staff members should receive the same training." |
| | | 1.3. | Effective | 3 | "This program was an asset to our already hands-on approach to learning with young children. Our coaching step by step goals and strategies to achieve these goals were monitored and provided additional training when needed." |
| 2. | Improvement to the format | 2.1. | Longer training | 2 | "A 3-4-day workshop would have been great to fully explore all the materials in greater depth." |
| | | 2.2. | Additional coaching | 3 | "(…) more time to meet to discuss strategies, implementation." |
| 3. | Appreciation | 3.1. | Positive impact | 4 | "It has impacted me a lot. I use the pyramid techniques all through the day, and it has been beneficial within the routine with the children." |
| | | 3.2. | Providing clear expectations | 2 | "If a child does something unexpected, then it is not assumed that the child knows but rather that we must be sure that we have stated our expectations clearly." |
| | | 3.3. | Spending more quality time | 2 | "Has allowed me to spend more quality time working with the children and has made days go by much easier and smoother." |

Table 2.6 CDC Results for Children

| Child | | Behaviour | #Needed | #Obtained | % Obt/needed | Significant |
|---|---|---|---|---|---|---|
| 1 | PSB | engaging with others | 26 | 0 | 0% | No |
| 1 | CB | Fidgeting | 26 | 25 | 96% | No |
| 2 | PSB | engaging with others | 25 | 1 | 4% | No |
| 2 | CB | distracted from the task | 25 | 22 | 88% | No |
| 3 | PSB | engaging with others | 23 | 8 | 35% | No |
| 3 | CB | withdrawing from others | 23 | 21 | 91% | No |
| 4 | PSB | engaging with others | 29 | 3 | 10% | No |
| 4 | CB | distracted from task | 29 | 25 | 86% | No |
| 5 | PSB | following instructions | 11 | 0 | 0% | No |
| 5 | CB | withdrawing from others | 19 | 0 | 0% | No |
| 6 | PSB | following instructions | 12 | 1 | 8% | No |
| 6 | CB | withdrawing from others | 12 | 1 | 8% | No |
| 7 | PSB | participating in activities | 8 | 1 | 13% | No |
| 7 | CB | withdrawing from others | 15 | 13 | 87% | No |
| 8 | PSB | interacting with peers | 5 | 2 | 40% | No |
| 8 | CB | distracted from task | 12 | 1 | 8% | No |
| 9 | PSB | communicating with peers | 12 | 12 | 100% | Yes |
| 9 | CB | engaging in a tantrum | 12 | 12 | 100% | Yes |
| 10 | PSB | initiating peer interactions | 6 | 3 | 50% | No |
| 10 | CB | copying or repeating others | 12 | 6 | 50% | No |

Table 2.7 CDC Results for Educators

| Educator | | Behaviour | #Needed | #Obtained | % Obt/needed | Significant |
|---|---|---|---|---|---|---|
| 1 | KP | teaching behavioural expectations | 24 | 0 | 0% | No |
| 1 | RF | providing general instructions | 24 | 0 | 0% | No |
| 2 | KP | teaching behavioural expectations | 18 | 1 | 6% | No |
| 2 | RF | providing general instructions | 18 | 0 | 0% | No |
| 3 | KP | teaching behavioural expectations | 26 | 0 | 0% | No |
| 3 | RF | providing general instructions | 26 | 0 | 0% | No |
| 4 | KP | teaching behavioural expectations | 25 | 5 | 20% | No |
| 4 | RF | providing general instructions | 25 | 0 | 0% | No |
| 5 | KP | referencing posted visuals | 9 | 2 | 22% | No |
| 5 | RF | not discussing emotions | 18 | 10 | 56% | No |
| 6 | KP | referencing posted visuals | 18 | 3 | 17% | No |
| 6 | RF | not discussing emotions | 18 | 9 | 50% | No |
| 7 | KP | referencing posted visuals | 12 | 7 | 58% | No |
| 7 | RF | providing generalized instruction | 12 | 4 | 33% | No |
| 8 | KP | referencing posted visuals | 12 | 7 | 58% | No |
| 8 | RF | not discussing emotions | 12 | 1 | 8% | No |
| 9 | KP | providing behavioural expectations | 8 | 2 | 25% | No |
| 9 | RF | positive/descriptive feedback | 8 | 2 | 25% | No |

## 2.10 Figures

Figure 2.1 Flowchart of the Method

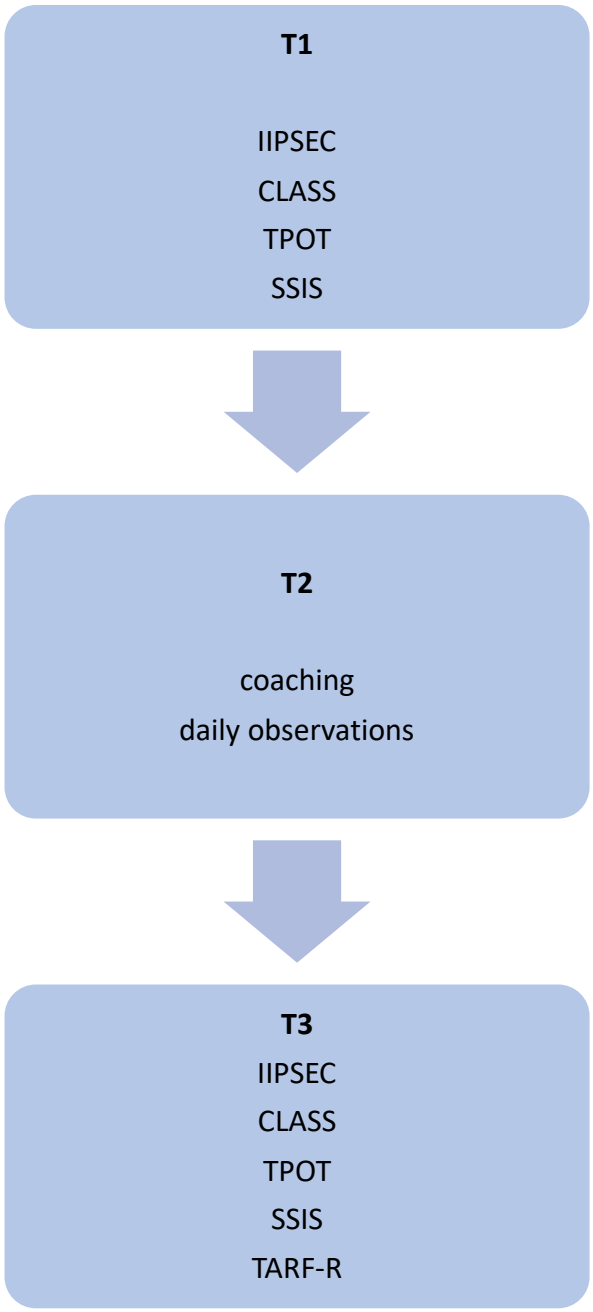


Figure 2.2 Educators' Practices in Early Childhood Setting 1

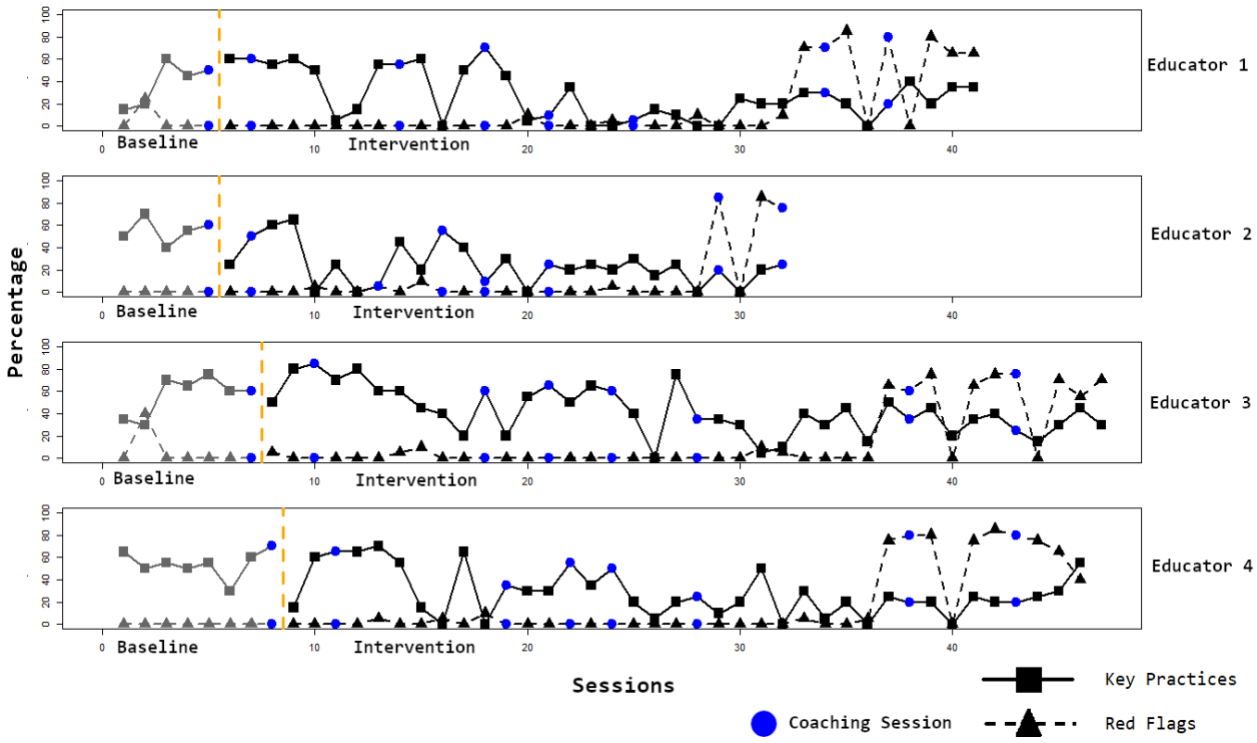


Figure 2.3 Children's Behaviours in Early Childhood Setting 1

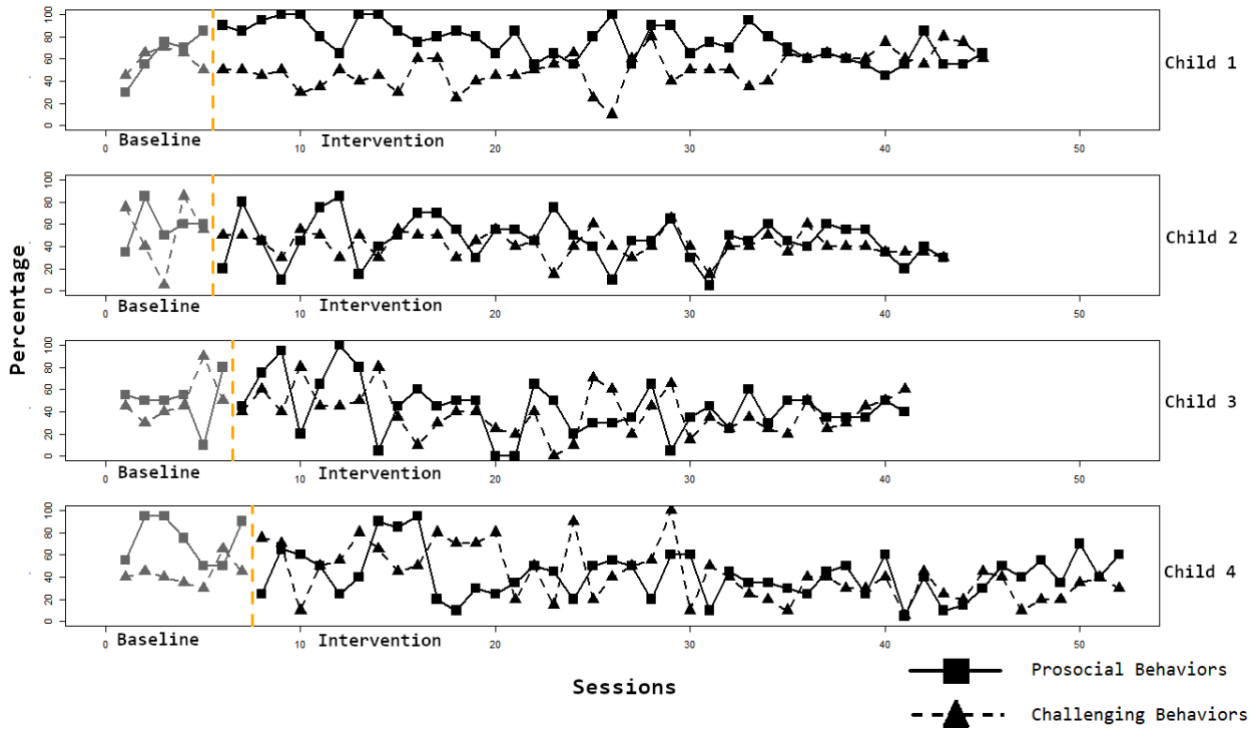



Figure 2.4 Educators' Practices in Early Childhood Setting 2

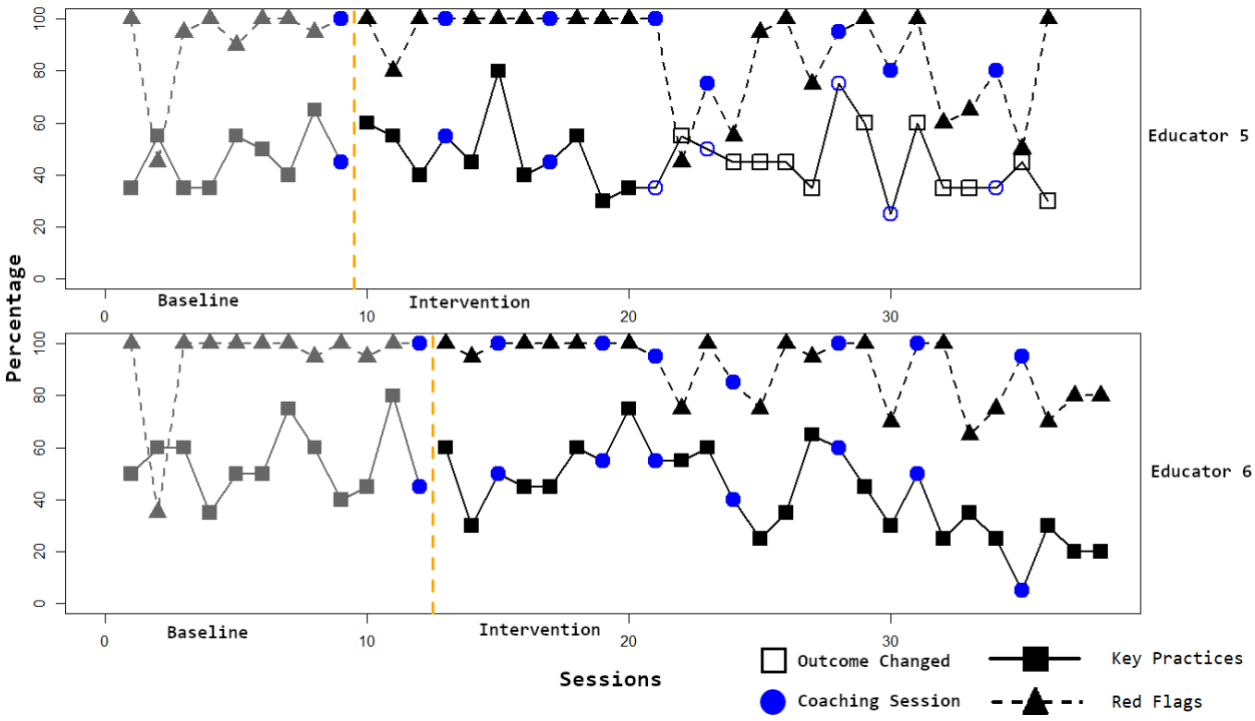


Figure 2.5 Children's Behaviours in Early Childhood Setting 2

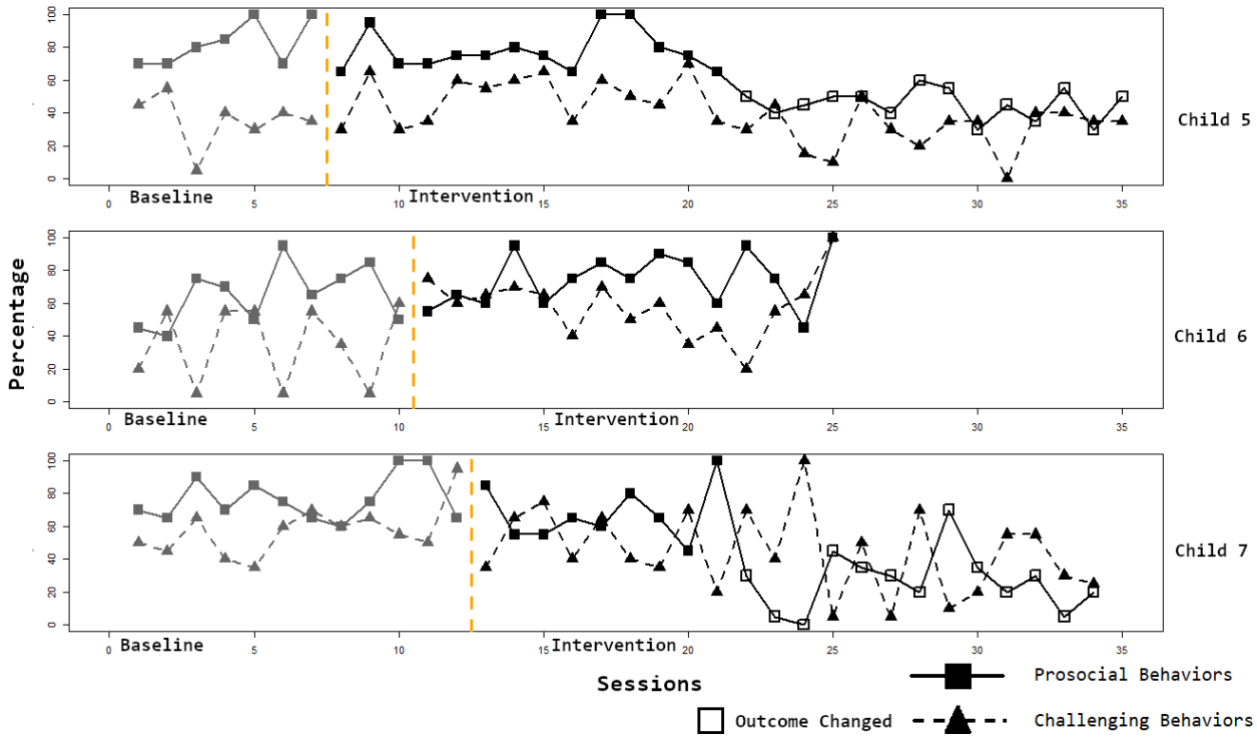



Figure 2.6 Educators' Practices in Early Childhood Setting 3

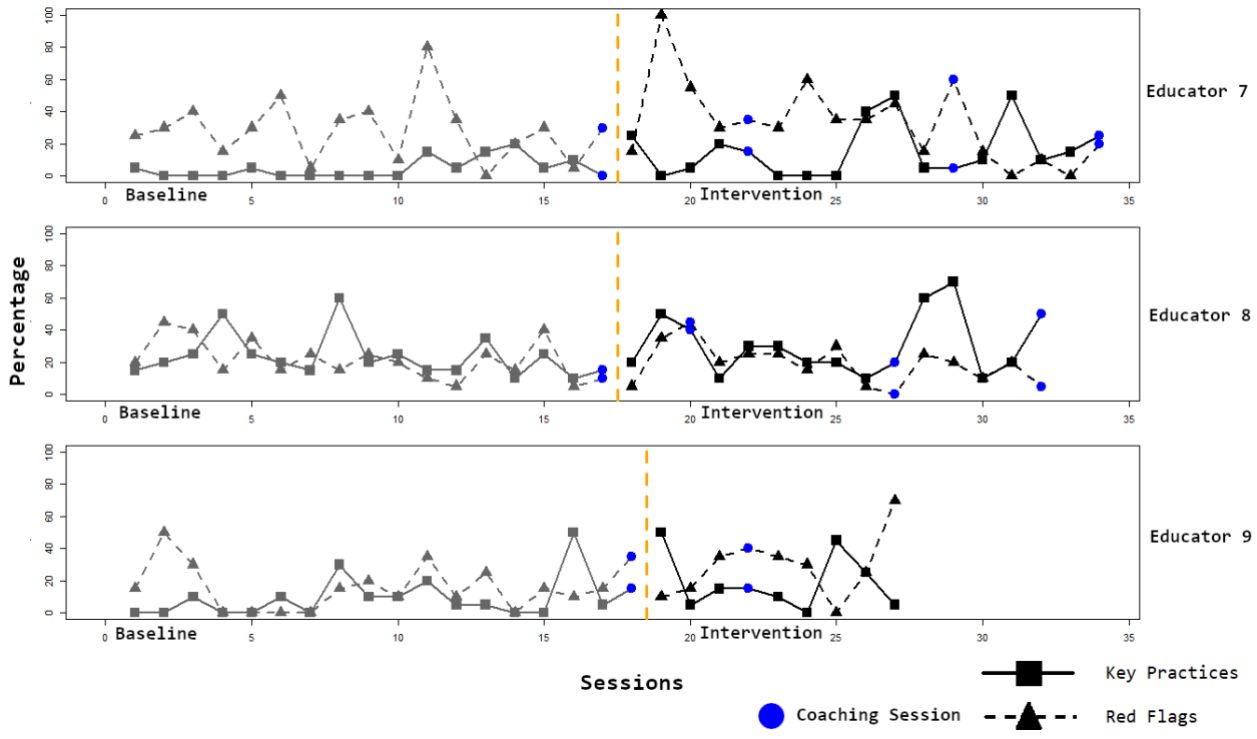
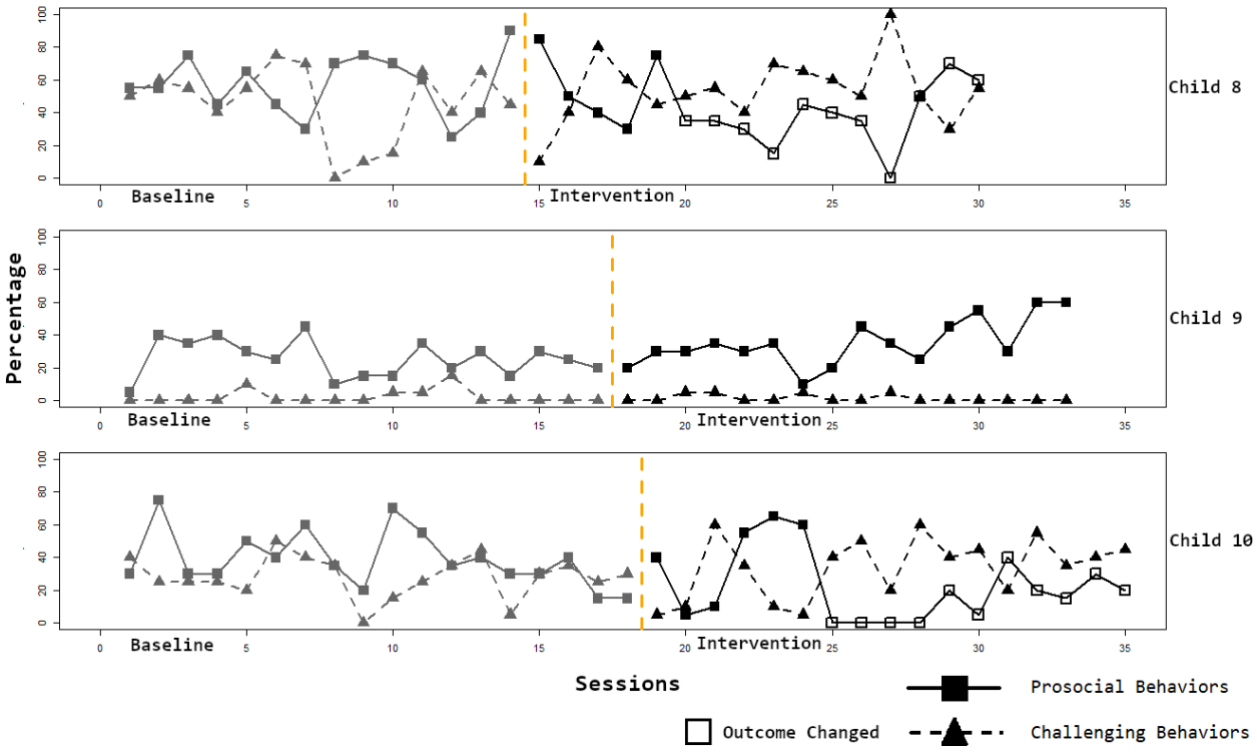


Figure 2.7 Children's Behaviours in Early Childhood Setting 3



# CHAPTER 3
# DISCUSSION

Educators play a crucial role in supporting young children's development. Being together daily affords the educator a unique perspective, as they spend significant amounts of time observing children while they exhibit various behaviours during activities (playtime, naps, meals, transitions, and especially social interactions with their peers and adults). Consequently, educators are often the first to detect and raise concerns about young children's atypical development (Rivard et al., 2021). As such, educators must be able to identify early signs of DD and have sufficient knowledge and expertise in inclusive practices to effectively support children with DD in their classrooms (Early Childhood Technical Assistance Center [ECTA Center] & National Center for Pyramid Model Innovations [NCPMI], 2020; Lawrence et al., 2016; Rausch & Strain, 2021).

Early childhood educators already urgently need specific guidance regarding establishing a structure that enables them to detect early signs of DD in children and to then know how to cope with these children while simultaneously integrating them into the classroom. As mentioned in the introduction, while the Quebec early childhood education system provides many valuable tools to educators in early childhood settings, there is a significant gap in this area. As the influx of children with DD into the early education system will continue to increase exponentially in the coming years, educators will be required to identify solutions, such as those offered by the present thesis.

The objective of this thesis was to address this need and contribute to the literature by evaluating the implementation of the PM, a multi-tiered framework that focuses on enhancing the social, emotional, and behavioural outcomes of young children and preventing challenging behaviours, in early childhood settings in Quebec.

## 3.1 Quebec's Early Childhood System

In Quebec, early childhood settings include publicly funded settings (CPEs), privately subsidized settings, private non-subsidized settings, and family home daycares. Currently, the early childhood system in Quebec is experiencing numerous challenges (Ministère de la Santé et des Services sociaux [MSSS], 2021b; Observatoire des tout-petits, 2021). Firstly, the number of children waiting for a place in an early childhood setting has increased substantially and is currently at 51,000 (Wheeler, 2021). Since the implementation

of the integration policy, which provides early childhood settings with subsidies, many children have begun to attend these settings, thus making both specialized training and increased resources an urgent requirement. The children on the waitlist for early education placements represent a population deprived of early stimulation, which increases their risk of further developmental delays. Secondly, there are certain issues that are obstructing the opening of new locations. The government has implemented stringent parameters regarding opening new settings, announcing that only under 50% of promised spaces would be realized, thus increasing the number of children waiting for openings. Thirdly, a rising number of home daycares are closing their operations due to difficulties meeting government requirements, leading to 4,000 daycare spots ceasing to operate each year (The Canadian Press, 2021). The current pandemic has exacerbated all these challenges by leading to a decrease in human resources and, in turn, an increase in the number of children on the waitlist for services.

To help alleviate the waitlist and avoid an interruption of service provision, the MFA temporarily modified the required ratio of qualified to non-qualified educators working in these settings. Previously, the Early Childhood Education Commission recommended that educators working in early childhood centres and home settings obtain a minimum of a college diploma in Early Childhood Education (Early Childhood Observatory, 2018). After early childhood settings have been in operation for 5 years, they must ensure that two-thirds of their educational personnel are qualified and have obtained a college diploma in early childhood education or equivalent (one-third for the first five years). Service providers in home childcare settings must also have completed at least 45 hours of training before applying for their license to offer childcare services. Finally, they must acquire 6 hours of professional development training per year. However, to avoid interruption of services in the context of the obstacles mentioned above, the MFA reduced the ratio of qualified educators working in early childhood settings from 2 educators out of 3 to the current requirement of 1 educator out of 3. Consequently, there will be an increase in the number of educators with fewer qualifications who are responsible for the development and well-being of young children.

A Quebec survey revealed that 27.7% of children entering kindergarten experienced delays in at least one area of development (Institut de la statistique du Québec, 2019). These results demonstrate an increasing trend in DD, which is comparable to what other provinces have reported. The Ministry of Health and Social Services and the Ministry of Education and Higher Education aim to reduce this proportion to 20% by 2025 (MSSS, 2021a). Accordingly, the Quebec government has implemented several new measures to enhance the detection of developmental delays in young children prior to them entering elementary school. One

of these measures, Agir Tôt, is a developmental screening tool on a web-based platform that is designed to help parents evaluate their child's developmental profile by completing questionnaires. The objective of this platform is to involve parents in the evaluation process and signpost them toward recommended services (MSSS, 2021b).

Additionally, to improve early detection and intervention services, the government is increasing its professional resources by providing more in-depth screenings during children's 18-month vaccinations and referrals for assessments and interventions, if necessary (MSSS, 2021a). To ensure that young children reach their potential, it is critical to act early by detecting developmental delays and providing early intervention services quickly. The unfortunate reality is that families often encounter many obstacles during the process of accessing services (e.g., lengthy waitlists, scarcity of qualified service providers, lack of resources). The Agir Tôt tool aimed to diminish or eliminate these challenges by offering a more fluid and consistent continuum of services. These outlined objectives regarding early intervention are critical and respond to an essential need for young children and their families. However, it will be difficult for the government to meet these needs due to the stringent guidelines and the scarcity of new places available in early childhood settings. Indeed, early childhood educators are often the first professionals to detect delays in young children, alerting parents to seek further assessment (Rivard et al., 2021). Young children deserve high-quality childcare services in their early childhood settings. However, with the current decline in the ratio of qualified educators required to work in these settings, early detection of delays will become more challenging.

A survey conducted by the Institut de la Statistique on the quality of educational services demonstrated that early childhood centres were at an acceptable level (Lapointe & Gingras, 2015), but many children in Quebec were enrolled in settings of inferior quality. Since these results were published, the Quebec government has invested substantial resources in researching evidence-based practices to improve the early childhood educational system, as shown by several policies and frameworks. The Gazelle and Potiron framework (Ministère de la Famille, 2017) aims to improve the development of young children under 5 years old by providing a healthy diet and encouraging physical activity. Additionally, the Quebec government's preventative health policy aims to increase the percentage of children who do not present with developmental delays when starting kindergarten to 80% (Observatoire des tout-petits, n.d.). This policy promotes educational childcare services for families in disadvantaged areas and supports improved service quality. In 2017, an act to enhance academic quality and foster the positive development of educational childcare services was implemented, requiring all early childhood settings to undergo

evaluations to improve their service quality (Projet de loi 143, 2017), which allows the government to regulate all the services being provided. Finally, the Strategy for Educational Services offered to children between 0 and 8 years of age, alongside the Policy on Educational Success (Ministère de l'Éducation et de l'Enseignement supérieur, 2018), was designed to provide young children with accessible, quality educational environments by amalgamating the numerous intervention services and simplifying the transitions that children experience during this period (Early Childhood Observatory, 2018).

These recent advances in the Quebec early childhood system are reassuring, as they offer several benefits to young children and their families. For example, better screening and early detection will be provided to children at 18 months old, thus allowing parents to act early and intervene, thereby reducing delays before children start school. Additionally, improved procedures will enhance the quality of services in early childhood settings through delivering empirically based practices. The present thesis aimed to contribute to these initiatives by evaluating an evidence-based training that supports educators to intervene early through incorporating strategies promoting young children's social, emotional, and behavioural development and preventing challenging behaviours in early childhood settings, where children spend most of their early days.

## 3.2 Summary of Thesis Results

This section describes the results of both studies that form this thesis and discusses how their findings contribute to the literature. After discussing the two studies, the following section describes how the PM is a complementary approach to providing high-quality inclusion in early education, and how both can be applied harmoniously.

### 3.2.1 Results of Study 1: Evaluation of the Effects of the PM Training on the Attitudes and Practices of Educators

In the context of previous research indicating that educators' attitudes toward inclusion impact their student's success, the first study of this thesis aimed to describe educators' attitudes toward inclusion and evaluate whether PM training would affect these attitudes.

Educators' attitudes toward inclusion refer to their opinions or feelings regarding a particular facet of inclusion. These opinions may consist of beliefs about teaching children with DD in inclusive settings, the

feelings associated with these beliefs, and policies regarding inclusion (Jury, Perrin, Rohmer, & Desombre, 2021). Attitudes and beliefs about inclusion affect the implementation of inclusion and how it is perceived by families and practitioners (Diamond & Huang, 2005; Frankel et al., 2010; Innes & Diamond, 1999; Okagaki et al., 1998). Although several studies have examined educators' attitudes toward inclusion in elementary and secondary schools (e.g., Jury et al., 2021; Lee et al., 2015; Mahat, 2008), there is a lack of information regarding the attitudes of early childhood educators (Odom, 2009). Additionally, studies have shown that providing training and resources to educators increases their knowledge and perception of inclusion, thereby changing their attitudes toward it (Campbell et al., 2003; Kwon et al., 2017). The first study in this thesis described educators' attitudes toward inclusion and measured the changes in educators' attitudes before and after training with the PM model. Based on the impact that knowledge and training have on educators' attitudes and practices, the purpose of the study was to assess whether the PM training alone could lead to the desired changes.

The objectives of the study were to evaluate: 1) the educators' attitudes toward inclusion before and after training; 2) the factors contributing to their attitudes toward inclusion; 3) the educators' perceptions of their implementation of PM practices before and after the training; and 4) the educators' perceptions regarding both the PM; and 5) the social validity of the training.

#### 3.2.1.1 Educators' Attitudes Toward Inclusion

Before the training, the educators had neutral attitudes toward inclusion, suggesting they were not predominantly for or against inclusion. These results are consistent with previous findings, which suggested that educators have moderately positive attitudes toward inclusion (Hsieh & Hsieh, 2012; Lee et al., 2015).

Following the training, no significant changes in the educators' attitudes were identified. However, the training provided was based on the PM, and it focused on teaching educators the strategies of the model to implement in their classrooms. Therefore, it is possible that more specific training on inclusive education, highlighting the etiology, diagnosis, and educational implications of various special needs in children, could generate changes in educators' attitudes (Forlin et al., 2014).

When examining the outcome subscales and the training effect on the attitudes toward inclusion, educators reported that inclusion is beneficial for children with special needs. These results are consistent

with the literature demonstrating that inclusion is helpful for these children (Buysse et al., 2002; Cross et al., 2004; Holahan & Costenbader, 2000; Odom et al., 2006). Although substantial evidence indicates that high-quality early childhood inclusive settings improve the social, emotional, and academic outcomes in children with and without DD (Odom et al., 2004; Strain & Bovey, 2011) and are beneficial for all young children and their families (Guralnick, 2001; NPDCI, 2008; Odom et al., 2011; Wolery & Wilbers, 1994), no significant results were found on the other IIQ subscales, including the impact on the other children and the environment, in this study. Moreover, the training did not significantly improve educators' attitudes regarding the impact of inclusion on themselves. These results are not surprising, as several studies have shown that educators consider children with emotional, behavioural, and learning difficulties as the most challenging to integrate (de Boer et al., 2011; Jury, Perrin, Rohmer, & Desombre, 2021). Indeed, educators' attitudes are more hostile toward children with challenging behaviours and more severe DD, such as ASD and Intellectual DD (Barned et al., 2011; Benoit, 2016; Ginevra et al., 2021).

#### 3.2.1.2 Educators' Attitudes and Demographic Variables

In this study, educators' demographic variables were compared with their results on the IIQ. Firstly, educators who had more experience and knowledge working with children with special needs reported more positive attitudes toward inclusion. These results are consistent with previous studies, which demonstrated that prior positive experiences with inclusion predict more positive attitudes in educators (Boyle et al., 2013; Hsieh & Hsieh, 2012; Subban & Sharma, 2006; Wilkerson, 2012). Educators who have training in special education hold more favourable views toward the inclusion of children with more severe DD (Ahsan et al., 2012; Jury, Perrin, Desombre, & Rohmer, 2021; Lee et al., 2015). These results are of particular importance, as they highlight the need for college-level programs in early childhood education to include coursework focusing on inclusive education for children with various DDs (Barned et al., 2011; Pit-ten Cate et al., 2018).

With increased knowledge, support, and resources, educators' attitudes toward inclusion can be improved. Indeed, educators are more eager and have more favourable attitudes toward inclusion when they feel supported. In a study by Hind et al. (2019), educators reported they did not receive the necessary training to include children with challenging behaviours and were not provided with consistent resources and support. These results demonstrate that the current knowledge and training are not sufficient to allow educators to feel equipped to include children with special needs in their classrooms. Therefore, educators

require additional resources and support, such as coaching and supervision, to meet the needs of children with DD and provide them with the skills necessary to reach their full potential.

The influence of educators' characteristics, such as age and teaching experience, has been frequently studied in the literature (Chhabra et al., 2010; de Boer et al., 2011; Ginevra et al., 2021; Hind et al., 2019; Saloviita, 2020; Sharma et al., 2006). However, there are conflicting results regarding whether there is a correlation between these factors and educators' attitudes. While some studies have reported no correlation between educators' ages, years of experience, and attitudes toward inclusion (de Boer et al., 2011; Ginevra et al., 2021; Gyimah et al., 2009; Kalyva et al., 2007; Saloviita, 2020), others have reported that these variables are significant predictors of educators' attitudes (Ahmmed et al., 2014; Bornman & Donohue, 2013; Hind et al., 2019). This study found no significant correlations when examining educators' attitudes and their ages, total years of experience, and comfort level working with children with special needs. However, previous experiences with children with DD and more knowledge about inclusion positively impacted educators' attitudes. These results demonstrate that exposure to children with DD is essential for educators to feel prepared and confident to implement inclusion. Therefore, college programs in early childhood education should include fieldwork placements in inclusive settings, so that students can gain experience with children with DD and challenging behaviours before entering the workforce.

#### 3.2.1.3 Educators' Perceptions of their Implementation of Practices

Educators' perceptions of their implementation of PM practices changed significantly following training. However, given that the measures used was self-reported, and that the educators were not aware of the PM strategies before the training, it was difficult to determine if the changes in scores represent true changes in educators' perceptions of their implementations or what they intend to implement when they return to their classrooms.

Following the training, when educators were provided with the additional support of coaching, their scores on this measure improved. These results suggest that their perceptions of their implementation of practices, did in fact, translate into practice as they were applying them in their classrooms.

#### 3.2.1.4 Social Validity of the PM Training

To evaluate the benefits of evidence-based behaviour support programs, the taught strategies must align with the environments where the interventions are applied (Albin et al., 1996). To do this, researchers and evaluators must consider stakeholders' opinions (Francisco & Butterfoss, 2007). These programs need to recognize the desires and views of all stakeholders: those responsible for change (i.e., directors and administrators), those who implement the interventions (i.e., educators, paraprofessionals, and parents), and those who are impacted by interventions (i.e., children, educators, and parents; Marchant et al., 2013). Most importantly, those responsible for the changes must understand the social validity of the program from the perspective of those it aims to serve. Regarding their perceptions of social validity, educators reported that they were highly satisfied with the training, were willing to implement the strategies in their classrooms, and believed the model was an effective and appropriate intervention. Overall, the participants found the training simple, straightforward, and easy to follow and reported that the information was well presented and very organized. They expressed that they learned a lot and were excited to implement the strategies. However, they also expressed that they would have benefited from an additional day of training to discuss how to solve challenging behaviours in their classroom, as well as to practice and role-play the strategies. The educators' positive perceptions of the PM model demonstrate the potential for future implementation of the model. Indeed, educators must be motivated to effectively implement evidence-based, program-wide interventions, as being motivated supports the successful implementation of interventions (Biggs et al., 2008; Stauffer et al., 2012). Overall, educators' and administrators' opinions and perceptions are crucial for the successful implementation of program-wide interventions.

### 3.2.2 Results of Study 2: Evaluating the Effectiveness of the PM Training and Coaching for Educators Working in Early Childhood Settings

One key objective of the thesis was to promote the development of young children before entering school and evaluate a complementary model corresponding to changes in Quebec's early childhood system. In line with this, the second study assessed the effects of coaching educators on both the implementation of evidence-based practices in their classrooms and child outcomes. Early childhood educators must possess the appropriate knowledge and competencies to provide young children with high-quality classrooms, and these should offer a warm environment that supports the social, emotional, and developmental needs of all children. To do this, educators need to encourage child engagement and stimulate learning (Abry et al., 2013; Williford et al., 2013). Even when educators are competent in applying these elements, they often struggle

to meet the diverse individual needs of all the children in their classrooms, especially those with learning and behavioural challenges (Bradley & Corwyn, 2002; Hetzner et al., 2011; Yoshikawa et al., 2012). Therefore, they require additional support, such as targeted professional development and intensive coaching instruction, to support them to implement evidence-based practices effectively in their classrooms (Becker & Domitrovich, 2011; Joyce & Showers, 2002; Snyder & Wolfe, 2008; Sutherland et al., 2015).

In the past decade, practice-based coaching has received empirical support as a model that can help educators to implement practices for improving child outcomes (Conroy et al., 2015; Conroy, Sutherland et al., 2014; Fox et al., 2011; Hemmeter et al., 2011). Therefore, following the initial two-day training on the PM in study 1, the goal of study 2 was to offer educators working in inclusive early childhood settings in Quebec additional coaching support for implementing the PM.

The project aimed to extend the research conducted by Hemmeter et al. (2016) by applying the practice-based coaching framework in real-life applied settings with educators, rather than teachers, and conducting assessments through daily observations. The study had three specific objectives, which were to evaluate: 1) the effects of coaching on educators' implementation of PM strategies; 2) the impact of the PM with coaching on the social skills and challenging behaviour of the children in the classroom, and 3) the social validity of the PM training with coaching.

#### 3.2.2.1 Educators' Implementation of Practices

The study results demonstrated that PM training with coaching significantly increased the educators' implementation of PM practices, as well as the positive target behaviours in educators and children. Additionally, there was a significant increase in educator-child relationships and classroom organization, as demonstrated by the Classroom Assessment Scoring System (CLASS) measure (Pianta et al., 2008). These results support the social validity findings from the first study that educators were satisfied with the training and eager to implement the strategies in their classrooms. This demonstrates that, when policymakers obtain buy-in from the stakeholders responsible for employing the intervention, there is an increased likelihood that the implementation of the intervention will be successful (Biggs et al., 2008; Stauffer et al., 2012). In line with previous studies, these results indicate that educators demonstrate increased proficiency and fidelity in applying the practices following coaching (Sutherland et al., 2018). Specifically, coaching is effective for improving educators' execution of social-emotional procedures (e.g.,

Artman-Meeker et al., 2014; Artman-Meeker & Hemmeter, 2012; Fox, et al., 2011; Hemmeter et al., 2011, 2015) and PBS strategies (Conroy et al., 2014, 2015).

Although the study results demonstrated significant improvements in educators' PM practices, a substantial decrease in their red flag behaviours was not observed. However, gains were noted in both types of behaviours when there was a connection between the educators' key PM practice (e.g., identifying emotions) and their red flag (e.g., not discussing emotions). Therefore, future implementation of the PM should include target behaviours that correspond to the red flag behaviours. Additionally, the timing of the intervention may have impacted the results, as the coaching occurred during the end of the school year and the beginning of the summer. Many changes to daily schedules occurred at this time, and the children spent more time outdoors engaging in free play than in the classroom. Furthermore, several educators took a vacation during this time. Based on these results, it is recommended to begin the training at the beginning of the school year, followed by utilizing practice-based coaching shortly after it.

#### 3.2.2.2 Child Outcomes

In terms of evaluating the intervention's impact on children's social behaviours in the classroom, educators reported a significant increase in their post-test scores on the Social Skills Improvement Scale (SSIS). Therefore, as educators increased their implementation of PM practices, improvements in the children's social behaviours were identified. These improvements were consistent with the data collected from the daily observations. However, statistical significance was only achieved for the social behaviours of all children in one of the early childhood settings.

As with previous findings, no changes were observed in the scores for the children's problem behaviours at post-test, demonstrating that child outcomes do not necessarily improve even when educators adhere to the intervention (Sutherland et al., 2018). However, it may be that the problem behaviour scale of the SSIS does not adequately measure the behaviours targeted by the PM, such as identifying and labeling emotions, problem solving, sharing, and taking turns with toys. For instance, the SSIS problem scale includes externalizing behaviours (e.g., gets distracted easily, is inattentive, fights with others), internalizing behaviours (e.g., acts sad or depressed, acts anxious), and symptoms of ASD (e.g., is preoccupied with object parts, has stereotyped motor behaviours). Accordingly, a decrease in problem behaviours may have been observed if a different measure had been utilized (Sutherland et al., 2018).

Furthermore, data from the daily observations showed a significant reduction in the problem behaviours for only one child, which is consistent with the results on the SSIS. Indeed, interventions often must be implemented for a substantial amount of time before improvements in challenging behaviours can be observed (Missouri Department of Elementary and Secondary Education, 2018). Given this research project had a strict timeline, the educators were only provided with eight coaching sessions over two months, which may not have been enough time to identify notable changes in the children's challenging behaviours.

These results demonstrate that even when educators adhere to the intervention, child outcomes do not necessarily improve. Furthermore, even when tier 1 and tier 2 supports are implemented effectively, around 5% of children still require more individualized and intensive interventions (NCMPI, n.d.) One curriculum that has shown promising results for teaching educators to prevent and reduce CB in young children, is Prevent-Teach-Reinforce-Young Children (Dunlap et al., 2013). Therefore, this curriculum can help support those children who have persistent CB and are not responsive to the previous tiers of environmental support and intervention by creating an individualized intervention plan to strengthen the current support the child is receiving.

On the parent measure of the SSIS, parents generally reported slight improvements in their children's social behaviours. These results are promising, as they suggest that some of the gains observed in the classroom following the application of PM strategies by educators were also generalized to the home environment. Similarly, a slight decrease in problem behaviours was demonstrated by the mean scores at post-test. Although the parent-reported results were not significant, it is important to note that parents did not receive training on the PM, as this was beyond the scope of this research project. However, research has demonstrated that parent training, based on positive behavior supports (Dunlap et al., 2017), can be also effective for increasing positive behaviours (Argumedes et al., 2018; Rivard et al., 2021; Scahill et al., 2016) and reducing challenging behaviours (Argumedes et al., 2018; Bearss et al., 2015; Rivard et al., 2021). Furthermore, research demonstrates that a reciprocal relationship exists between parental stress and their children's CBs (Bailey et al., 2019; Lecavalier et al., 2006; Rivard et al., 2021) Therefore, future PM implementation in early childhood settings should include parent training to improve children's outcomes and generalize their gains across settings.

#### 3.2.2.3 Social Validity

The results of the social validity measure indicated that all nine educators who completed the coaching sessions considered the PM a feasible intervention for implementation. All educators were interviewed following the coaching sessions to evaluate their perceptions of the PM with live coaching. The educators reported that the training allowed them to be more proactive in implementing preventative measures, such as by utilizing visual stimuli and providing clear behavioural expectations, which decreased challenging behaviours. Specifically, they reported that implementing the strategies facilitated improvements in the children's social-emotional competencies. For example, the children could integrate the techniques they were taught, which allowed them to regulate their emotions, become more autonomous, and reduce their challenging behaviours. The social validity data are consistent with previous studies showing that educators held positive views about the acceptability, feasibility, and utility of the PM and live coaching (Snyder et al., 2018).Taken together, these reports are promising, as the educators described several benefits for all stakeholders of applying this intervention with additional live coaching support.

An advantage of live coaching is that educators and coaches can form collaborative relationships that support the educators' implementation of PM practices in the classroom. Educators have more positive views toward live, on-site coaching compared with self-coaching. With self-coaching, they must rely on themselves to monitor their implementation of procedures and do not have the support of a coach (Snyder et al., 2018). Therefore, based on these findings, educators require specific training followed by live coaching to increase their use of targeted PM practices for young children with DD and ensure the fidelity of their implementation.

This study highlights several advantages of using the PM in early childhood settings. Educators reported that the model was simple to implement and effective. They also appreciated the coaching, as it allowed them to gain feedback on the implemented practices and to model the strategies, thus facilitating their utilization of the techniques. The educator reports are consistent with previous studies examining professional development and coaching (Snyder et al., 2011, 2012, 2018; Sutherland et al., 2018). Indeed, educators who receive professional development (e.g. workshops, implementation guides, materials) that includes live coaching tend to implement the PM with increased fidelity (Hemmeter et al., 2016; Snyder et al., 2011, 2018), thus leading to improved developmental and academic gains in children (Hemmeter et al., 2016; Snyder et al., 2011, 2018; Sutherland et al., 2018). The results of this thesis are consistent with numerous randomized controlled studies, as reviewed by Snyder et al. (2012). Indeed, when professional

development includes two critical elements, including workshops and materials that provide detailed, concrete, and specific information about practices, as well as coaching that provides individualized support and feedback, improvements can be observed in the quality of the classroom environment (e.g., high quality, nurturing, and supportive relationships) and instruction (e.g., instruction targeted at social-emotional competencies; Snyder et al., 2011, 2018).

#### 3.2.2.4 Suggestions for Improvement

Despite the reported benefits of both modelling and training, the educators also provided several suggestions for improving its implementation. For example, they expressed that the training should be extended to include more opportunities to role-play and practice the strategies by applying them to specific classroom situations. Additionally, all personnel working in early childhood settings should receive the training to promote its implementation and ensure consistency.

#### 3.2.2.5 Limitations of Thesis

This thesis had several limitations. The limitations will be discussed separately for each study.

For study 1, the training was provided in English to educators working in settings within predominantly Anglophone communities, which is not representative of the population in Quebec, where the predominant language is French. In addition, the educators who participated, were generally older and most had more experience. Furthermore, they had all volunteered to participate in the training and as a result were likely more willing to implement the intervention than the general population of educators.

The sample size for the training was of moderate scope and may have impacted the study results. In the future, it would be beneficial to train all the educators from each of the settings at the same time to increase the sample size and ensure consistency among educators (Hemmeter et al., 2016).

Finally, the amount of time between pre and post-test measures was only two days and not enough to detect changes in educator's attitudes. In the future, it would be beneficial to measure educator's attitudes toward inclusion once they absorbed the knowledge from the training and had the opportunity to implement the strategies in their classrooms.

In the second study, when implementing PBC, it is recommended that observations are conducted in the classrooms by the coach prior to the coaching sessions to give immediate feedback to the educators (Shannon et al., 2021; Snyder, Hemmeter & Fox, 2015). As there was only one coach for this project, this was impossible to accommodate due to time constraints and several early childhood settings participating simultaneously with different schedules. However, educator's practices were observed daily by the research assistants and the coach met with educators weekly to reflect and provide feedback on their practices.

Additionally, the target children that participated in the study, were selected by their educators based on the criteria that they either had an elevated risk for CB, or had a DD. However, no sociodemographic or diagnostic information were obtained for the children. Therefore, it is difficult to measure the degree of CBs exhibited by the children, which may have impacted the results obtained.

Furthermore, there was not a second coder for 30% of the observations when assessing the inter-observer agreements. Observations were completed in classrooms, where having extra individuals in the room increases the risk of reactivity of all the participants in the classroom. In addition, it would be difficult to obtain consent from all parents of the children. Nonetheless, the research assistants were all well-trained before collecting data and were supported throughout the intervention.

### 3.2.3 Conclusion of Thesis Results

The present thesis responded to need in Quebec's early childhood system, supporting the increased demands of children with DD and CB attending these settings. The results provide evidence that training and coaching increase educators' practices for delivering high-quality, supportive environments, promoting children's social-emotional development, and addressing challenging behaviour. In addition, improvements in children's positive social skills were observed.

This project is novel, as it is one of the first experimental evaluations of the use of the PM for young children with various needs in early childhood settings in Quebec. The results demonstrate that professional development involving training and coaching educators on the implementation of PM practices can effectively improve social skills in young children attending early childhood settings. The results are encouraging as they showed improvements for both educators' and children's and are in line with previous research (Hemmeter et al., 2016; Sutherland et al., 2018). Although the results are not as robust as those presented in other studies (Hemmeter et al., 2016, 2021), they support the idea that

educators with limited experience with children with DD can be taught to implement evidence-based practices to improve these children's outcomes in their classrooms. Therefore, the PM can be applied systematically, during the classroom routine, in naturalistic settings that include daily chores and administrative duties, without disrupting the children. Furthermore, once the PM is implemented effectively within the classroom, the interventions can be transferred over and generalized in the presence of other educators. This is especially important given the current realities of the workforce where there are frequent absences and personnel changes.

Another finding from this project was that increased knowledge and experience in supporting children with DD in inclusive settings was associated with educators having more positive attitudes toward inclusion. Generally, educators have more negative attitudes toward including children with more persistent and severe challenging behaviours, which are commonly associated with ASD and intellectual disabilities (Barned et al., 2011; Benoit, 2016; Ginevra et al., 2021). However, the symptoms of DD in young children begin during their first few years of development, while most are attending early childhood settings. Therefore, it is paramount to ensure that educators have the knowledge and competency to detect the early signs of DD and support these at-risk children effectively. The first few years of a child's life are critical, and quality educational services can positively impact their development, meaning early childhood programs must provide high-quality educational services (Observatoire des tout-petits, 2021). Accordingly, this thesis concludes with a section that describes best practices for inclusion and explains how the PM can support the development of high-quality educational services. Finally, recommendations are provided regarding implementing an early-detection system for DD and the use of the PM as an early intervention method for children at risk of DD in early childhood settings.

### 3.3 Best Practices for Inclusion and the Pyramid Model

There has been a substantial increase in research regarding inclusion for young children with DD (Division for Early Childhood & National Association for the Education of Young Children, 2009; Lawrence et al., 2016). Inclusion in early childhood settings is defined as "including children with DD in early childhood programs, together with their peers without DD; holding high expectations and intentionally promoting participation in all learning and social activities, facilitated by individualized accommodations; and using evidence-based services and supports to foster their development (cognitive, language, communication, physical, behavioural, and social-emotional), friendships with peers, and sense of belonging. This applies to all young children with DD, from those with the mildest DD to those with the most significant DD" (ECTA

Center & NCPMI, 2020; U.S. Department of Health and Human Services and U.S. Department of Education, 2015, p. 2). A summary of research concluded that inclusive settings that plan and encourage interactions with educators help to improve social outcomes for young children with DD (Harper et al., 2008). Moreover, neurotypical children also obtain positive developmental gains from inclusion (Buysse et al., 1999; Diamond & Huang, 2005; Odom et al., 2006, 2011; Okagaki et al., 1998).

A recent study published in the United States demonstrated that attending an early childhood program improves short-term behaviour outcomes by reducing the number of elementary school suspensions, as well as long-term academic outcomes by increasing the rate of children participating in higher-level education (Gray-Lobe et al., 2021). These settings offer a cost-effective solution for detecting developmental delays in young children and providing interventions. Educators often observe developmental differences while young children are attending early childhood settings (Rivard et al., 2021). As many children between the ages of 0-5 years attend early childhood settings, educators must have the expertise to detect these developmental differences and discuss their observations with the parents (Mozolic-Staunton et al., 2020). Furthermore, educators must be provided with the resources and appropriate support to support children to reach their full potential.

Given the wealth of evidence indicating the benefits of inclusion and early intervention, as well as educators' requirement for increased knowledge about DD and supporting these children, the goal of the present project was to address this demand by providing educators with training and coaching on how to implement the PM in inclusive early childhood settings.

### 3.4 The PM as part of High-Quality Inclusion

The PM incorporates several of the necessary components for high-quality inclusion. This section describes how the components are compatible and can be applied coherently. Firstly, high-quality inclusion programs incorporate several important characteristics to ensure that young children with DD reach their full potential, including early screening, rapid referral, and minimal wait times to beginning the intervention. Before the intervention, the team assesses the family's strengths and needs and provides them with the necessary support. Educators also invest time in getting to know the child and their skill set using curriculum-based assessments. They can then develop, modify, and implement teaching plans that optimize the time children spend in classroom activities, including small and large group activities and daily routines (ECTA Center & NCPMI, 2020). Evidence-based and data-driven instruction is embedded

throughout this process to provide sufficient opportunities for learning the skills. The child's progress is monitored frequently, and modifications to the program are implemented accordingly.

The PM incorporates all these components within each of the model's tiers. Specifically, educators foster positive and culturally responsive adult-child relationships, establish predictable routines (Tier 1), and teach social-emotional skills that promote peer interactions (Tier 2). Challenging behaviours are addressed using a team-based approach to understand the purpose of the behaviour and modify the environment to avoid triggers, and social-emotional skills are taught to help reduce challenging behaviour (Tier 3). The PM is helpful for all children, as the practices are effective for young children both with and without DD (Joseph et al., 2016, 2018; Strain & Odom, 1986).

Secondly, research has demonstrated that the most significant gains occur when young children with DD attend inclusive settings where they can socialize and learn in the same environment as their typically developing peers. Several peer-related social skills in the PM require typically developing children for implementation, so can only be achieved in inclusive classrooms. Furthermore, peer-mediated social skill interventions have been shown to be equally or more effective than adult-mediated interventions (Kohler & Strain, 1990; Stanton-Chapman & Snell, 2011; Steed et al., 2021).

Thirdly, professional training is paramount to provide high-quality inclusive services. Educators and support personnel need to be prepared and have a certain level of knowledge regarding evidence-based inclusive practices. They must be able to evaluate the current developmental needs of all children, plan their group instruction considering each child's goals, frequently assess child outcomes, make necessary modifications, communicate with parents and other professionals, incorporate peer-mediated strategies, and prepare for transitions to different settings. The PM's objective is to support educators to implement these effective practices reliably and sustainably over time. The training and coaching provided by the PM allow educators to become more competent in implementing high-quality inclusion (Fixsen et al., 2005).

In the past three decades, the Individuals with Disabilities Education Act, alongside federal early childhood programs (e.g., Head Start), has established guidelines and recommendations for children with DD to be placed in early childhood settings with typically developing children (Individuals with Disabilities Education Act, 1997; Musgrove, 2012). Children with DD should be provided with high-quality inclusive services that are implemented with fidelity before alternative placements are recommended. Additionally, to meet the

needs of children with DD in early childhood settings, educators must receive training in evidence-based practices and providing ongoing support for children to reach their full potential. The PM consolidates evidence-based practices in a multi-tiered framework, which outlines universal practices for all children, targeted practices to improve social-emotional competencies for certain children, and individualized behaviour support practices for children with significant social skill difficulties or persistent challenging behaviour (Fox et al., 2003).

## 3.5 Recommendations for Providing Evidence-Based Practices in Quebec's Early Childhood Centres

This section concludes this thesis by providing practical recommendations for early childhood centres based on the obtained results.

### 3.5.1 A System of Supports

The recent advancements proposed by the Quebec government for improving the quality of early childhood education services are in line with evidence-based practices. These improvements are encouraging, as they offer clear recommendations that can be implemented by stakeholders in the early childhood education system. Nevertheless, even when families engage in early screening and follow the numerous steps to receive services, there are often multiple delays. As children wait longer to receive services, the opportunity to intervene before kindergarten becomes smaller. In addition, many children attend early childhood settings daily while waiting for assistance. Therefore, educators working in these settings must have effective strategies that can be applied immediately, so they need many options in their repertoire to empower them to intervene. One solution to this could be a system of supports, such as the PM, which helps educators in early childhood settings implement a multi-tiered framework to improve the social, emotional, and behavioural outcomes of young children at risk of DD or delays. The NCPMI provides sustainable systems for implementing the PM in both early childhood education and early intervention programs. The PM's objectives are to promote the social-emotional competencies of young children, reduce challenging behaviour, encourage family collaboration, implement data-based systems to measure progress, and foster inclusion (Rausch & Strain, 2021). The NCPMI provides states, programs, and professionals with the ability to achieve these objectives on a large scale. They offer technical assistance and web-based resources, including training, resources, tools, webinars, and additional materials to support the application of the PM. Furthermore, they provide mentorship to future leaders in the field to

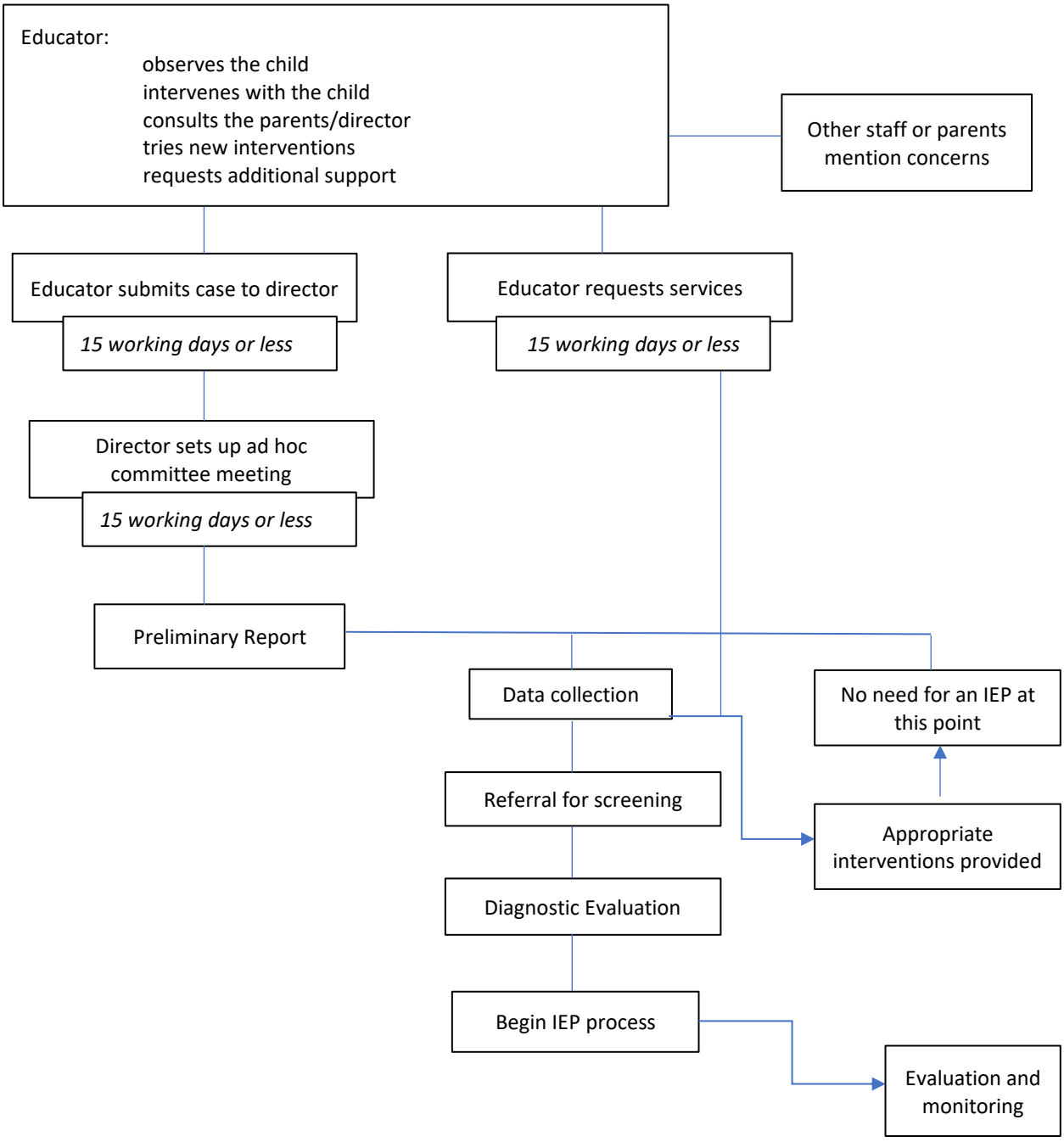
ensure the sustained implementation of the model and establish systems to coordinate the PM activities with other programs.

To bridge the gap between early screening and the onset of intervention services, a multi-tiered system of supports, such as the PM, would offer young children at risk of delays more immediate intervention in their early childhood setting, where they spend most of their day. A practical method for implementing interventions such as the PM in these settings would be to adopt a procedure similar to that established in the school system (see flowchart below in Figure 3.1) (Central Québec School Board, 2014; Commission des droits de la personne et des droits de la jeunesse, 2018). Early childhood settings should have a multidisciplinary resource department with a team of professionals (e.g., psychologist, speech-language pathologist, occupational therapist, special education technician, social worker) that can provide training and support to administrators, educators, and families. Each resource department would be associated with several early childhood settings within a specific geographical area, allowing ease of commuting between locations, consistency between the environments, and more efficient services. A resource department would offer a uniform system for implementing early screening, detection, and intervention in early childhood settings.

### 3.5.2 Early Detection and Screening at the Beginning of the School Year

At the beginning of the school year or when a child begins attending an early childhood setting, educators should take the time to develop a rapport with each child. During this process, educators should address any difficulties observed, be proactive by incorporating preventative strategies in the classroom routine, as part of the PM, and document their observations. Educators should discuss their concerns with the administrator, the child's parents, and, if necessary, members of the resource department, thus allowing the child to access support services quickly if concerns arise. If the child's difficulties persist or the educator requires more support to integrate them into the classroom, the educator should inform the director of the early childhood setting. The director should then organize an ad hoc committee to identify solutions and provide recommendations (Central Québec School Board, 2014). During the ad hoc committee meeting, the director would present the concerns and the interventions implemented to address them. The committee could then provide suggestions for interventions that to be implemented in the classroom, early childhood setting, home, and community, and make a referral to their multidisciplinary team for screening (Central Québec School Board, 2014).

Figure 3.1 Flowchart: Proposed Procedures for the Identification, Evaluation, and Intervention for Children with Special Needs in Early Childhood Settings




Adapted from the Central Québec School Board (2014)

### 3.5.3 Evaluation Process and Creating an Individual Education Plan

Following the screening, the team would decide if the child required a formal diagnostic evaluation and make any necessary arrangements for this. If the team cannot provide the appropriate assessment or support for the child, they can refer them to an external professional (e.g., pediatrician, neurologist, audiologist, psychiatrist). Children with or at risk of developmental delays should receive an Individualized Education Plan (IEP; Central Québec School Board, 2014). An IEP identifies the needs and services that the child requires to be successful in the classroom. This plan should include the strengths and weaknesses of the child; the target objectives and skills to be developed; the support services required to help the child develop those skills; the intervention strategies; the responsibilities of each member of the team to ensure the child's progress; the process of progress evaluation; procedures for reviewing the IEP; and signatures from everyone present to confirm consensus about the plan. In the IEP, recommendations can be made regarding the most appropriate inclusive early education settings, and teams should prioritize children attending settings close to their homes When making recommendations for integrating a child with special needs, the team should prioritize children attending inclusive early childhood settings close to their homes (Central Québec School Board, 2014). However, the child's best interest should always be of paramount importance. Therefore, if the environment does not meet the child's needs adequately, the team and parents should consider an alternative setting.

This proposed structure for early detection, screening, and intervention offers a practical solution for addressing the current challenges faced by Quebec's early childhood education system. The existing provincial government programs that have been described will certainly ameliorate the day-to-day experiences of early childhood educators and their settings. However, they represent only the first steps in an ongoing process. By incorporating the PM as a multi-tiered framework and support system in early childhood settings, educators would be able to gain more knowledge and expertise in evidence-based practices. In addition, it would offer them a structured support system in the form of coaching, enable them to be more proactive by intervening early to improve the outcomes of all children, especially those at risk of DD, and provide practical solutions to the daily challenges faced by these educators.

**APPENDIX A**

**ETHICS CERTIFICATE FOR RESEARCH PROJECT BY THE COMITÉ D'ÉTHIQUE DE LA RECHERCHE SUR LES ÊTRES HUMAINS DE L'UQAM**

UQÀM | Comités d'éthique de la recherche avec des êtres humains

No. de certificat: 2851

Certificat émis le: 30-10-2018

# CERTIFICAT D'APPROBATION ÉTHIQUE

Le Comité d'éthique de la recherche pour les projets étudiants impliquant des êtres humains (CERPE FSH) a examiné le projet de recherche suivant et le juge conforme aux pratiques habituelles ainsi qu'aux normes établies par la *Politique No 54 sur l'éthique de la recherche avec des êtres humains* (Janvier 2016) de l'UQAM.

| | |
|---|---|
| Titre du projet: | Evaluating the Pyramid Model and Coaching Educators in Daycare Settings in Promoting Social-Emotional Competence and Decreasing Challenging Behaviors in Young Children |
| Nom de l'étudiant: | Alexandra ROTHSTEIN |
| Programme d'études: | Doctorat en psychologie |
| Direction de recherche: | Mélina RIVARD |

## Modalités d'application

Toute modification au protocole de recherche en cours de même que tout événement ou renseignement pouvant affecter l'intégrité de la recherche doivent être communiqués rapidement au comité.

La suspension ou la cessation du protocole, temporaire ou définitive, doit être communiquée au comité dans les meilleurs délais.

**Le présent certificat est valide pour une durée d'un an à partir de la date d'émission.** Au terme de ce délai, un rapport d'avancement de projet doit être soumis au comité, en guise de rapport final si le projet est réalisé en moins d'un an, et en guise de rapport annuel pour le projet se poursuivant sur plus d'une année. Dans ce dernier cas, le rapport annuel permettra au comité de se prononcer sur le renouvellement du certificat d'approbation éthique.

Anne-Marie Parisot

Professeure, Département de linguistique

Présidente du CERPÉ FSH

**APPENDIX B**

**FINAL NOTICE OF ETHICAL COMPLIANCE**

UQÀM | Comités d'éthique de la recherche avec des êtres humains

No. de certificat : 2019-2278
Date : 2021-12-06

## AVIS FINAL DE CONFORMITÉ

Le Comité d'éthique de la recherche pour les projets étudiants impliquant des êtres humains (CERPE FSH) a examiné le projet de recherche suivant et le juge conforme aux pratiques habituelles ainsi qu'aux normes établies par la *Politique No 54 sur l'éthique de la recherche avec des êtres humains* (avril 2020) de l'UQAM.

Titre du projet : Evaluating the Pyramid Model and Coaching Educators in Daycare Settings in Promoting Social-Emotional Competence and Decreasing Challenging Behaviors in Young Children

Nom de l'étudiant : Alexandra Rothstein

Programme d'études : Doctorat en psychologie

Direction(s) de recherche : Mélina Rivard

Merci de bien vouloir inclure une copie du présent document et de votre certificat d'approbation éthique en annexe de votre travail de recherche.

Les membres du CERPE FSH vous félicitent pour la réalisation de votre recherche et vous offrent leurs meilleurs voeux pour la suite de vos activités.

Sylvie Lévesque
Professeure, Département de sexologie
Présidente du CERPÉ FSH

**APPENDIX C**

**FLYER FOR RESEARCH PROJECT**

***Evaluating the Pyramid Model and Coaching Educators in Daycare Settings in Promoting Social-Emotional Competence and Decreasing Challenging Behaviours in Young Children***

As part of a research project, we are looking for **educators working in subsidized daycare settings with children between the ages of 3.5 and 5 with a global developmental day, autism spectrum disorder and/or challenging behaviours.**

Participation in this study involves:

- 2 day training on the Pyramid Model
- Completion of questionnaires regarding attitudes towards inclusion and practices on social emotional competencies
- A structured 15 min interview on Pyramid Model practices
- Completion of questionnaire on social skills and challenging behaviours of students in the classroom
- Live coaching and feedback on implementation of Pyramid practices

**To participate in this project and to obtain more information, please contact:** Alexandra Rothstein, BCBA, Ph.D/ Psy.D profile candidate at Rothstein.alexandra@courrier.uqam.ca or at (514) 916-0136.

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**APPENDIX D**

**CONSENT FORM FOR EDUCATORS**

**Title:** Evaluating the Pyramid Model and Coaching Educators in Daycare settings in Promoting Social-Emotional Competence and Decreasing Challenging Behaviours in Young Children

**Project Manager (s):**

Principal Investigator:

Alexandra Rothstein, M.A., BCBA, PhD/PsyD (candidate)
Contact – Rothstein.alexandra@courrier.uqam.ca - (514) 916-0136
Université du Québec à Montréal, 100 Sherbrooke St W, Montreal, QC H2X 3P2

Project supervisor:

Dre. Melina Rivard, PhD/PsyD
Contact - rivard.melina@uqam.ca - (514) 987-3000 poste 5235
Université du Québec à Montréal, 100 Sherbrooke St W, Montreal, QC H2X 3P2 Local : SU-3145

**Description of the research and objectives**

A population survey across Quebec revealed that 26% of Quebec families live with a child with special needs (e.g., developmental disabilities (DD) or mental health problems), which represents a potential of one in four families that receives daycare services. Young children with DD exhibiting challenging behaviours is estimated between 40% to 64%. The management of these challenging behaviours and adapting the activities to meet the needs of these children demands specialized trainings. Some studies highlight that daycare can benefit from supplemental training to meet these needs. One training that has been receiving empirical support is the Pyramid Model which is a multi-tiered system of support teaching social emotional skills to preschool aged children. There has been growing evidence on the effectiveness of the Pyramid Model (PM) for promoting young children's social-emotional competence and reducing challenging behaviours.

The objective of the current project is to evaluate the Pyramid Model by applying Behaviour Skills Training (BST) as coaching method for educators working in inclusive daycares in the province of Quebec. This project involves two studies; study 1, a 2-day training on Pyramid Model for 40 daycare educators and study 2, a live coaching in the classroom to 12 educators on how to implement the PM strategies in the classroom. Study 1 will measure the effects of the trainings on educator's knowledge of PM practices and attitudes towards inclusion. In study 2, the educator's fidelity of implementation as well as the social-emotional skills and challenging behaviours of the children in the classroom will be measured.

**Nature and duration of participation**

Engagement in this phase of the research project involves educator involvement and includes:

- Classroom observations (1.5 hours each) to conduct both the Teaching Pyramid Observation Tool (TPOT) and Classroom Assessment Scoring System (CLASS). Observations will be conducted for each measure at the beginning of the project and following the completion of the project.
- Structured interview on specific indicators on Teaching Pyramid Observation Tool (TPOT) (15-20 minutes)

- Completion of questionnaires on the social skills and challenging behaviours of the target child in their class (20 minutes)
- The re-evaluation of the questionnaires at the completion of the intervention
- Accept the presence of an observer who will be taking observational data to be present in their classroom daily (20 minutes per day)
- Accept live coaching provided by the principal researcher on a weekly basis

Each participant will participate in the study for a maximum of 3 months which will occur between Winter 2019 and will be completed by Summer 2019.

**Location of research**

Educators are asked to complete the questionnaires at work and return them in a pre-stamped, pre-addressed envelope addressed to the principal investigator. They are invited to call or write to the researcher by email if questions arise.

**Benefits that may arise from participation**

The training aims to provide the educators knowledge and skills on a program that is supported by research. Children who are selected for participation in the project (second study) will be provided with intervention strategies to help decrease their challenging behaviours and all children in the class will benefit from promotion and preventative measures adopted by the educators.

The daycare staff and parents of children in the daycare will be able to learn new strategies that foster promotion and prevention of challenging behaviours. Children will have access to a program that aims to increase social emotional skills and facilitate their transition to kindergarten.

The benefits of participating in this project will have a direct impact on both the educators working in the daycares as well as the children in the classes. As a first step, the educators will be better equipped and have increased knowledge and strategies to help prevent challenging behaviours and promote social emotional competencies in young children attending daycare settings. Secondly, the children who will be included in this research project, will be provided with strategies that will increase their social emotional competencies which will decrease their challenging behaviours. On a larger scale, this project will highlight the impact for interventions and trainings to be provided to subsidized daycare settings in the province of Quebec and evaluate the feasibility in this context to make recommendations for its implementation on a larger scale.

**Risks and inconveniences that may arise from participation in research**

Participation in this research should not cause any harm. If any damage occurs during the project, you will be informed immediately and will follow up.

**Withdrawing my participation**

Participation in the project is free and voluntary. The participant may withdraw from the project at any time, without fear of any prejudice. A possible withdrawal from the project would not bring any change to the services offered by the daycare. The withdrawal of the participation can be done by communicating directly by telephone or in writing with the principal investigator.

Upon withdrawal of the project, all documents pertaining to the participant will be destroyed.

**Confidentiality**

To assure the confidentiality of the data of the participants in the research, a code will be assigned to each participant by the research assistant. Thus, each test or questionnaire will be identified by this code without ever indicating the name of the person. The data will be stored under lock and key in the Epaulard Laboratory located at UQAM. The research data will be destroyed five years following termination of the research project.

**Legal and professional responsibilities**

By accepting to participate in this study, the participant does not waive any of his legal rights, nor does he release the researchers or institutions involved from their legal and professional responsibilities.

**Contacts**

For any complaints related to the research project, please contact Research and Planning Officer, Research Ethics Advisor for student projects responsible for academic offenses, Faculty of Human Sciences. 514.987.3000, poste 3642.

**More information about the project**

The Principal Investigator will respond at all times and to the best of her knowledge all questions from the participants about the research project. It is possible to contact the researcher at any time by phone at (514) 916-0136 or by email: Rothstein.alexandra@courrier.uqam.ca

I, ( ), acknowledge that I have read [or have read] this form and understand the information provided to me so that I may give informed consent. All my questions have been answered to my complete satisfaction. I had enough time to think about whether or not to participate in this study. I understand that my participation in this study is entirely voluntary and that I can decide to withdraw at any time, without any penalty. I voluntarily consent to participate in this study.

1. _____ _____ _____
Educator's name Educator's signature Date

Phone:
e-mail:

2. _____ _____ _____
Researcher's name Researcher's signature Date

**APPENDIX E**

**CONSENT FORM FOR PARENTS**

**Title:** Evaluating the Pyramid Model and Coaching Educators in Daycare settings in Promoting Social-Emotional Competence and Decreasing Challenging Behaviours in Young Children

**Project Manager (s):**

Principal Investigator:

Alexandra Rothstein, M.A., BCBA, PsyD/PhD (candidate)
Contact – rothstein.alexandra@courrier.uqam.ca - (514) 916-0136
Université du Québec à Montréal, 100 Sherbrooke St W, Montreal, QC H2X 3P2

Project supervisor:

Dre. Melina Rivard, PhD/PsyD
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**Description of the research and objectives**

A population survey across Quebec revealed that 26% of Quebec families live with a child with special needs (e.g., developmental disabilities (DD) or mental health problems), which represents a potential of one in four families that receives daycare services. Young children with DD exhibiting challenging behaviours is estimated between 40% to 64%. The management of these challenging behaviours and adapting the activities to meet the needs of these children demands specialized trainings. Some studies highlight that daycares can benefit from supplemental training to meet these needs. One training that has been receiving empirical support is the Pyramid Model which is a multi-tiered framework for teaching social emotional skills to preschool aged children. There has been growing evidence on the effectiveness of the Pyramid Model (PM) for promoting young children's social-emotional competence and reducing challenging behaviours.

The objective of the current project is to evaluate the Pyramid Model by applying live coaching to educators working in inclusive daycares in the province of Quebec. This project will include a 2-day training on Pyramid Model and live coaching in the classroom to educators on how to implement the PM strategies in the classroom. This project involves two studies: Study 1 will measure the effects of the trainings on educator's knowledge of PM practices and attitudes towards inclusion. In study 2, the educator's fidelity of implementation as well as the social-emotional skills and challenging behaviours of the children in the classroom will be measured.

**Nature and duration of participation**

Engagement in research involves the involvement of children aged 3.5-5 years old and includes:

- Daily observation and data collection of child's positive social behaviours and challenging behaviours (20 minutes per day).
- Educators and parents will complete questionnaires on the social skills and challenging behaviours of the target child in their class (20 minutes) prior to beginning the study and at the completion of the study.

Each participant will participate in the study for a maximum of 3 months which will occur between Winter 2019 and will be completed by Summer 2019.

**Location of research**

Educators are asked to complete the questionnaires at work and return them in a pre-stamped, pre-addressed envelope addressed to the principal investigator. They are invited to call or write to the researcher by email if questions arise.

**Benefits that may arise from participation**

The training aims to provide the educators knowledge and skills on a program that is supported by research. Children who are selected for participation in the project (second study) will be provided with intervention strategies to help decrease their challenging behaviours and all children in the class will benefit from promotion and preventative measures adopted by the educators.

The daycare staff and parents of children in the daycare will be able to learn new strategies that foster promotion and prevention of challenging behaviours. Children will have access to a program that aims to increase social emotional skills and facilitate their transition to kindergarden.

**Risks and inconveniences that may arise from participation in research**

Participation in this research should not cause any harm. If any damage occurs during the project, you will be informed immediately.

**Withdrawing my participation**

Participation in the project is free and voluntary. The participant may withdraw from the project at any time, without fear of any prejudice. A possible withdrawal from the project would not bring any change to the services offered by the daycare. The withdrawal of the participation can be done by communicating directly by telephone or in writing with the principal investigator.

Upon withdrawal of the project, all documents pertaining to participant will be destroyed.

**Confidentiality**

To assure the confidentiality of the data of the participants in the research, a code will be assigned to each participant by the research assistant. Thus, each test or questionnaire will be identified by this code without ever indicating the name of the person. The data will be stored under lock and key in the Epaulard Laboratory located at UQAM. The research data will be destroyed five years following termination of the research project.

**Legal and professional responsibilities**

By accepting to participate in this study, the participant does not waive any of his legal rights, nor does he release the researchers or institutions involved from their legal and professional responsibilities.

**Contacts**

For any complaints related to the research project, please contact the Research and Planning Officer, Research Ethics Advisor for student projects responsible for academic offenses, Faculty of Human Sciences at 514.987.3000, poste 3642.

**More information** about **the project**

The Principal Investigator will respond at all times and to the best of her knowledge all questions from the participants about the research project. It is possible to contact the researcher at any time by phone at (514) 916-0136 or by email: Rothstein.alexandra@courrier.uqam.ca

I, [ ], acknowledge that I have read [or have read] this form and understand the information provided to me so that I may give informed consent. All my questions have been answered to my complete satisfaction. I had enough time to think about whether or not to participate in this study. I understand that my participation in this study is entirely voluntary and that I can decide to withdraw at any time, without any penalty. I voluntarily consent to participate in this study.

1. _____
Child's name

_____ _____ _____
Parent's name Parent's signature Date

Phone:
e-mail:

2. _____ _____ _____
Researcher's name Researcher's signature Date

**APPENDIX F**

**SOCIODEMOGRAPHIC QUESTIONNAIRE**

**Date: ____/_____/_____**

**GENERAL INFORMATION**

1. **Code for participation**: _____

2. **Your age**
   a) 18-25 years old
   b) 25-35 years old
   c) 35-45 years old
   d) 45-55 years old
   e) 55-65 years old
   f) 65 years old and +
   g) Prefer not to answer

3. **Ethnicity**:
   a) Caucasian
   b) Hispanic or Latino
   c) Black or African American
   d) Native American or American Indian
   e) Asian / Pacific Islander
   f) Other:_____
   g) Prefer not to answer

4. **Place of birth**: _____

5. **If you are not from Quebec, for how long have you been in Montreal/Qc: _____**

6. **Language spoken**:
   a) French
   b) English
   c) Other: _____

7. **Mother tongue**:
   a) French
   b) English
   c) Other: _____

8. **Circle your annual income:**
   a) under $10 000
   b) 10 000$- $29 999$
   c) 30 000$-$49 999$
   d) 50 000$- $69 999$
   e) 70 000$ or more
   f) Prefer not to answer

9. **Circle your highest level of education and specify in which domain you obtain your diploma and in what domain:**
   a) High school degree
   b) Attestation d'étude collégiale (AEC) : _____
   c) Diplôme d'étude collégiale (DEC) : _____
   d) Bachelor's degree: _____
   e) Master's degree: _____
   f) Other: _____

10. **Name your current place of employment**:
    _____

11. **Name your position and indicate for how long you have been in this position**
    1. Current position: _____
    2. How long: _____

12. **Did you work in another domain before, if so which one?**

_____

13. **How many years of experience have you had in the field of early childhood education in total?**
    _____

14. **You are working**
    a) Part-time
    b) Full time
    c) Contractual

15. **How many children with special needs, development disabilities or challenging behaviour have you worked with?**
    a) 0
    b) 1-5
    c) 6-10
    d) 11-15
    e) 16-20
    f) 20 or more

16. **Which of the following developmental disabilities or special needs do you have experience working with?**
    a) Attention deficit hyperactivity disorder (ADHD)
    b) Global development delay (GDD)
    c) Autism spectrum disorder (ASD)
    d) Intellectual disability (ID)
    e) Conduct problems such as oppositional defiant disorder _____
    f) Genetic disorder: _____
    g) Other: _____

17. **How would you rate your level of comfort when working with children with special needs?**
    a) Very uncomfortable
    b) Uncomfortable
    c) Neutral
    d) Comfortable
    e) Very comfortable

18. **How would you rate your level of knowledge in how to manage challenging behaviours?**
    a) Very knowledgeable
    b) Knowledgeable
    c) Little knowledge
    d) No knowledge at all

19. **How would you rate your level of knowledge in how to include children with special needs in the classroom?**
    a) Very knowledgeable
    b) Knowledgeable
    c) Little knowledge
    d) No knowledge at all

20. **What previous training or workshops have you attended?**

    _____
    _____
    _____

21. **How many children are there in the group/classroom**: _____

22. **Do you work with other educator(s) in the classroom?** _____

23. **If so**
    1. How many _____
    2. What are each of your roles? _____
       _____

24. **Have you collaborated with other professionals regarding children in your classroom?**
    a) Occupational therapist
    b) Speech language therapist
    c) Psychologist
    d) Psychoeducator
    e) Physiotherapist
    f) Behaviour therapist
    g) Other: _____
    h) None of the above

**APPENDIX G**

**EDUCATOR OBSERVATION FORM**

Code: _____ Date: _____ Initial: _____

| Interval of 30 seconds | **Key Practices (Educator 1)** | | **Red Flags (Educator 1)** | | **Key Practices (Educator 2)** | | **Red Flags (Educator 2)** | |
|---|---|---|---|---|---|---|---|---|
| 1 | Y | N | Y | N | Y | N | Y | N |
| 2 | Y | N | Y | N | Y | N | Y | N |
| 3 | Y | N | Y | N | Y | N | Y | N |
| 4 | Y | N | Y | N | Y | N | Y | N |
| 5 | Y | N | Y | N | Y | N | Y | N |
| 6 | Y | N | Y | N | Y | N | Y | N |
| 7 | Y | N | Y | N | Y | N | Y | N |
| 8 | Y | N | Y | N | Y | N | Y | N |
| 9 | Y | N | Y | N | Y | N | Y | N |
| 10 | Y | N | Y | N | Y | N | Y | N |
| 11 | Y | N | Y | N | Y | N | Y | N |
| 12 | Y | N | Y | N | Y | N | Y | N |
| 13 | Y | N | Y | N | Y | N | Y | N |
| 14 | Y | N | Y | N | Y | N | Y | N |
| 15 | Y | N | Y | N | Y | N | Y | N |
| 16 | Y | N | Y | N | Y | N | Y | N |
| 17 | Y | N | Y | N | Y | N | Y | N |
| 18 | Y | N | Y | N | Y | N | Y | N |
| 19 | Y | N | Y | N | Y | N | Y | N |
| 20 | Y | N | Y | N | Y | N | Y | N |
| Total per column= | | | | | | | | |
| Percentage= Y/total # of opp x 100 | | | | | | | | |

KP=
RF=

**APPENDIX H**

**CHILD OBSERVATION FORM**

Code: _____ Date: _____ Initial: _____

| Interval of 30 seconds | **Positive Social Behaviour (child 1)** | | **Challenging Behaviours (c 1)** | | **Positive Social Behaviour (c 2)** | | **Challenging Behaviour (c 2)** | |
|---|---|---|---|---|---|---|---|---|
| 1 | Y | N | Y | N | Y | N | Y | N |
| 2 | Y | N | Y | N | Y | N | Y | N |
| 3 | Y | N | Y | N | Y | N | Y | N |
| 4 | Y | N | Y | N | Y | N | Y | N |
| 5 | Y | N | Y | N | Y | N | Y | N |
| 6 | Y | N | Y | N | Y | N | Y | N |
| 7 | Y | N | Y | N | Y | N | Y | N |
| 8 | Y | N | Y | N | Y | N | Y | N |
| 9 | Y | N | Y | N | Y | N | Y | N |
| 10 | Y | N | Y | N | Y | N | Y | N |
| **Second Interval of 5 minutes** | | | | | | | | |
| **1** | Y | N | Y | N | Y | N | Y | N |
| **2** | Y | N | Y | N | Y | N | Y | N |
| **3** | Y | N | Y | N | Y | N | Y | N |
| **4** | Y | N | Y | N | Y | N | Y | N |
| **5** | Y | N | Y | N | Y | N | Y | N |
| **6** | Y | N | Y | N | Y | N | Y | N |
| **7** | Y | N | Y | N | Y | N | Y | N |
| **8** | Y | N | Y | N | Y | N | Y | N |
| **9** | Y | N | Y | N | Y | N | Y | N |
| **10** | Y | N | Y | N | Y | N | Y | N |

C1: PSB_____ CB_____

C2: PSB_____ CB_____

**APPENDIX I**

**TREATMENT ACCEPTABILITY RATING FORM FOR ARTICLE 1**

**TREATMENT ACCEPTABILITY RATING FORM-REVISED**

Please complete the list of items below. The items must be completed by checking off the line under the question that best represents your feelings about the implementation of the Pyramid Model in your daycare classroom.

**PART I – Questions on the acceptability of treatment**

1. How clear is your understanding of this intervention?

*Not clear at all* *Neutral* *Very Clear*

2. How acceptable did you find this intervention for the students in your classroom?

*Not at all acceptable* *Neutral* *Very acceptable*

3. How ready are you to put the intervention in place?

*Not at all* *Neutral* *Very ready*

*4.* Given the challenging behaviours of your student, do you find this a reasonable treatment?

*Not at all reasonable* *Neutral* *Very reasonable*

5. How expensive will it be to put this treatment in place?

*Not at all costly* *Neutral* *Very costly*

6. How likely do you think there might be disadvantages to implementing this treatment?

*Not likely at all* *Neutral* *Very likely*

7. How likely do you think it is that this intervention will lead to permanent improvements in your student's behaviours?

*Not likely* *Neutral* *Very likely*

8. How long will it take each day for you to put this treatment in place?

*Not much time at all* *Neutral* *Lots of time*

9. How confident are you that this treatment will be effective?

*Not at all confident* *Neutral* *Very confident*

10. In comparison to other children with challenging behaviours, how serious are your student's problems?

*Not at all* *Neutral* *Very serious*

11. How disruptive will applying this treatment be to your classroom?

*Not at all disturbing* *Neutral* *Very disruptive*

12. How likely do you think that the treatment will be effective for your students?

*Not at all effective* *Neutral* *Very effective*

13. How affordable is this treatment for your organization?

*Not at all* *Neutral* *Very affordable*

14. How much do you like the strategies used in the proposed treatment?

*I do not like them at all* *Neutral* *I like them a lot*

15. How ready are your co-workers to help you put in place the proposed treatment?

*Not at all ready* *Neutral* *Very ready*

16. How likely is it that adverse side effects result from this treatment?

*No side effects* *Neutral* *Many side effects are likely*

17. How likely is your student to experience discomfort during this treatment?

*No discomfort* *Neutral* *Lots of discomfort*

*18.* How severe are your student's challenging behaviours?

*Not at all severe* *Neutral* *Very severe*

19. How ready are you to change your routine to implement this treatment?

*Not at all ready* *Neutral* *Very ready*

20. How well does this treatment fit into your classroom routine?

*Not well* *Neutral* *Very well*

**PART 2 – Questions for Improving Training**

21. Do you have any suggestions/improvements to the content of the training?

22. Do you have any improvements / suggestions to propose in the format of the training?

Other comments/suggestions

**APPENDIX J**

**TREATMENT ACCEPTABILITY RATING FORM FOR ARTICLE 2**

**TREATMENT ACCEPTABILITY RATING FORM-REVISED**

Please complete the list of items below. The items must be completed by checking off the line under the question that best represents your feelings about the implementation of the Pyramid Model in your daycare classroom.

**PART I – Questions on the acceptability of treatment**

1. How clear is your understanding of this intervention?

*Not clear at all* *Neutral* *Very Clear*

2. How acceptable did you find this intervention for the students in your classroom?

*Not at all acceptable* *Neutral* *Very acceptable*

3. How ready are you to put the intervention in place?

*Not at all* *Neutral* *Very ready*

*4.* Given the challenging behaviours of your student, do you find this a reasonable treatment?

*Not at all reasonable* *Neutral* *Very reasonable*

5. How expensive will it be to put this treatment in place?

*Not at all costly* *Neutral* *Very costly*

6. How likely do you think there might be disadvantages to implementing this treatment?

*Not likely at all* *Neutral* *Very likely*

7. How likely do you think it is that this intervention will lead to permanent improvements in your student's behaviours?

*Not likely* *Neutral* *Very likely*

8. How long will it take each day for you to put this treatment in place?

*Not much time at all* *Neutral* *Lots of time*

9. How confident are you that this treatment will be effective?

*Not at all confident* *Neutral* *Very confident*

10. In comparison to other children with challenging behaviours, how serious are your student's problems?

*Not at all* *Neutral* *Very serious*

11. How disruptive will applying this treatment be to your classroom?

*Not at all disturbing* *Neutral* *Very disruptive*

12. How likely do you think that the treatment will be effective for your students?

*Not at all effective* *Neutral* *Very effective*

13. How affordable is this treatment for your organization?

*Not at all* *Neutral* *Very affordable*

14. How much do you like the strategies used in the proposed treatment?

*I do not like them at all* *Neutral* *I like them a lot*

15. How ready are your co-workers to help you put in place the proposed treatment?

*Not at all ready* *Neutral* *Very ready*

16. How likely is it that adverse side effects result from this treatment?

*No side effects* *Neutral* *Many side effects are likely*

17. How likely is your student to experience discomfort during this treatment?

*No discomfort* *Neutral* *Lots of discomfort*

*18.* How severe are your student's challenging behaviours?

*Not at all severe* *Neutral* *Very severe*

19. How ready are you to change your routine to implement this treatment?

*Not at all ready* *Neutral* *Very ready*

20. How well does this treatment fit into your classroom routine?

*Not well* *Neutral* *Very well*

**PART 2 – Questions for Improving Coaching**

21. Do you have any suggestions/improvements to the implementation of the coaching?

22. Do you have any improvements / suggestions to propose in the format of the coaching?

Other comments/suggestions

**APPENDIX K**

**ACTION PLAN TEMPLATE**

NCPMI Action Planning Form

Teacher: _____ Coach: _____ Date: _____

| Goal | Action Steps | Materials or Resources Needed | Timeline | My goal is met when… | Date Action Step Completed |
|---|---|---|---|---|---|
| | | | | | |

**Notes:**

Page _____ of _____ Date Goal Set:_____ Date Goal Completed:_____

**APPENDIX L**

**IMPLEMENTATION FIDELITY CHECKLIST**

| Steps to implement fidelity | Mon | Tues | Wed | Thur | Fri |
|---|---|---|---|---|---|
| Code the name of the educator and child | | | | | |
| Place your initials on the data sheet | | | | | |
| Put the date on the data sheet | | | | | |
| Recorded time that you began the observation and time that ended observation | | | | | |
| Recorded activities that were observed | | | | | |
| Took data for 5 minute interval (30 seconds each) for each educator twice daily | | | | | |
| Took data for 5 minute interval (30 seconds each) for each child twice daily | | | | | |
| Counted number of Yes and calculated percentage of intervals of Y for key practices and red flags for each educator | | | | | |
| Counted number of Yes and calculated percentage of intervals of Y for positive social behaviours and challenging behaviour for each child | | | | | |
| Upload data on google drive | | | | | |
| Highlight any intervals of 70% in orange and 80% in yellow and alert Alex to let her know so that she changes the target | | | | | |
| Updated key practices, red flags, positive social behaviour, challenging behaviour on google drive once Alex has met with educators | | | | | |
| Place data sheet on clipboard and place clipboard in a locked cabinet at the daycare | | | | | |

**APPENDIX M**

**INTERVIEW QUESTIONS ON SOCIAL VALIDITY OF PM**

The following questions concern all the preparation related to the implementation of the Pyramid Model.

1. In General, are you satisfied with the training received?
2. To your knowledge, what were the main objectives of the 2-day training you received? What were the main components?
3. Would you say that this training has prepared you well for the implementation of the Pyramid Model? If yes, how did it prepare you? If no, how could it have prepared you better?
4. Has it made any changes in the way you work or approach problematic behaviours? If yes, how?
5. Did the exercises included during the training help you better understand the content?
6. Would you add one or more elements to the training? If yes, what would you add?
7. Would you remove one or more elements from the training? If yes, what would you remove?
8. What components of the training were you able to implement immediately following? Were they effective and how did they impact your classroom?
9. Do you have any suggestions for the future implementation of these trainings?

**APPENDIX N**

**IMPACT OF INCLUSION QUESTIONNAIRE**

The **Impact of Inclusion Questionnaire (IIQ)**

Development of the scale is reported in:

> Hastings, R.P., & Oakford, S. (2003). Student teachers' attitudes towards the inclusion of children with special needs. *Educational Psychology*, *23*(1), 87–94. https://doi.org/10.1080/01443410303223

Listed below are a number of statements about children with developmental disabilities and challenging behaviours. Please read each statement carefully. Use the scale below each statement to indicate your agreement or disagreement with the statement. Circle the point on the scale that best represents your opinion.

SA = Strongly agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly disagree

If you agreed with the statement, you would circle SA, or A, depending on how strong your agreement was. Similarly, if you disagreed with the statement you would circle SD, or D. If you were undecided about your opinion, you would circle U. ***Please indicate your opinion about all of the following statements.***

**Having children with developmental disabilities and challenging behaviours in my school …**

| | | |
|---|---|---|
| 1. | **…physically wears me out (T) (R)** | SD D U A SA |
| 2. | **…interrupts the classroom routine (E) (R)** | SD D U A SA |
| **3.** | **…does not prevent me from giving attention to the other children in the class (O)** | SD D U A SA |
| **4.** | **…gives them an audience to perform to (C) (R)** | SD D U A SA |
| **5.** | **…drains the school's financial resources (E) (R)** | SD D U A SA |
| **6.** | **…does not place me under additional stress (T)** | SD D U A SA |
| **7.** | **…leads to rejection from other children within the classroom (C) (R)** | SD D U A SA |
| **8.** | **…upsets the other children in the classroom (O) (R)** | SD D U A SA |

**9. …does not pose a physical threat to me (T)** SD D U A SA

**10. …negatively affects the smooth running of the school (E) (R)** SD D U A SA

**11. …does not cause disruption within the classroom (E)** SD D U A SA

**12. …increases other children's problematic behaviour in the classroom (O) (R)** SD D U A SA

**13. …is popular with parents (E)** SD D U A SA

**14. …takes up a disproportionate amount of my time (T) (R)** SD D U A SA

**15. …does not place the other children in danger (O)** SD D U A SA

**16. …does not encourage their difficult behaviour (C)** SD D U A SA

**17. …does not drain me emotionally (T)** SD D U A SA

**18. …holds back their academic performance (C) (R)** SD D U A SA

**19. …gives people a more positive view of the school (E)** SD D U A SA

**20. …is not a frightening experience for them (C)** SD D U A SA

**21. …increases my workload to an unacceptable level (T) (R)** SD D U A SA

**22. …increases other children's learning opportunities in the classroom (O)** SD D U A SA

**23. …benefits their personal development (C)** SD D U A SA

**24. …negatively affects the achievement of other children in the classroom (O) (R)** SD D U A SA

**T = impact on teacher**
**E = impact on environment**
**O = impact on other children**
**C = impact on the target child**

**R = negatively worded items that should be reverse scored, so that high scores indicate a more positive attitude.**

**Item 24 was excluded from other child scale as described in Hastings and Oakford (2003).**

**Each item is scored 1-7, with 7 indicating the most positive attitude.**

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