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Collaborative Coaching in Pediatric Rehabilitation: An Effectiveness-Implementation Study of the Applied Coaching Model

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Abstract

Learner-centered models have become more prevalent within early childhood interventions. However, it is still unclear which components are being implemented in clinical practice and if therapists are receiving the proper training to implement these strategies (Ward et al., 2020). The primary objective of this study is to evaluate the implementation outcomes of appropriateness, adoption, acceptability and fidelity of a novel coaching intervention, the Applied Coaching Model (ACM), and practice support tool, the Applied Coaching Tool (ACT).

An effectiveness-implementation Hybrid Type 1 design was used to gather information on the ACM and ACT delivery and implementation at the Early Childhood Rehabilitation Program associated with Alberta Health Services. This study demonstrates that the ACM and ACT meets the acceptability, appropriateness, adoption, and fidelity criteria of implementation within the pediatric rehabilitation context. These findings will provide the Alberta Children's Hospital, Alberta Health Services, and other pediatric rehabilitation programs with confidence to create a larger implementation plan and expand training to all healthcare professionals providing care to children under the age of five years.

Keywords: Coaching, Family-Centered Care, Pediatric Rehabilitation, Therapeutic Relationship, Implementation-Effectiveness, Practice Change

Lay Summary

Background

The Applied Coaching Model (ACM) and Applied Coaching Tool (ACT) were created by a physiotherapist at the Alberta Children's Hospital, to be used by therapists to help parents learn about their child's development and achieve their child's therapy goals. The program uses family-centered care, relationship building, and coaching to help guide parents how best to help their child. This program has different strategies that therapists can use to connect with families to assist in creating goals, learning, practicing skills, receiving feedback, and helping parents learn how to modify the strategies they use based on how their child performs/develops.

Purpose

To determine if the ACM and ACT will be accepted and used as intended by therapists in the Early Childhood Rehabilitation Program at the Alberta Children's Hospital.

Intervention

Therapists joined a one-day training session led by one of the study investigators acting as a local site champion. Therapists were asked to choose coaching behaviours to practice and try the ACM and ACT with two clients per week over the course of 5 months to guide changes to their therapy delivery. They were also given time in their schedules twice a week to use practice sheets to write about their experiences with applying the model with their clients. Participants were asked to journal on anything that helped or prevented them from using this model during their sessions. At the end of the training, the champion watched the therapists using the model in 2-3 sessions with a patient to score the therapist's use of the model.

Results

Results showed that therapists accepted and used the ACM and ACT accurately in their sessions with their clients. Results from this study will be used to create a plan to train other therapists at the Alberta Children's Hospital and other children's hospitals to ensure the model is applied appropriately in practice.

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Introduction

Pediatric rehabilitation has evolved from traditional child-focused interventions to learner-focused interventions including coaching, family-centered care (FCC), and context-based interventions. Traditional child-focused interventions emphasize addressing the child's barriers during rehabilitation performance (Ketelaar et al, 2010) and the primary decision-maker is the therapist. In comparison, learner-focused intervention models recognize that parents have more influence and time with their children than healthcare providers; therefore, creating a greater number of opportunities in naturalistic settings to provide the stimulation needed for meaningful change (Mahoney & Perales, 2005). The family plays a leading role in their child's development, therefore changing family behavior is essential to creating changes in child outcomes (Shelton, 1987). Learner-centered models have become more prevalent within early childhood interventions as they have significantly higher levels of efficacy in successfully achieving goals, increasing parent self-efficacy and competence in comparison to traditional therapy (Hielkema et al., 2010; Hwang, Chao, & Liu, 2013).

Learner-centered models emphasize the equal partnership between learner and clinician to develop realistic expectations and goals for children. Parents gain insight into their child's current strengths, and this allows them to build a sense of competence in implementing intervention strategies during in-home practice without the help of a therapist (Foster, Dunn, & Lawson, 2013). A systematic review of coaching interventions employed in early intervention highlights that the literature is plagued by poorly defined interventions; inconsistency in the reporting of therapist training and adherence to active ingredients/coaching principles (Ward et al., 2020). In the next section, I will discuss evidence-based practices associated with a novel learner-focused intervention, the Applied Coaching Model and practice support tool the Applied Coaching Tool including FCC, joint planning, therapeutic alliance, context-based learning, coaching, being goal-directed, motivational interviewing, and active participation of the parent and child dyad.

FCC is a philosophy of care that includes joint decision-making, respecting and valuing distinct roles, trusting open communication, transparency, and sharing accountability (King et al., 2003). FCC recognizes the importance of family when caring for children with special needs. The family is highly involved with the healthcare provider in making educated decisions on the

child's therapeutic plan. The family is seen as the expert on the child's abilities, challenges, and performance, whereas the therapist is the expert on child growth, intervention strategies, and how to improve children's performance (Rush, Shelden, & Hanft, 2003). Individualized goals are produced through joint planning between therapists and families. *Joint planning/collaborative goal setting* is one of the most used FCC components and leads to the development of a therapeutic alliance between therapist and client, enhanced relationships with families, and parents' improved ability to apply interventions in the home environment (Beckers et al., 2018; Dunn et al, 2012; Kientz & Dunn, 2012). More formally, the *therapeutic alliance/relationship* refers to a sense of trust, empathy, support, and partnership among the therapist, family, and client. It includes three primary factors: agreement among client, family, and therapist about the goals for treatment, agreement on the tasks used to achieve the goals, and the quality of the relationship between the therapist, client, and family (Crom et al., 2019). A lack of collaborative negotiation could result in rifts in the therapeutic alliance and potential withdrawal from treatment (Crom et al., 2019). These rifts in therapeutic alliances cause tension or a separation of the collaborative relationship between the client and therapist leading to miscommunication and poor outcomes (Crom et al., 2019).

Context-based intervention focuses on resolving barriers within the child's natural environments (Ketelaar et al., 2010). Dunst and Bruder (2005) define natural environments as common or natural settings for children where learning opportunities arise (e.g., home, school). The use of natural environments in FCC have been shown to promote increased play, as well as motor, cognitive, social-emotional, and communication competencies of children (Rush, Sheldon, & Hanft, 2003). Using this approach, the task of the therapist is to provide opportunities for the child to learn and perform self-initiated tasks within everyday contexts that include natural barriers for children to overcome (Ketelaar et al., 2010). Context-based intervention models have been shown to increase parental competence and self-efficacy, as well as child participation and performance on functional tasks (Darrah et al., 2011; Dunn et al., 2012; Kientz & Dunn, 2012; Law et al., 2011).

Coaching includes the facilitation of goals and the development of actions to achieve these goals. Coaches help create client awareness to encourage learning as well as build self-directed and self-regulated progress of the clients (Griffiths, 2005). Griffiths (2005) identified several elements of coaching processes that lead to successful outcomes, including: trust between

the healthcare provider and client, confidentiality, communication within the relationship, active engagement and participation, accountability and responsibility, development of problem-solving ability, and commitment to action. Coaching is a client-driven and goal-directed practice used within family-centered services (Dunn et al., 2012) that emphasizes the equal partnership between coach and learner and contains a series of discussions that focus on the child's outcomes (Rush et al., 2003). Rush and Sheldon (2011) classified five key elements to successful coaching: initiation, observation, action/practice, reflection, and feedback. Initiation includes joint planning between caregiver and therapist to identify strategies to successfully attain mutually agreed upon goals. This phase also includes identifying potential barriers that could affect goal attainment (Rush et al., 2003). The observation phase always includes opportunities for the coach to watch and take notes on the barriers and facilitators to quantify whether the difficulty level is adequate for the learner to attain their goals (Rush et al., 2003). The learner then practices the new skills and strategies during the action phase as it is essential for the parent to become an active participant in their child's rehabilitation. The reflection stage allows the learner to analyze their performance by answering open-ended questions posed by the coach. Through feedback and guidance from the coach, the learner develops new problem-solving abilities when faced with challenges in their child's environment (Rush et al., 2003). Finally, the evaluation stage allows an overall review of the effectiveness of the coaching process (Rush et al., 2003). Despite the work that has been done to outline the stages of coaching, there continue to be issues with implementation within clinical settings (Ward et al., 2020). Furthermore, positive learner benefits stem from strategies that focus on active participation, problem-solving tasks, and reflection by the learner, and using these practices together results in almost twice the learning effect in comparison to using "teacher domain practices'' such as instruction and demonstration (Dunst & Trivette, 2012).

Motivational interviewing is a goal-oriented and client-centered communication approach often used in coaching interventions that aims to increase the client's intrinsic motivation and commitment to change. Primary strategies used in motivational interviewing include open-ended questions, affirmations, reflective listening, and summarizing (Hettema, Steele, & Miller, 2005). Open-ended questions allow clients to express their experiences and concerns without direction from the provider. Affirmations are used to convey the positive features of clients' intents to change behaviour. Reflective listening allows providers to offer a better understanding of the

meaning of client responses and similarly, summarizing allows a better understanding of the client's overall message.

The current research demonstrates the importance of certain *goal-directed* components such as having parents as active participants in their child's rehabilitation and choosing meaningful goals that lead to enhanced basic skills of the child and self-care (Sorsdahl et al., 2010). This collaborative process encourages self-discovery and results in increased competence and acquisition of the desired skills for both parent and child (King et al., 2019). Furthermore, parents develop their capacity to identify and implement strategies within the child's everyday routines (Dunn et al., 2012). Through feedback and guidance, learners can identify successful strategies and generate new solutions when faced with different circumstances or settings. The interactive process establishes a foundation for a strong learner-coach relationship where caregivers feel more involved and aware of their child's needs due to being given a larger responsibility in their child's rehabilitation.

The lack of crucial information given about coaching interventions in published studies translates to a lack of clarity related to how results can be replicated in clinical practice (Dunn et al., 2012). Similarly, the training processes that focus specifically on developing coaching practices for therapists are poorly described in the studies examined in a recent systematic review of early childhood coaching interventions (Ward et al., 2020). The lack of reporting of training manuals, training requirements, and use of fidelity checklists makes for poor clinical replicability (Ward et al., 2020). Therefore, there is a need to evaluate the effectiveness of coaching programmes, their applications, and implementation in clinical contexts.

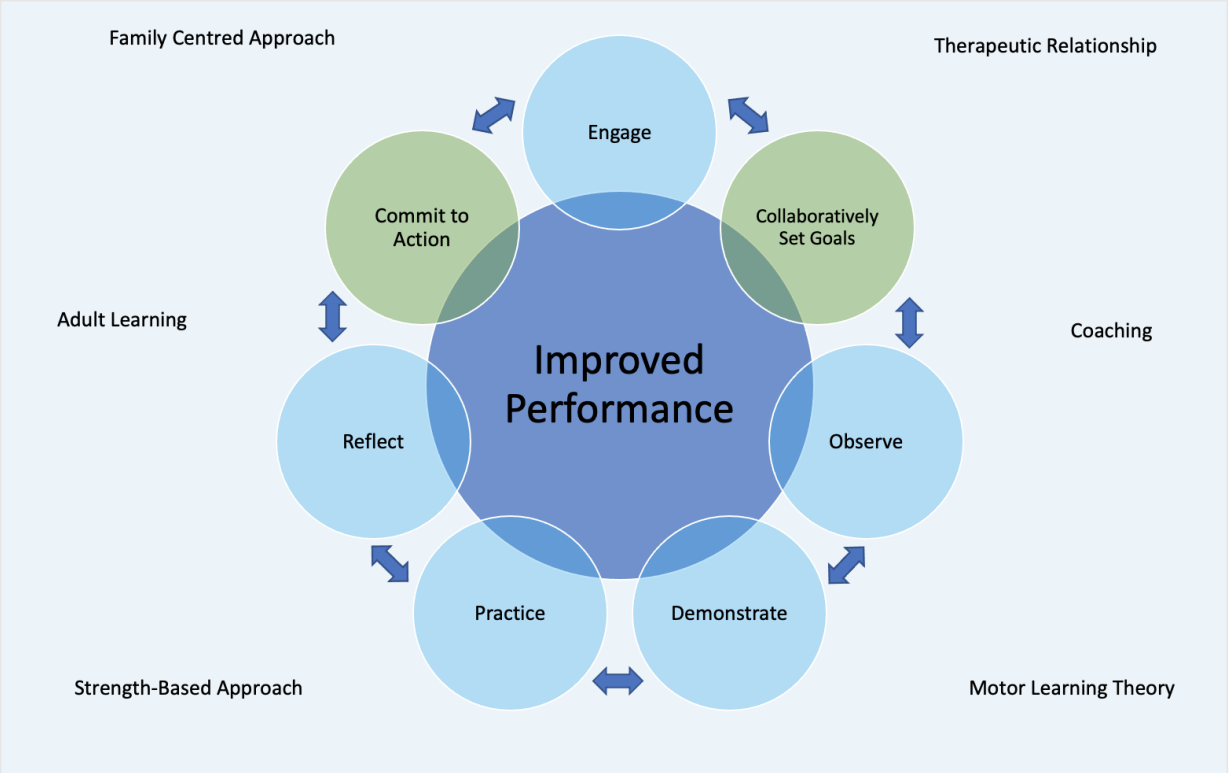
The Applied Coaching Model

"Watch Me Move" is a coaching-based intervention created by Debra Teitelbaum and Candance Natrasony, two paediatric physiotherapists at the Alberta Children's Hospital. This intervention stemmed from their clinical expertise of prescribing home exercises for rehabilitation strategies and recognizing that when parents respond to their children's cues accurately, children tend to participate in the activity longer. Further foundations of the "Watch Me Move" program include the recognizing that parents have more capacity to influence their children's performance than therapists, practice is essential to skill development and that the more positive the practice sessions, the more likely parents are to practice (Mahoney and Perales, 2006). In this coaching intervention, parents learn to observe their children to better understand and analyze what they

are trying to communicate so they can help them reach developmental goals. The main objective is to use the teaching framework (alert and explore, demonstrate, slow down, copy, take turns, be face-to-face, make it fun, follow their lead and provide feedback) to support goal achievement (Natrasony & Teitelbaum, 2016). The goal of "Watch Me Move" is to provide parents with practical strategies to modify and adjust scenarios when gross motor practice does not go well. After implementing and learning from the "Watch Me Move" program, Debra Teitelbaum expanded the framework and created The Applied Coaching Model (ACM) and the Applied Coaching Tool (ACT). The ACM incorporates the key elements of FCC, motivational interviewing techniques, importance of therapeutic relationship, coaching and learning components (joint planning and goal setting, observation, action/practice, reflection, feedback, active participation, commitment to action and accountability). The ACT *(refer to Appendix 1)* which operationalizes the principles presented in the model with specific and concrete therapist actions and serves as a guide for healthcare providers wanting to implement coaching techniques within their practice. Therapists can refer to the elaboration of the actions section of the ACT for more specific examples and ideas on how to properly implement the coaching model.

The ACM stages include *Engage, Collaboratively Set Goals, Observe, Demonstrate, Practice, Reflect and Commit to Action (see Figure 1)*. The *Engage* stage of the model focuses on building the therapeutic alliance between the therapist and the family. It acknowledges the family's existing knowledge, experiences, abilities, and strengths. It provides an opportunity for families to communicate their concerns while therapists actively listen and affirm the parents' role as the expert on their child. *Collaboratively Set Goals* highlights the usefulness of the shared partnership to engage in collaborative goal setting. The therapist explores the family's hopes for the child and guides the family in establishing achievable short-term goals. The *Observe* and *Demonstrate* stages allow the therapist to observe parents interacting with their children and explain or demonstrate specific strategies and the necessary conditions (task and environmental set-up) to achieve the goal. Therapists provide clear verbal instruction during the demonstration of the given activity while using an encouraging tone and asking open-ended and reflective questions to confirm understanding. In the *Practice* and *Reflect* stages the family is encouraged to practice the skill multiple times using trial and error and problem-solving tasks, therapists remind families that practice may feel difficult initially and that it takes time to learn something new. The therapist asks caregivers to reflect on their trial using open-ended and probing

Figure 1: The Applied Coaching Model



questions. The therapist encourages the family to articulate what worked and what did not. With permission, the therapist supplements the family's reflection with relevant feedback on ways to improve their engagement and support techniques. The final stage, *Commit to Action*, confirms the pre-discussed goal, re-applies meaning to the short-term goal, and facilitates an opportunity for parents to develop a plan of action that they can commit to. *Commit to Action* also includes a discussion of practice frequency, exposes barriers, and helps to resolve them.

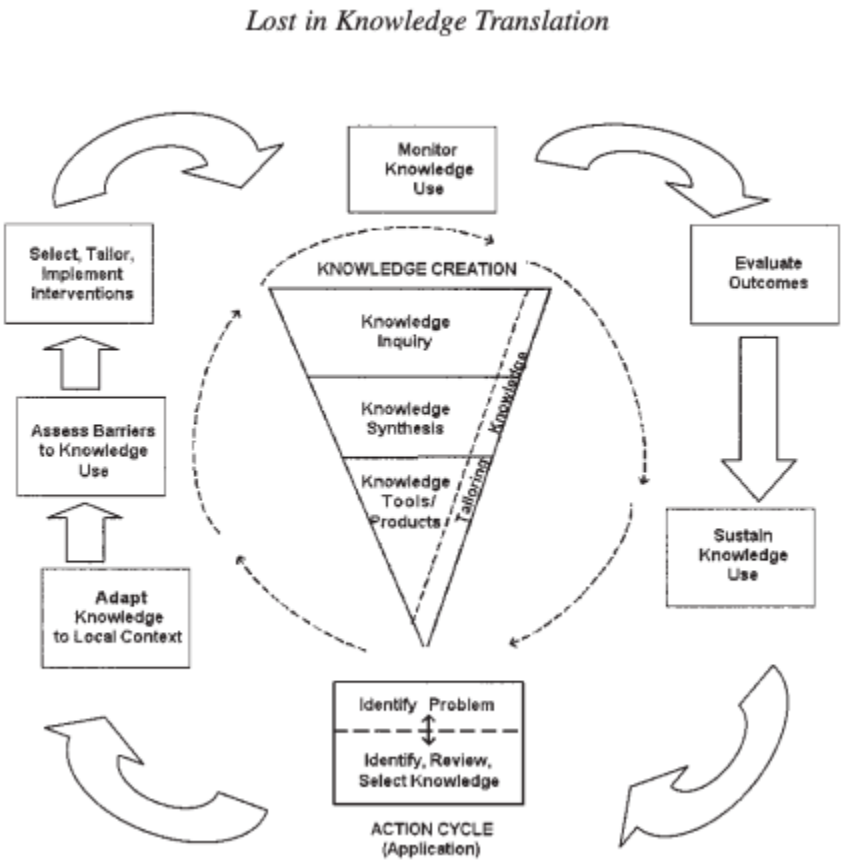
Knowledge to Practice Gap

Although there is substantial research to validate the benefits of learner-centered models, the problem of non-uptake persists (Bauer et al., 2015). A systematic review revealed the four most used implementation strategies within a healthcare setting (Medyes et al., 2010) which included: educational materials distribution; educational meetings to facilitate teaching or learning sessions for the staff involved; local consensus processes that allowed the material to be adapted to local context; and local opinion leaders/champions who provided ongoing support and help healthcare

providers apply the best evidence practice. These strategies were applied successfully to the current study.

The ACM and the ACT was developed from extensive research literature and clinical expertise; however, before it is fully implemented as a model of service delivery, there is a need to better understand the barriers to its use. Evaluation of the ACM and ACT effectiveness is ongoing; however, the practice of coaching has been shown to be effective in pediatric rehabilitation. The Knowledge-to-Action Process (Graham et al., 2006) provides a clear model and pathway to transfer knowledge to practice, and thus was used to guide the current study. The Knowledge-to-Action Process involves two primary components: knowledge creation and the action cycle (*refer to Figure 2: Knowledge-to-Action Process*). Knowledge creation includes three types of knowledge that can be generated: knowledge inquiry, knowledge synthesis and knowledge tools or products. Knowledge inquiry consists of primary studies with variable quality (Graham et al., 2006), knowledge synthesis represents the accumulation of existing information within systematic reviews, meta-analysis, and meta-synthesis with reproductible methods and similar research questions (Graham et al., 2006). Finally, knowledge tools or products present the information in clear format to give detailed recommendations with the goal of influencing what the stakeholder will do or the stakeholders informational needs and facilitates uptake and knowledge application (Graham et al., 2006). FCC and coaching has been clearly recognized as a key components of service delivery for children and their families (Dunst, Trivette, Hamby, 2007). The increased number of studies employing coaching interventions in home/community-based settings as the mechanism of therapy delivery has supported significant knowledge creation in this area, and knowledge syntheses have been conducted to highlight the remaining gaps (Ward et al., 2020). The ACM contains a practice support tool that will assist with implementing these elements into practice and thus, this study focused on addressing the Action Cycle that showcases the activities needed for knowledge application of coaching in pediatric rehabilitation. The phases of the Action Cycle can be influenced by each other, and by the Knowledge Creation phase and include identifying a problem, review/selecting the knowledge that is relevant to the problem, adapting the knowledge to the local context, assessing barriers, selecting, and tailoring implementation interventions to facilitate the use of knowledge, monitoring and evaluating the outcomes of using the knowledge (Graham et al., 2006).

Figure 2: Knowledge-to-Action Process



Reproduced from: Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: time for a map? Journal of continuing education in the health professions, 26(1), 13-24.

Implementation Science

Implementation science is defined as "the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice and hence, it improves the quality and effectiveness of health services" (Bauer, Damschroder, Hagendorm, Smith and Kilbourne, 2015). The eight implementation outcomes are defined as: acceptability, appropriateness, adoption, fidelity, feasibility, implementation cost, penetration, and sustainability (Proctor et al., 2011). Acceptability is the perception that the implementation stakeholders have of a specific treatment, practice, technology, or service within a practice care setting (Proctor et al., 2011). Acceptability differs from service delivery satisfaction because it is more specific to the evidence-based practice content and complexity. This outcome can be

measured at the level of stakeholders, administrators, healthcare providers and/or clients. Appropriateness is the perceived fit of an evidence-based practice for a certain healthcare setting, provider, or consumer and/or if the evidence-based practice addresses a specific problem (Proctor et al., 2011). The terms acceptability and appropriateness overlap in the literature; however, there is an important distinction between the two. For example, a treatment could be considered appropriate to treat a specific problem, however, if the employment of the new treatment is outside the provider's skill set, it may be deemed unacceptable. Appropriateness is a key outcome measure because it allows the research team to examine "push back" from stakeholders. Push back is experienced when the implementation of the new therapy is not in line with the healthcare mission or the provider's skill set, role, or employment expectations (Proctor et al., 2011). Adoption is the initial decision to employ an intervention and can also be referred to as uptake. Fidelity refers to the adherence to the new therapy´s original protocol and the quality of the program delivery (Proctor et al., 2011). The literature classifies five implementation fidelity components: adherence, quality of delivery, program component variation, exposure to the intervention and participant involvement (Mihalic 2004; Dane & Schenider, 1998). The fidelity outcome is typically measured by self-report ratings, observations, coding, or provider/client interactions (Proctor et al., 2011). Feasibility is defined as to what degree the new intervention can be successfully implemented within a specific setting. It is typically measured retrospectively as it explains success/failures associated with interventions such as poor recruitment, retention, or participation rates (Proctor et al., 2011), for this reason it was not measured in the present study. Implementation cost is the cost impact of the intervention, and it varies based on intervention complexity and setting. Given that the ACM and ACT align with the values of the Alberta Children's Hospital, they were willing to accept the costs of implementation without an implementation cost assessment. Penetration refers to the integration of an intervention within a clinical setting (Proctor et al., 2011). Sustainability represents how well an implemented intervention is maintained or institutionalized within its setting (Proctor et al., 2011). Outcomes that are salient to the early stages of implementation include acceptability, appropriateness, adoption, fidelity, feasibility, and implementation cost (Proctor et al., 2011).

The primary objective of this study was to evaluate the implementation outcomes of acceptability, appropriateness, adoption, and fidelity of a novel coaching intervention and practice support tool, the Applied Coaching Model, and the Applied Coaching Tool.

Methods

Design

An effectiveness-implementation Hybrid Type 1 design was used to gather information on the ACM and ACT delivery and its potential for implementation at the Early Childhood Rehabilitation Program in Alberta Health Services. Type 1 Hybrid designs encourage process evaluations of delivery/implementation during initial trials to gather valuable information for future implementation research (Curran et al., 2012). This design allowed the research team to examine any potential barriers and facilitators to real-world implementation of the ACM, problems related to the intervention delivery, potential modifications to the intervention to maximize uptake, and to identify any promising implementation strategies (Curran et al., 2012). The use of Hybrid Type 1 design is recommended when there is: strong face validity that supports the applicability to the current setting, population, and method of delivery, (2) a strong base of indirect evidence for the intervention in question and (3) there should be minimal risk of the new intervention in comparaison to traditonal therapy (Curran et al., 2012). The ACM and ACT, and the literature it is based upon, meet all these conditions. The focus of this project was to conduct a pilot implementation consistent with the third phase of the Knowledge-to-Action cycle - increasing the uptake of knowledge and assessing for potential barriers and supporters/facilitators as well as furthering the understanding of the local context. This promoted the creation of a plan for implementing the Applied Coaching Model within Alberta Health Services using principles of implementation science.

Participants

A convenience sampling strategy was used given the limited timeframe to recruit three healthcare professionals (an occupational therapist, physical therapist and a speech and language pathologist) in the Early Childhood Rehabilitation Program at the Alberta Children's Hospital. Three participants represented approximately one third of the available providers per discipline in the Early Childhood Rehabilitation Program. This small sample size was chosen given the constraints of the program (specifically related to challenges associated with COVID-19) and the pilot nature of this implementation. Convenience sampling is often used when members of a populations are either willing to participate, available to participate or for reasons of accessibility (Etikan, Musa & Alkassim., 2016). Participating healthcare providers had experience in

delivering coaching strategies and varied in years of practice experience. Healthcare providers were invited to participate by the PI and their unit manager.

Intervention

The healthcare providers participated in a three-stage training and implementation plan to ensure proper use of the tool in the implementation project (*refer to Appendix 2 for summary of training*). In the first stage, participating therapists attended a full-day training session. The training was done as a group and led by one of the study investigators (DT) acting as a local site champion. A champion may assume multiple responsibilities to promote program change. Champions can assume a quality assurance role to ensure staff is adhering to the intended intervention (Corrigan, MacKain, & Liberman, 1994; MacKain &Wallace, 1989) or, as in the current study, act in a supervisory role, providing feedback and guidance to staff that are carrying out a specific intervention (Reid & Whitman, 1983). The use of a champion shifts from a hierarchical leadership approach to one of shared governance to facilitate staff empowerment (Williamson, 2005). This form of transformational leadership has been shown to have a substantial impact on practice change in nursing settings (Shaw, 2005; Field and Fitzgerald, 2006). The training session started with the champion handing out the ACM with a brief introduction explaining the purpose, benefits, rationale, and background. The model was then explained in further detail outlining the specific theories and approaches that contributed and informed the creation of the coaching model. This was done using an interactive approach where the therapists participated in an active discussion surrounding the key theories and approaches (FCC, motivational interviewing, adult learning theory, coaching, motor learning theory, therapeutic relationship) and examined commonalities among them. The ACT was introduced in the next section of the training and each component was defined (*Engage, Collaboratively Set Goals, Observe, Demonstrate, Practice, Reflect and Commit to Action).* Each component includes a list of *Therapist Actions (i.e., observable behaviours)* that are further illustrated with *Elaborations (e.g., what to say, what to do)* to support every component. Using an interactive approach, the champion provided examples of each component and asked each participant to reflect on their past clinical experience with each of these components. The therapists then practiced the *Therapist Actions* by applying them to shared clients or discussing their experiences. Therapists were asked to self-reflect on their performance of using the therapist

actions in a coaching setting by jotting down their strengths, difficulties and opportunities using the *Therapist Action* checklist. The champion then role-played a short scenario using the *Therapist Actions* and *Elaborations* and provided written coaching conversations to the participants for them to read, review and reflect upon. An informal discussion was led to highlight the participants' reflections of the coaching conversation to promote active learning. This method aligns with Donovan et al.'s (1999) second key element of the "the science of learning" which concludes that mastery of new material requires application of the knowledge in context, with continuous monitoring and self-assessment of progress which leads to a deeper understanding and an ongoing application of new knowledge. Participating therapists were then asked to role-play based on either a provided scenario or a client they are familiar with and use the ACT as a reference. The champion and participants reviewed and provided verbal feedback of the methods of ACT delivery during the coaching conversations in the role play. Each component of the ACM is distinct from each other and therefore each was practiced separately.

The second stage of the training and implementation plan required participating therapists to apply the ACT in a coaching session as a therapist with any active client-parent dyad on their caseload. This was done as soon as possible so that the champion could observe and provide feedback on the ACM delivery. This allowed the therapists to demonstrate competent coaching behaviours during their therapy sessions as well as help decrease variability in the implementation of the ACM across clinicians.

Finally, in the third stage of the implementation plan, participating therapists were asked to intentionally practice, set goals for themselves and incorporate coaching behaviors into their rehabilitation practice. Therapists were asked to choose specific coaching behaviours to practice and implement the ACM with two clients per week over the course of five months to guide their practice change. Furthermore, therapists were provided with protected time (one hour) in their schedules twice a week to use the ACT as a self-report measure to reflect on their experiences with applying the ACM with their clients. During this protected time, they were asked to journal on any barriers and/or facilitators, the delivery process and practice change behaviours. Furthermore, during the final implementation stage, the therapists met with the champion every two weeks to converse, reflect on how their practice went, successes, areas for improvement, and readiness to add additional behaviors to their practice. These conversations also provided an opportunity for therapists to receive formative feedback on the development of their coaching

competencies. At the end of the third stage, the champion observed the therapists during sessions with an active client-parent dyad and scored the therapists implementation of the ACM using the ACT as a checklist. Once therapist competency (determined as greater than 75% of all therapist actions achieved per stage) was demonstrated in the critical coaching behaviours (as evaluated by the champion), the therapist would become "certified" as a qualified coach.

Data Collection Procedures

Healthcare provider demographics (gender, years of practice and profession) were collected using an online survey. The practice-knowledge gap was first identified by acknowledging the lack of training manuals, training requirements, and use of fidelity checklists which made for poor clinical replicability (Ward et al., 2020).

The knowledge was then adapted to the local context (Pediatric Rehabilitation within Alberta Health Services) through data collected from a pre-implementation focus group session. This session focused on assessment of acceptability and each stage of the model and tool was reviewed and revised individually. This assessment was completed by a multidisciplinary team including occupational therapists, physical therapists and speech and language pathologists who reviewed the model and tool in full, provided feedback and suggestions to improve the model/tool. The session was audio recorded, transcribed, and the model creator (DT) made specific changes to the ACM and ACT based on this assessment. Overall ACM and ACT acceptability would be considered achieved if the focus group reached majority or consensus that it was relevant to their practice and setting.

Outcomes of appropriateness, adoption and fidelity were measured by coding the therapist journals completed during the third stage of the implementation. Qualitative data collection aligns with recommendations for measures of appropriateness (Proctor et al., 2011). It is recommended that administrative data, observation, and surveys are used to measure adoption, while observations, checklists and self-reports are used to measure fidelity (Proctor et al., 2011). The journals served a dual purpose of self-report checklist and tool for qualitative reflection. Journals were scanned or typed and sent electronically to the research team by a secure link. To further explore what was not represented explicitly in the data (integration of model elements, therapist intentions, therapist personal style), memos were created (by ZD) on every file to examine outcomes of fidelity, push back, and therapist intentions during the coding process.

Additionally, the champion observed and evaluated the therapists' sessions with an active client-parent dyad using the ACT as a fidelity checklist. The champion calculated a percentage score based on this checklist of how much of each ACM stage, and the model overall, was implemented appropriately for each observation. Table 1 summarizes how the data were collected for each outcome.

Table 1: Summary of Data Collection Procedures

Implementation Outcome	Measure
Acceptability	• Majority or consensus opinion of fit for practice and setting during focus group session • Frequency counts for Steps of the Model, Underpinnings of the Model in Therapist Reflections
Appropriateness	• Signs of Push back, Reflections of Missed Opportunities and Barriers
Adoption	• Frequency counts for Steps of the Model, Underpinnings of the Model in Therapist Reflections
Fidelity	• Therapist Intentions (partially met, met, or exceeded), Champion Observations

Data Analysis

A deductive coding strategy was created by the study team (ZD, LB, DT) to analyze the therapists' journals and reflections for signs of acceptability, appropriateness, adoption, and fidelity (*refer to Appendix 3 for Code Book*). A deductive process is focused on emphasizing themes from previous concepts, theories and applicable literature (Ramanadhan, Revette, Lee, R, & Aveling. (2021). The coding strategy was created following the first four stages of data coding proposed by Fereday and Muir-Cochrane (2006). The model proposed by Fereday and Muir-Cochrane includes a total of six stages, the final two stages use an inductive analysis approach and therefore was not used to guide the current study. Stage one was developing the code manual

to include all components of the Applied Coaching Model including the theoretical underpinnings. Furthermore, a theme was added to consider the therapist perspective's given that they were asked to journal on this. Stage two included testing the reliability of the codebook (Fereday, J., & Muir-Cochrane, E. 2006) by coding two therapists' journals and two author memos per therapist by two research team members (ZD, LB) to ensure it was being applied as defined. Stage three included summarizing and identifying initial themes which included three major themes: *Steps of the Model* (Engage, Collaboratively Set Goals, Observe, Demonstrate, Practice, Reflect, and Commit to Action), the *Underpinnings of the Model* (Therapeutic Relationship, Family-Centered Care, Strength-Based Approach, Motor Learning Theory, Adult Learning, Coaching) and *Therapist Perspectives* (Push back, Reflections of Missed Opportunities, Barriers, Therapist Personal Style). This was discussed and deemed appropriate by the team as it encompassed all model components that could be objectively captured in the framework which also allowed for therapists' individualized thoughts to be coded. Stage four included applying the codes from the codebook to the text with the intention of detecting meaningful units of text (Fereday, J., & Muir-Cochrane, E. 2006). The final two stages included more of an inductive analysis approach and therefore were not used to guide the current study. Therapist journals were coded by ZD using NVivo version 12 (QSR International). A second round of coding was completed on the authors memos to code for appropriateness (signs of push back) and fidelity (whether therapists set and met their intentions). Perceived adoption and acceptability were measured by performing a frequency count of coded elements used throughout the therapist journals. This data was used to determine how thoroughly the therapists felt they had implemented the ACM and ACT into their practice. Fidelity was further assessed by the champion through observation as an outside assessor of competency using the model. Fidelity was defined as observing 75% or greater of each individual ACT component demonstrated to allow for some individual variation as needed depending on client/therapist elements. The champion observed the therapists at least twice during clinical sessions or until they met the criteria of 75% fidelity overall and for each component. Additional observations were necessary if the therapist did not achieve at least a 75% fidelity score in each component. The champion determined whether the 75% was achieved based on how many therapist actions within the component were used during the session.

Ethical considerations

Prior to recruitment, ethical approval was obtained from the Western Health Sciences Review Ethics Board, University of Calgary Conjoint Health Research Ethics Board and Alberta Health Services operational approval.

Results

Sample Characteristics

Three therapists participated in this study: one occupational therapist, one speech and language pathologist and one physiotherapist. All participants were female with an average of 16 years in practice (range 6 to 24 years). A total of 51 therapist reflection files were collected and analyzed for the purpose of this study from the expected 120 therapist reflection files (40 files per therapist).

Acceptability, Appropriateness, Adoption and Fidelity

Following the focus group session, several changes were made to the model (*refer to Appendix 4: Initial Draft of Applied Coaching Tool vs Appendix 1: Applied Coaching Tool*). Major changes included the model interactional behaviours being integrated within the therapist actions, the model being redesigned to be multidisciplinary, and shifted more towards the use of reflective questioning to confirm understanding and promote learning. For example, *Instruct and Demonstrate* transitioned to *Observe and Demonstrate* with the addition of three therapist actions that included considering the context for learning, asking permission to provide information on environmental set-up and confirming understanding with open-ended questions. *Practice and Provide Feedback* transitioned to *Practice and Reflect* with the addition of a therapist action to provide feedback on the clients' reflections. *Commit to Action* also gained a therapist action to specifically develop the who, what, when, where of planned action. However, with these changes in mind, after examining the contributing theory and approaches (FCC, MI, Adult Learning Theory, Coaching, Motor Learning Theory, Therapeutic Relationships, etc.) the therapists at the focus group session came to a consensus that this model would be useful across their practices in the Early Childhood Rehabilitation Program in Alberta Health Services.

Refer to Table 2 for a summary of reflection, memo, and coding references across the three themes. Themes 1 and 2 represented outcomes of acceptability and adoption based on coding

frequency counts throughout therapist journals and the authors memos. Evidence of appropriateness is captured within Theme 3 as it documents signs of push back, barriers, and therapist reflections of missed opportunities. Lastly, fidelity was evident in Themes 1, 3 and in the champion observations through demonstration of adherence, quality of service delivery and limited program component variation. The three themes are described in detail below with examples of codes provided. Coding frequency is expressed by the number of coded files (proportion of files with that code relative to the total number of files), and number of specific coded references (proportion of the specific code to the number of coded references within that theme).

Table 2: Summary of Theme Results

Themes	Reflections Coded	Memos Coded	Reflection Code References	Memo Code References
1. Steps of the Model	37	21	249	23
2. Underpinnings of the Model	34		130	
3. Therapists' Perspectives	51	14	98	14

Theme 1: Steps of the Model

The Steps of the Model theme included all the primary components of the Applied Coaching Tool: *Engage, Collaboratively Set Goals, Observe, Demonstrate, Practice, Reflect, and Commit to Action (refer to Table 3: Summary of Steps of the Model)*. This theme is important as it documents which components were utilized the most during the sessions with active parent-child dyads. The codes captured in the memos also highlighted the overlap of the model as therapists would often intend to use a one component but use therapist actions from another component during their session. The most performed component was *Engage*, used in more than half of the journals analyzed (references n=97, 39%; files n=26, 51%). *Engage* was defined as building the therapeutic alliance between the therapist and the family. It also acknowledges the family's existing knowledge, experiences, abilities, and strengths. It provides an opportunity for families to communicate their concerns while therapists actively listen and affirm the parent's role as the expert on the child. Examples of *Engage* listed in the therapist journals included:

"What is important to you?"

"How would you like me to help today? Open to any questions."

"Tell me about child."

"What brought you here today? Writer repeated back concerns''.

The next most performed component was *Reflect*, which was evident in more than half of the reflections analyzed (references n=67, 27%; files n=29, 57%). *Reflect* was defined as the therapist asking caregivers to reflect on their trial using open-ended and probing questions. The therapist then encourages the family to articulate what worked and what did not. With permission, the therapist supplemented the family's reflection with relevant facts. Reflective questioning was heavily implemented by one therapist throughout most sessions regardless of the intention of the session. On the contrary, reflection was less used by the other two therapists unless the intention for the session was to *Practice* and *Reflect*. *Reflect* was identified in the therapist journals as follows:

"What did that feel like?"

"How can you do this again?"

"Where do you think she needs support? Can you show me?"

Commit to Action was the next most utilized component (references n=51, 20%; files n=23, 45%). *Commit to Action* was defined as confirming the pre-discussed goal, re-applying meaning to the short-term goal, and facilitating an opportunity for parents to develop a plan of action that they can commit to implementing. It also includes a discussion of practice frequency, exposing barriers and finding ways to resolve them. *Commit to Action* was used frequently when therapists were confirming understanding and asking parents/caregivers to verbally confirm the who, what, how, when, and where. *Commit to Action* was presented in the data as

"Summarized practice."

"Parent used video to capture new position."

"Review old practice ones. [strategies]"

"Parent verbally summarized session about home practice."

This was then followed by *Observe* (references n=44, 18%; files n=29, 56%), which allows the therapist to watch the client/family interactions/strategies, context, and the environment to assist

with strategy development and goal attainment. *Observe* was coded in more than half of the therapists' reflections and was referenced in the data as:

> *"Writer asked permission to observe a play activity with her child to help identify which strategies are supporting in building his engagement and play with parents, a goal they had set at the previous session."*
>
> *"Writer discussed with mother how to best set up the environment to help minimize disruption from the phone."*

Collaboratively Set Goals was referenced 40 times (16%) and coded in 21 files (41%); it highlights the usefulness of the shared partnership to engage in collaborative goal setting. The therapist explores the family's hopes for the child and helps guide the family in establishing achievable short-term goals. An example that demonstrates this in the data was

> *"Family identified goals as building his understanding of new body parts. Writer was able to support family in making this goal more specific by guiding them to identify 2-3 specific body parts (head, tummy, and feet)."*
>
> *"Family also wanted to review additional strategies to support the use of the pointing gesture and requesting more often."*

Practice was referenced 26 times (10%) across 18 files (35%). During *practice*, the therapist encourages the family to practice the skill multiple times using trial and error and problem-solving tasks, reminding families that practice may feel difficult initially and that it takes time to learn something new. Examples of *practice* include:

> *"Practice sit to stand. 4pt + 2pt + 1/2 kneel. Therapist, Parent + Child practice together."*
>
> *"Parent asked for guidance on hand position. Writer did normalize the learning process and shared that it takes time to learn some of the strategies and practice can be messy."*

Finally, *Demonstrate* was the least utilized component of the ACT as it was referenced only 14 times (6%) across 13 files (25%). The therapist demonstrates and explains specific strategies and the necessary conditions (e.g., environmental set-up) to achieve a goal. The therapist gives clear verbal instruction during the demonstration of the given activity while using an encouraging tone

and asking open-ended questions to help confirm understanding. An example cue used during a session included:

> *"Showed parents 2 new exercises. After they described challenges. I have an idea that I hoped will help. Would you like me to show you these ideas? Parents said yes that's great. Asked how does this feel? Encouraged set up, practice this. Parent sets up bench - it's too high. Makes adjustment. Would it be okay for me to show you 2 exercises? How will you do this? Parents sets up exercises after demonstration. I think I can do this."*

Integration of Model Elements was coded in the authors memos to represent the models' fluidity and flexibility. This was represented when therapists would intend to do a one component of the tool but use other components within their sessions. An example of this is below:

> *"Her original intention was practice and provide feedback with focus on asking open-ended questions to help caregiver reflect on their practice; however, session was primarily parent discussion as family had several questions and wanted to review resources with writer, so focused shifted to engage."*

Table 3: Summary of Steps of the Model Results

Components of the Model	Reflections Coded	% Reflections Coded	Reflection Code References	% Reflection Code References
Engage	26	51%	97	39%
Reflect	29	57%	67	27%
Commit to Action	23	45%	51	20%
Observe	29	56%	44	18%
Collaboratively Set Goals	21	41%	40	16%
Practice	18	35%	26	10%
Integration of Model Elements	21	41%	23	9%
Demonstrate	13	23%	14	6%

Theme 2: Underpinnings of the Model

The second theme, Underpinnings of the Model, included: Coaching, Family-Centered Care, Therapeutic Relationship, Strength-Based Approach, Adult Learning and Motor Learning Theory *(refer to Table 4: Summary of Underpinnings of the Model Results)*. Coaching was the most frequently coded element of this theme throughout the therapist journals, found in approximately 75% of therapist reflections (references n=101, 78%; files n=38, 75%). Coaching refers to the facilitation of goals and the development of actions to achieve these goals. Coaches help create client awareness to encourage learning as well as build self-directed and self-regulated progress of their clients. Examples of coaching within the journals are:

> *"Coaching: PT: where would you provide support? Parent: moves hands to pelvis? PT: How can we add a challenge? Parent: Increase height?"*

> *"Writer discussed how the family plays the activity and the family identified that the child needs help going up the slide ladder. Writer shared we could demonstrate the sign for "help" in these situations. Family agreed and felt this would be helpful for the activity."*

The second most identified element of this theme was FCC, evident in over 50% of the therapists' reflections (referenced n=50, 38%; files n=27, 53%). FCC is a philosophy of care that includes joint decision making, respecting, and valuing distinct roles, trusting open communication, transparency, and sharing accountability (King et al., 2003). It recognizes the importance of the family when caring for children with special needs. The family is involved with the therapist in making educated decisions on the child's rehabilitation. FCC was represented in the data by this quote:

> *"Writer acknowledged again that the family is the expert on their child and that they have done a great job implementing strategies thus far."*

The therapist is showing signs of support and praising the family for their efforts which in turn helps build the therapeutic relationship. Therapeutic relationship refers to a sense of empathy, trust, support, and partnership between the therapist, family, and client. It was referenced 27 times (21%) across 19 files (37%). Its primary factors include: the agreement between family

and therapist about goals, agreement on the tasks/activities to achieve these goals and the quality of the relationship between the family/client and therapist. This is observed in the data when the therapist writes:

> *"Highlighted that family continue to know their child the best and the team with the program and in the community are here to work together with the family to support them.''*

> *"Building relationship by building support and hope.''*

Strength-based approach (references n=8, 6%; files n=8, 16%) concentrates on the inherent strengths of individuals and families deploying personal strengths to aid recovery and empowerment. To focus on health and well-being is to embrace the positives. Therapists used this approach in some cases to praise families. For example,

> *"Praised practice attempts. Nice choice of toys, great set up. Fantastic job at home''*

Lastly, Adult Learning and Motor Learning Theory were not able to be explicitly coded in the therapists' journals. Adult Learning refers to the process of informing learners why they need to learn something. Generally, it relies on internal motivation and learners seek out reasons for why learning will help them, highlighting the self-directed nature of this process (Dunst, Sciences, 2012.). Motor Learning Theory states that skills are learned by employing specific strategies and are refined through repetition (Zwicker & Harris, 2009).

Table 4: Summary of Underpinnings of the Model Results

Underpinnings of the Model	Reflections Coded	% Reflections Coded	Reflection Code References	% Reflection Code References
Coaching	38	75%	101	78%
Family-Centered Practice	27	53%	50	38%
Therapeutic Relationship	19	37%	27	21%
Strength-Based Approach	8	16%	8	6%
Adult Learning	0	0%	0	0%
Motor Learning Theory	0	0%	0	0%

Theme 3: Therapists Perspective's

The third theme identified was Therapists' Perspectives and it included push back, reflections of missed opportunities, barriers and therapist personal style (*refer to Table 5 for Summary of Therapists' Perspectives Results)*. Push back was identified the most and was referenced 74 (76%) times across 51 (100%) files. Push back is experienced when the implementation of the new therapy is not in line with the healthcare mission or the providers skill set, role, or employment expectations. Subtle push back examples constituted most of the references and was identified when therapist's intentions were not listed, when therapists only partially met their intention, or if the therapist misused the ACT forms. An example of push back represented in the data was when a therapist noted *"not relevant motor wise"*. She felt the ACT item did not represent her practice in the *Collaboratively Set Goals* component of the Model.

Reflections of missed opportunity was referenced 19 (19%) times in 12 (24%) files. This refers to an instance where a therapist indicated they could have done something but did not. Examples of this include:

> *"Did not review coaching model – to highlight for next initial session."*

"Could improve on using reflective questions to determine current level."

Barriers were referenced five times (5%) across four files (8%). This referred to obstacles that prevented therapy delivery using ACM Model. For example, therapists indicated demonstration was difficult given the nature of the virtual platform they were using. Lastly, therapist personal style refers to the method of delivery the therapist had that was unique to them and was generated from data in the authors memos (referenced = 14, 14%; files =14, 27%). For example, two therapists primarily focused on reflective questioning throughout their sessions as opposed another therapist who use more of an instruction/direction approach. Examples of therapist personal style included:

"Use of reflective questioning during demonstration to promote learning of parents."

"She suggested an alternative to the problems they were having. Always is asking permission to give ideas."

Table 5: Summary of Therapist Perspective's Results

Therapists' Perspectives	Reflections Coded	% Reflections Coded	Reflection Code References	% Reflection Code References
Push back	51	100%	74	76%
Reflections of Missed Opportunities	12	24%	19	19%
Barriers	4	8%	5	5%
Therapist Personal Style	14	27%	14	14%

Table 6: Summary of Therapist Intentions

Theme	Coded References
Exceeded Intention	21
Met Intention	10
Partially Met Intention	8

Therapist Intentions

Table 6 summarizes whether therapists partially met their intention, met their intention, or exceeded their intention as coded in the author memos. Partially met intention meant the therapist identified an entire component as their intention, however only completed some of the therapist actions listed in that component. Met intentions signified the therapist completed the intention they set for their session. Exceeded intentions meant that therapists had listed a single therapist action as their intention but completed more therapist actions of that component.

Champion Observations Summary

A total of five evaluations were collected from only two therapists (*refer to Table 7: Summary of Champion Observations*) from the expected 6 observations. This was due to conflicting schedules between the champion and one of the therapists. An additional observation was made on one of the therapists as she did not pass the 75% fidelity score on the *Collaboratively Set Goals* component in her first two observations. As previously mentioned, fidelity of the intervention was deemed achieved if 75% or more of the behaviours of each component were demonstrated by the therapist. Overall, fidelity was achieved in all components of the model at the end of all the observations. The champion scored the *Engage* component greater than 80% on all five evaluations. Both therapists demonstrated active listening, engagement, partnership, curiosity, compassion, and acceptance, which are all key behaviours in the *Engage* component of the ACT. Fidelity of *Collaboratively Set Goals* varied among the two therapists. The champion noted that one therapist generally observes their client and lacks specificity in goal setting during session, and for this reason this therapist needed three observations to achieve greater than 75% fidelity of implementation of the *Collaboratively Set Goals* therapist actions. The other therapist was observed asking families what is important for them and using probing/reflective questioning to help guide families to articulate a meaningful goal. *Observe and Demonstrate* were well implemented by both therapists during the champion observations. Both therapists demonstrated greater than 80% use of the behaviours/therapist actions needed within that component on each observation. Examples of behaviours observed during this component included reflective questioning where therapists would ask *"How is that working for you? What can you do to improve?"*. The champion noted one therapist relied on closed-ended questions

and could have used more open-ended questions. She also noted that the other therapist needed to elicit the explanation/rationale behind why the strategies provided supported the goal they set. One therapist scored 100% on their evaluations of the *Practice and Reflect* stage because she provided multiple opportunities for practice, used reflective questioning, and had families verbally summarize what they had observed over the course of the session to help confirm their understanding. The other therapist provided fewer opportunities to practice overall and used more direction/instruction to lead sessions as opposed to using reflective questioning and for this reason this therapist needed a remedial observation to achieve greater than 75% fidelity of the *Practice and Reflect* therapist actions. During the second observation this therapist scored 80% to achieve mastery level of the *Practice and Reflect* component. Finally, during the *Commit to Action* stage, one therapist scored 72% on their initial observation due to the use of closed-ended questions and the lack of confirming the goal with the parent. However, during a second examination, the therapist achieved 75% by utilizing most of the therapist actions within that component. The other therapist achieved 90% on one observation, however received 70% on the second observation due to not summarizing the goal and not connecting the strategies to the SMART goal. The champion noted both therapists needed to work on confirming the goal and explaining how the activities are connected to the short-term goal. However, both therapists were successful in obtaining commitment in all observations. After 2 to 3 observations both therapists achieved at least 75% implementation on all components of the tool.

Table 7: Summary of Champion Observations

Component of Tool	Observation 1a	Observation 2a	Observation 3a	Observation 1b	Observation 2b
Engage	80%	90%	N/A	100%	90%
Collaboratively Set Goals	0%	65%	75%	90%	60%
Observe and Demonstrate	80%	80%	N/A	90%	80%
Practice and Reflect	50%	80%	N/A	100%	100%
Commit to Action	72%	75%	N/A	90%	70%
Overall Score +	56% overall	78% overall	N/A	90% overall	80% overall

Note: N/A means previously passed this component, therefore observation not needed.

Discussion

This effectiveness-implementation demonstrated acceptability, adoption, appropriateness, and fidelity of implementing a novel interventional model, the Applied Coaching Model and the Applied Coaching Tool into pediatric rehabilitation clinical practice.

Acceptability

Initial acceptability was evidenced by the consensus and the enthusiastic feedback provided by the healthcare providers involved in the focus group session. Furthermore, although the ACM is organized to have five components with specific therapist actions representing these components, the results from the subtheme of Integrations of Model Elements suggests that there is some overlap between components. Therapists would often set out an intention for their session using one component of the model but incorporate and use multiple therapist actions from other components as well. For example, a therapist would list their intention being *Observe and Demonstrate* but use elements of reflective questioning to promote self-discovery and learning in caregivers. This practice highlights the fluidity of the model and provides further evidence of acceptability as the model's components contain some overlap in underpinnings. The results also present coaching, FCC and therapeutic relationship as the three most coded underpinnings of the model, and therefore most practiced elements. This speaks to the value that therapists placed on building the partnership between therapist and client. Previous research states that the quality of the therapeutic relationship is a key factor in predicting the effectiveness of therapies (Paap et al., 2021). This suggests acceptability across providers as these underpinnings are already heavily used throughout pediatric rehabilitation care.

Appropriateness

Coaching was the most coded theoretical underpinning and included the promotion of joint planning that allowed therapists to guide families towards their goals and use less instruction/direction. In addition, this represents the appropriateness of the ACM for the Early Childhood Rehabilitation Program as it aligns with the program's values and helps address the child's specific problem. However, Adult Learning and Motor Learning Theory were not coded at all in the therapist reflections. This may be because they are less discrete than the other underpinnings of the model and difficult to objectively identify in the specific actions therapists

reflected on. It could also be viewed as subtle push back in that these underpinnings are not defined and integrated sufficiently into the training and ACT to be used or emphasized by the therapists in their sessions. These signs of subtle push back could be seen as inappropriateness of the model; however, this could also represent an area for future development of the model. For example, more concrete therapist actions that represent these components could be added to the ACT to help therapists understand and convey the relationship among these underpinnings of the model and assist with their implementation. The study also identified several constraining factors that were seen as impeding the full implementation of the ACM in practice that were coded as subtle instances of push back. For example, as a result of the virtual setting of therapy delivery, certain components were more difficult to employ than others (i.e. *Demonstrate*). Additionally, some therapists experiencing high volumes of clients felt it was difficult to focus and employ strategies of the model with clients given that the ACM is a new type of therapy delivery for them. This may be further evidenced by comparing the expected number of files (n=120) to the number of received files (n=51). Other examples of subtle push back included the therapists' misuse of the ACT (i.e., not listing intentions, setting out an intention as one component and using a different sheet to record actions) which may highlight a decrease in the model's appropriateness. Factors that could have contributed to this subtle push back could be that therapists were limited to only one hour of protected time in their schedules to plan and reflect on their sessions. This may have impacted the way they used the ACT sheets to record their reflections and speaks more to the employment expectations element of appropriateness that would need to be addressed in a larger implementation project. Regardless of the reason for the push back, therapists might benefit with continued practice or more flexibility within the ACM components to continue to implement the model into practice as highlighted in the integration of model elements results.

Adoption

As previously mentioned, carry-over between elements was expected with continued practice and could be due to the comfort level the therapist has with integrating the model, however, it was not expected to see these results so early on in implementation, which is an extremely positive sign of adoption and appropriateness. The results demonstrated that *Engage* and *Reflect* were the most adopted components of the ACT. Engage is a component that is required in all

service delivery, and particularly well adopted in the paediatric rehabilitation setting that values FCC and therapeutic relationship building. The reason these where the highest-ranking elements from the ACM could be due to the level of comfort therapists had in using these two components within their practice previously. Service delivery differed among therapists, such that those who had more years of experience often used more reflective questioning in comparison to other therapists. This contradicts previous literature that states that ingrained behaviours are difficult to change (Prochaska, Velicier, Rossi, & Goldstein, 1994). It is possible that when change aligned with therapists practice style, and they see value in the proposed intervention, that ingrained behaviours are not as hard to change as previously thought. Furthermore, the data from the therapists' reflections demonstrated that although some components were clearly used more often than others, each therapist was able to integrate all elements of the ACT during their sessions, indicating therapist uptake/adoption of the model.

Fidelity

Previous research has shown that it takes up to 6 months to become comfortable with using coaching behaviours in a clinical setting (Grant, 2010). The differences in the initial champion observations to the second or third observations support that practice change is a process that evolves over time, which was 5 to 7 months in this study. With feedback, therapists were able to make the appropriate changes to their personal therapist styles to be able to fully integrate all components of the model at mastery level (>75%). This provides support for fidelity of the implementation as the champion evaluated and deemed the therapists' quality of service delivery and adherence to the ACT to be within the expected range considering variation needed across professions, families, activities, and individual therapists' clinical expertise. Other findings include the positive effects of champion coaching/feedback used to facilitate practice change as evidenced in the second and third observations. Coaching encompasses many of the components and underpinnings of the ACM. These results suggest therapists were continuously adhering to the coaching, therapeutic alliance and FCC behaviours which is an indication of implementation fidelity. Also included in this theme was the therapists' reflections of their own missed opportunities where they had not fully implemented the strategies in the ACT. Although it may look like a negative, such as the lack of intervention fidelity, it is an important step in creating long-term practice change. It allows therapists the ability to reflect and identify what strategies

they could have used in the session, despite the use of their current therapy delivery methods. Another positive sign of fidelity was the agreement found between therapist personal style, as coded in the author memos, and strengths and weaknesses highlighted in the champion observations. As noted in the therapist personal style code, some therapists excelled at using reflective questioning throughout their sessions with parent/child dyads which was also reflected as a strength in the champion observations. Similarly, other therapists used more direction and instruction which was noted in the authors memos and reflected as a weakness in the champion observations. This confirms evaluations of therapists were consistent across multiple raters and were able to be demonstrated from three perspectives: the therapists' self-reflections, the author coded memos of therapist personal style and the champions observations.

Limitations

This study demonstrates successful implementation results within a relatively short timeframe. However, future studies would benefit from a longer timeframe to measure if these patterns of high acceptability, adoption, appropriateness, and fidelity would continue, as well as offer the opportunity to assess sustainability. COVID-19 impacted the sampling strategy, sample size, the implementation of the ACM and ACT and the results. Originally the intention was to use a purposive sampling approach to achieve a richer dataset and include participants across varying subject characteristics including time practicing and discipline. However, due to COVID-19 and constraints associated with delays in the ethical and administrative approval process restrictions, we had to switch to using convenience sampling . The abovementioned constraints also impacted the sample size. The decision was made by the unit manager of the Early Childhood Rehabilitation Program to reduce the number of participating therapists to three (initially planned for 6, two from each discipline) due to the state of the healthcare environment within Alberta Health Services during the pandemic. The implementation of the ACM and ACT by therapists was initially meant to be delivered during in-person treatment sessions, but given the circumstances surrounding the COVID-19 pandemic, service delivery and therefore use of the ACM/ACT was only performed virtually. Virtual service delivery may have contributed to instances of push back, thereby affecting the results of this study. The shift to virtual service delivery was sudden, unplanned and difficult for many therapists; it is likely that using a new coaching model in this new setting was challenging and may have impacted the number of

sessions they used the ACM/ACT in, or the quality of their reflections based on time available to the therapists. The small sample allowed for detailed analysis of journals to look for the specific outcomes, but a larger sample may have helped determine if the effectiveness and the benefits of the training and the ACM were consistent across multiple disciplines and different service providers. The study was limited by using self-report measures, which potentially introduces response bias as clinician's perception of their coaching skills may not have been an accurate reflection of their coaching skills in therapy delivery. However, this was mitigated by the champion observations to determine fidelity and triangulated with the results from the author coded memos. Lastly, the reliability of the coding may be limited as the therapists' journals were only coded by one author (ZD), however, the definitions were established by the team *a priori* in efforts to make the coding as objective as possible. Further, both authors (ZD, LB) analyzed and coded two journals and two memos per therapist together to ensure the coding framework was applied consistently and appropriately.

Conclusion

This study indicated that the ACM met the acceptability, appropriateness, adoption, and fidelity criteria of implementation within the pediatric rehabilitation context. These findings will provide the Alberta Children's Hospital, Alberta Health Services, and other paediatric rehabilitation programs with confidence to create a larger implementation plan and expand training to all healthcare providers providing care to children under the age of five years. Furthermore, this was the first study that described the implementation of a clinical tool that incorporated and provided all necessary information for clinical replication of results.

Future Work

Future research is required to explore the feasibility of the ACM and ACT by evaluating the interventions failures and successes supported by recruitment, retention and participation rates of therapists and clients. In addition, penetration should be measured by comparing the number of therapists trained and how many therapists continue to use the ACM within their practice once the implementation period is complete. Sustainability should be measured in future studies by re-evaluating the fidelity of the trained therapists after a period of no contact with the implementation team. Lastly, patient, parent and managerial measures could be taken to evaluate

the acceptability of the model from their perspectives as well as evaluate if the ACM is successful in goal achievement in children with developmental delay (effectiveness).

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Appendices

Appendix 1: The Applied Coaching Tool

Engage	
Therapist Actions	**Elaboration of Actions**
Welcome family demonstrating curiosity, commitment, and compassion	• Introduce self and therapeutic discipline. • Tell me about your child's journey (personal and medical). What brought you in today? What would you like to tell me about your child? Actively listen. • Display positive body language (lean in, maintain good eye contact, open body posture).
Actively listen to family's concerns, affirming in a non-judgemental manner	• Explore family's concerns. Say something like, "It's important to me to know what's important to you." • Are there needs in other areas of development? Use agenda mapping if necessary. • Acknowledge barriers (and record for later reference).
Set up roles and expectations of Client-Therapist relationship, respectfully and collaboratively	• Explore family's knowledge of therapeutic discipline? • Explain therapist's area of expertise and role as a collaborative guide. • Highlight caregiver's role as expert in their child and family. • Describe the relationship as a shared partnership. Emphasize autonomy. • Elaborate how a Coaching Model works (key coaching ingredients). • Explain key worker role and the different services available in the program.
If initial visit, explore history and context of child	• Ask what kind of things family has tried in order to help their child's development? Have they started therapy with their child elsewhere? If so, what kinds of things worked? What hasn't worked? • Explore what child is currently able to do. Tell me about your child's strengths. • Ask what a typical day looks like for their child. • Are there referrals to other clinics, disciplines, doctors, or tests? Discuss collaboration with other teams.

If follow-up visit, obtain child update and explore goal attainment	• Actively listen to family update. (Note this information to stay current with child and family's relevant events). • Any new referrals to other clinics, doctors, or tests? • When caregiver summarizes child's update, therapist reflects back progress and adds significance, especially relating it to the previous goal. • Be specific when asking how things are going: "Last time we met we discussed a goal and activities to attain that goal." Try to get the family to articulate the previous goal. Ask, is this still important to you? • Ask family to describe their home practice (recall of prior learning)? This checks readiness to move on and caregivers' capacity.
Establish focus for the day with the emphasis on family's concerns	• Reiterate previously voiced concerns and ask what family would like to focus on or what family's expectations are for the session. This provides family with control and helps determine what the family wants.

Appendix 1: The Applied Coaching Model

Collaboratively Set Goals	
Therapist Actions	**Elaboration of Actions**
Acknowledge the family's existing knowledge, abilities, and strengths	• Explicitly mentions that the family is the "expert on their child and family" and that you are there to guide the progress towards their dreams.
Ask what the family's hopes and dreams are for their child	• Explore the big picture; Acknowledge long-term hopes. • Actively listen and reflect back what the family says.
Determine child's motor level through family's summary, direct observation, and handling/assessment	• Ask family to summarize child's skills. Ask them to demonstrate those skills (if possible). • Use reflective questioning to flush out where child is compared to their goal. • Ask permission to assess child. • Verbally summarize child's current abilities while acknowledging the progress the child has made. • Confirm family's understanding of their child's present developmental abilities if necessary.
Guide the family to convert their long-term hopes into short-term goals	• Ask the family if they would like to write a short-term goal for their child. • With permission, provide information about the developmental sequence. • Either ask (or tell) what next developmental step is. This is based on what the family showed you and your assessment. You can use probing questions to help define the targeted skills (just right challenge) necessary to attain the family's larger goal. • Offer choice (if multiple): which of the targeted skills (short term goals) would the family like to work on. • Together with the family, analyse the amount of demands the family can assume. • Evaluate family's engagement with the goal and re-assess if necessary.
Articulate and formalize a SMART goal with family (either right away or on next visit)	• Explain that we use a specific framework to generate a short-term goal called a SMART goal. It helps to keep us on track to guide you on your child's journey, and when achieved, indicates progress. • Work through each element, S-M-A-R-T: specific, measurable, achievable, relevant, and timely. • Check caregiver's understanding of goal, and how it fits with the family's larger hopes and dreams for their child. • Family or therapist writes down goal (flip chart, rec sheet, paper). • Confirm family's engagement with the goal.

Appendix 1: The Applied Coaching Model

Observe and Demonstrate	
Therapist Actions	**Elaboration of Actions**
Consider the context for learning something new	• Explain the Teaching framework (observe and demonstrate, practice, and provide feedback). Say, "Before we get started, I want to share a model that is helpful in describing what we will do together…" • Normalize the learning process by sharing the following throughout the process: ○ It takes time to learn the activities. ○ It may be difficult to not be able to do something correctly right away ○ It takes deep and deliberate practice. ○ One has to be able to make mistakes to actually improve. ○ Stay humble while practicing. Be gentle with yourself. ○ I'm here to coach you along the way.
Observe caregiver's actions in order to support the development of new skills	• Ask family to show you what they do to address their goal. Would it be ok for you to show me how you help your child stand? Tell me about when he tries to stand… • Use this demonstration as a starting point to expand their activities by asking reflective questions such as: How does that work for you? What do you think he needs help with? What worked and what didn't. If he gets stuck, how do you think you can free up his leg? • Be encouraging and affirming throughout their demonstration.
Provide information about the environmental set-up	• "Let's see how we can set you and your child up for success." Is there anything in the room that would make him more comfortable? • Discuss what motivates their child. • Explain that you will use simple language and/or gestures to support the child's understanding of the activity. • Discuss key elements of child engagement during activity such as: being face-to-face and animated, pacing, turn-taking, imitating. • Describe the components of the environmental set-up; ○ Surfaces, rolls, mats, benches, table height, ○ Placement of motivating and developmentally appropriate toys, ○ Position of caregiver and child, ○ Bright or dim lighting, more or less stimulating environment, etc.
Demonstrate specific activity to achieve the goal using a combination of reflective questioning and clear instructions	• Ask permission to further demonstrate activities to achieve the goal? Would it be ok for me to show you? • Narrate what you are going to demonstrate. • Give caregiver something specific to observe while you are demonstrating.

	• Narrate your observations during and/or after your demonstration so that caregiver can observe what is happening. • Use reflective questions: What do you think of how he looks? What do you think of the position of the toy? Position of my hands? Child's engagement? • Or you may provide clear instructions during the demonstration (hand/support placement). "I place my hand around his trunk.
Confirm understanding of how the strategy helps achieve the goal	• Use open-ended questions: encourage the family to explain how the activity is connected to the short-term goal and supports the larger goal.

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Appendix 1: The Applied Coaching Model

Practice and Reflect	
Therapist Actions	**Elaboration of Actions**
Encourage caregiver to imitate and practice handling, providing multiple opportunities	• Remind families that trying the activities can be difficult at first, but with practice it will become easier. • Remind families that improving their practice can look messy and feel uncomfortable at first. • Ask the family if there is a portion of the activity, they feel comfortable practicing today in the session with help. • Or offer another demonstration. Tell families that they can jump in at any time and practice themselves. • Remind families to set up an enabling supportive environment rather than a "test" situation. • Ask permission to provide verbal feedback and to touch caregiver (if appropriate) in order to provide hand over hand support.
Encourage trial and error through reflective questioning	• Observe the caregiver practicing the skill. • Encourage caregiver to narrate, if able. • Use "Let's see what happens when you…" statements. • Are there any other ways you could support your child during this activity? • Does this match what I did, how is it different or the same? How does it feel when you put your hands on his hips vs further up on his chest? • How is your position? What about your hand position? • Remind caregiver that it may be more successful at home where the child is more comfortable.
Affirm family's dedication, effort and strengths	• Celebrate small and big victories. • Use cheer leading-type praise. • "I can see how much you are trying to get this right. • You are extremely dedicated to helping your child."

Ask caregiver to reflect on their practice and identify concerns using active listening and probing questions	• Ask open-ended questions to help caregiver reflect on their practice.
	  ○ What felt right while you were practicing? What worked well?
	  ○ How is this consistent with what you intended to do?
	  ○ What did you observe in your child during practice?
	  ○ When you supported your child (e.g., under his elbow) did that make it easier or harder?
	  ○ Why do you think that happened?
	  ○ How did you know that you needed to do something different?
	  ○ What do you know now after trying this activity?
	  ○ What didn't work well? What might work better next time?
	• Reflect on and confirm the key elements of the environmental setup.
	  ○ I noticed you used his favourite toy and checked in with him face to face. He seemed to really enjoy that.

Supplement caregiver's reflection with relevant feedback regarding their practice	• Ask the family to summarize what they observed. • Supplement summary, starting with family's strengths and provide improvement feedback on their actions and behaviours, including Handling / Positioning, Support and Environmental setup. • Offer to video caregiver doing the activities using their phone to support recall.
Repeat Observe, Demonstrate Practice and Feedback for each additional activity based on family capacity.	

Appendix 1: The Applied Coaching Model

Commit to Action	
Therapist Actions	**Elaboration of Actions**
Summarize SMART goal	• Refer to written SMART goal. "What was that goal you wanted to work on?"

Summarize session activities	• Review session activities with the family:
	  ○ "Let's review the activities you practiced. Encourage family to verbalize the activities.
	  ○ Adjust expectations if necessary (be aware of non-verbal communication).

Connect the activities with the predetermined SMART goal	• Review the rationale for the activities to support the goal. Ask how they would explain why they are doing these activities to their partner or the child's grandparent (solidifies reason for the activity).
Offer options to support recall for home practice	• Ask "what can you imagine trying on your own at home?" • Record activities to accompany the goal using: ○ Photos, videos (offer to video caregiver practicing the activity), diagrams, handouts. • Suggest caregiver record strategies themselves (if able).

Confirm commitment to planned action	• "How has this been helpful today?"
	• What type of supports will you need to practice these activities?
	  ○ Expose barriers/obstacles to action.
	  ○ Explore use of an obstacle log.
	• Normalize obstacles (for e.g., other clients have encountered similar obstacles).
	• Help resolve obstacles.
	• Accept what works for the family.
	• Emphasize autonomy.

Develop a plan for who when, what, where, and how the activity/practice will occur	• What do you plan to do with the activities you practiced here today? • Encourage family to articulate frequency of practice. When and where do you plan to do this? • Normalize capacity- Let's talk about if this ends up being too much or too little for you at your next follow-up visit. • Normalize that children will progress at different rates and some need more or less practice. • Discuss "little and often" principle. • Offer idea of pairing activity with specific child and family routines. • "How do you think you can fit this into your child's routine?" • Propose reminders: post-its, phone alarms.

Schedule next appointment (if necessary)	• Ask when family would like to return.

Foundational Interactional Behaviours

Demonstrate curiosity and commitment. FCC, TR
Express affirmations/interact in a non-judgemental manner. FCC, MI, TR
Accept what works for the family. Coaching
Affirm parent effort and dedication. MI

Demonstrate respect and compassion TR FCC MI
Ask first then explain. MI
Display positive body language. MI, TR, Coaching
Demonstrate shared partnership and the intention to share power. FCC, Coaching
Recognize parent as experts of their family and child MI, TR, Coaching
Acknowledge family strengths. MI, TR, Coaching
Demonstrate active listening: simple and complex reflections. MI, TR, Coaching
Be aware of non-verbal communication.
Ask permission to share information (openly shares information therapist has gathered - transparency). FCC, MI, TR

Use a mixture of coaching techniques such as:
Provide hints Coaching
Encourage trial and error Coaching
Encourage experiential learning Coaching
Problem solving and discussion Coaching
Use open-ended questions (what, how) Coaching, MI, TR
Use reflective or probing questioning MI TR, Coaching
Use an encouraging tone Coaching, MI, TR, SB
Emphasise autonomy Coaching

Appendix 2: ACM Training Summary

Topic / Learning Objective	Content / Enabling Objectives and Strategies	References, Resources Req'd	Time
Stage 1 – Full Day Training			
1. Introduction	▪ Background ▪ Benefits, Rationale ▪ Learning Objective of the session. ▪ Outline / Agenda	Applied Coaching Model Manual	0.25 hour
2. The Coaching Model Describe each of the contributing theories and approaches that contribute to and inform the coaching model. Describe the components: Engage, Collaborate the Goals, Observe and Demonstrate, Practice and Feedback and Commit to Action.	▪ Interactively discuss the elements within the contributing theory and approaches (FCC, MI, Adult Learning Theory, Coaching, Motor Learning Theory, Therapeutic Relationship, etc.) ▪ Commonalities among them. ▪ Describe supporting research of the essential components of coaching and learning. ▪ Conclude with the model and how it is informed by the many approaches. ▪ Introduce each of the components of the model. ▪ Link to Applied Coaching Tool (ACT), (the model operationalized).	**Model (graphic)** Supporting References. Key articles (Dunst, Rush and Sheldon, etc.) Reference articles that discuss coaching behaviours. Key foundational behaviours checklist.	0.75 hr
3. The Applied Coaching Tool Provide an overview of the ACT and its 5 components.	▪ Review the 5 components of the tool and define each component. ▪ Each component within the model is comprised of	Applied Coaching Tool ▪ Refer to ACT to illustrate.	0.25 hr

	Therapist Actions (i.e., observable behaviours). ▪ Therapist actions are further illustrated with Elaborations (e.g., what to say, what to do) to support each component.		
4. The Applied Coaching Tool: Therapist actions and Elaborations. For each component: describe, demonstrate, practice and reflect on the Therapist Actions and Elaborations. **This will be repeated for each of the five components**. **Note: each component is distinct from each other and a skill in itself and will therefore be practiced separately.**	▪ Describe, explain the Therapist Actions and Elaborations (of each). ▪ Provide examples and ask participants to do so as well. ▪ Demonstrate the Component, Therapist Actions and Elaboration. ▪ Facilitators to role-play a short scenario, using Therapist Actions and Elaborations. ▪ Participants read/review coaching conversations. ▪ Ask for reflections of the coaching conversation. ▪ Participants to role play based on either a provided scenario or a client they are familiar with. ▪ Instructor and participants to review and provide feedback of the coaching conversation.	The Applied Coaching Tool as a reference / guide. Ask participants to self-reflect on their experience with each of these components and therapist actions. (e.g., think of a time when … with client). Self-evaluate using Therapist action checklist. Reflect on own strengths and opportunities. Written coaching conversations. Written role -play scenarios.	5 – 6 hours

Appendix 2: ACM Training Summary

Topic / Learning Objective	Content / Enabling Objectives and Strategies	References, Resources Req'd	Time
Stage 2 – Intentional Practice Change			
Intentional Practice Change	▪ Therapists intentionally choose elements of the coaching model to implement and apply with 2 patients each week and journal their reflections and self-evaluate. ▪ Ongoing, informal conversations with Implementation Champion for reflection, support and feedback.	▪ Protected time in schedule (1 hour weekly) to plan and reflect on practice change. ▪ Scheduled meetings with Implementation Champion bi-weekly to review reflections and practice.	3-5 mths

Appendix 2: ACM Training Summary

Topic / Learning Objective	Content / Enabling Objectives and Strategies	References, Resources Req'd	Time
Stage 3 – Implementation and Certification			
Application / Certification ACT Therapist will apply the ACT in coaching sessions with an active client-parent dyad. Implementation Champion to observe, evaluate, pro vide feedback and certify.	▪ Apply all Components of the ACT, using Therapist Actions and Elaborations. ▪ Certification at the end of implementation period to assess fidelity of implementation. ▪ Mastery is defined as each individual ACT Component demonstrated at 75%. ▪ Each ACT Component/Action is comprised of many behaviors. Certification for the component is granted once 75% of the behaviours of the	Applied Coaching Tool used as a checklist to observe, provide feedback and evaluate. Implementation Champion to observe sessions (virtual or in-person options) Observed by Implementation Champion Feedback provided by	1 hr. per session of observation. 0.5 hr. to debrief Sessions schedul ed until mastery achieved. 3 to 5 observed sessions per therapist

	component/action are demonstrated ▪ All Components required 75% mastery for overall for certification. ▪ 3-5 sessions may be necessary to achieve competency.	Implementation Champion post session.	

Appendix 3: Coding Framework

Name	Description
Adult Learning	Andragogy theory says that adult learners are different from children in many ways, including They need to know why they should learn something. They need internal motivation. They want to know how learning will help them specifically. They bring prior knowledge and experience that form a foundation for their learning. They are self-directed and want to take charge of their learning journey. They find the most relevance from task-oriented learning that aligns with their own realities. (Dunst, Sciences, 2012.)
Coaching	Includes the facilitation of goals and the development of actions to achieve these goals. Coaches help create client awareness to encourage learning as well as build self-directed and self-regulated progress of the clients.
Collaboratively Set Goal	Highlights the usefulness of the shared partnership to engage in collaborative goal setting. The therapist explores the family's hopes for the child and guides the family in establishing achievable short-term goals.
Commit to Action	Confirms the pre-discussed goal, re-applies meaning to the short-term goal, and facilitates an opportunity for parents to develop a plan of action that they can commit to. Commit to Action includes a discussion of practice frequency, and exposes barriers, and helps to resolve them.
Demonstrate	Stage allows the therapist to explain and demonstrate specific strategies and the necessary conditions (environmental set-up) to achieve the goal. Therapists provide clear verbal instruction during the demonstration of the given activity while using an encouraging tone and asking open-ended and reflective questions to confirm understanding.
Engage	Stage of the model focuses on building the therapeutic alliance between the therapist and the family. It acknowledges the family's existing knowledge, experiences, abilities, and strengths. It provides an opportunity for families to communicate their concerns while therapists actively listen and affirm the parent's role as the expert on their child.
Family Centered-Care	A philosophy of care that includes joint decision-making, respecting and valuing distinct roles, trusting open communication, transparency, and sharing accountability (King et al., 2003). FCC recognizes the importance of family when caring for children with special needs. The family is highly involved with the healthcare provider in making educated decisions on the child's therapeutic plan.

Name	Description
Motor Learning Theory	Motor learning theory emphasizes that skills are acquired using specific strategies and are refined through a great deal of repetition and the transfer of skills to other tasks.
Observe	Allows the therapist to observe the client/family interactions/strategies, context, and the environment to assist with strategy development and goal attainment.
Barriers	Obstacles that prevented therapy delivery using ACM Model
Practice	The family is encouraged to practice the skill multiple times using trial and error and problem-solving tasks, reminding families that practice may feel difficult initially and that it takes time to learn something new.
Reflect	The therapist asks caregivers to reflect on their trial using open-ended and probing questions. The therapist encourages the family to articulate what worked and what did not. With permission, the therapist supplements the family's reflection with relevant facts.
Reflection of Missed Opportunities	Instances where therapist indicated they could have done something but didn't.
Strengths Based Approach	Strengths-based approaches concentrate on the inherent strengths of individuals, families, groups and organizations, deploying personal strengths to aid recovery and empowerment. In essence, to focus on health and well-being is to embrace an asset-based approach where the goal is to promote the positive.
Therapeutic Relationship	Refers to a sense of trust, empathy, support, and partnership between the therapist, family, and client. It includes three primary factors: the agreement between client/family and therapist about the goals for treatment, agreement on the tasks used to achieve the goals, and the quality of the relationship between the therapist and client/family.
Push back	Push back is experienced when the implementation of the new therapy is not in line with the healthcare mission or the providers skill set, role or employment expectations.
Partially Met Intention	Partially met intention meant the therapist identified an entire component as their intention, however only completed some of the therapist actions listed in that component.
Met Intention	Met intentions signified the therapist completed their intention during their session.
Exceeded Intention	Exceeded intentions meant that therapists had listed a single therapist action as their intention but completed more therapist actions of that component.
Intention Not Listed	Therapist intention was not listed.
Integration of Model Elements	Elements of other components were used despite having identified a certain component as their intention.
Therapist Personal Style	Refers to the unique therapy delivery behaviours presented by therapists.

Appendix 4: Initial Draft of Applied Coaching Tool

<table>
<tr><th colspan="3">Engage (build therapeutic relationship)</th></tr>
<tr><th>Therapist Actions</th><th>Elaboration of Actions</th><th>Interactional Behaviours</th></tr>
<tr><td>Welcome family to treatment session. TR, FCC
Introduce self.
Ask if they have prior knowledge of what physiotherapist does.
Explain role. Expert role</td><td>What do you know about physiotherapy? Do they know what gross motor development is? Give some examples. Learning and Coaching. Explain key worker role and the different services available. Expert role</td><td rowspan="4">Express affirmations/interact in a non-judgemental manner. FCC, MI, TR

Affirm effort, dedication, partnership etc. MI, TR, Coaching

Demonstrate active listening: simple and complex reflections. MI, TR, Coaching

Ask permission to share information (openly shares information therapist has gathered - transparency). FCC, MI, TR

Ask first then explain. MI

Use open-ended questions. MI TR, Coaching

Display positive body language. MI, TR, Coaching

Demonstrate equal partnership and the intention to share power. FCC, Coaching

Use reflective questioning Coaching</td></tr>
<tr><td>Set up expectations of Therapist - Client relationship. TR</td><td>Describe the relationship as an equal partnership. FCC
Explain the Delivery Service Model is consultative. TR FCC
Housekeeping expectations.</td></tr>
<tr><td>If initial visit, ask family, FCC
for their main concerns about their child.
what a typical day looks like for their child.
about medical appointments, other referrals, other investigations.
what child is currently doing?</td><td>Ask what kind of things they’ve tried in order to help their child’s development? What kinds of things have worked well? FCC, Coaching

Referrals to other clinics, Doctors or tests. Expert role</td></tr>
<tr><td>If follow-up visit ask family: FCC, TR
what child is currently doing? FCC
Follows-up on home practice</td><td>When parent summarizes child’s update, therapist reflects progress or concerns, and adds significance, especially relating it back to the previous goal. MI, TR, Coaching</td></tr>
</table>

(recall of prior learning). Coaching • about medical appointments, other referrals, activities, other investigations. Expert role	Refer to the previous joint goal and ask about that: be specific when asking how things are going: "Last time we met we discussed (. the goal.) and the activities to help attain that goal. I am interested in how that went. Can you describe your practice? Coaching	
Listen and address family's concerns - problem solves. FCC, Coaching	Listen to concerns, barriers, and helps find solutions. Asks caregiver to demonstrate the difficulties. If reluctant, ask if you can demo. Be specific and intentional. Then ask if this is like what they do with Johnny. If not, what are the differences. What will they do differently next time. Coaching	
Establish focus for the day with the emphasis on family's concerns. (The focus may be goal setting…) FCC, Coaching	Ask what family would like to focus on today. FCC, TR, MI, Coaching	

Appendix 4: Initial Draft of Applied Coaching Tool

Negotiate the Goal (SMART)		
Therapist Actions	**Elaboration of Actions**	**Interactional Behaviours**
Ask what the family's hopes and dreams are for their child. TR	Explore the big picture; Acknowledge long term hopes. Coaching, SB	Sit with them in their space. TR, MI, Coaching Give their hopes it's due.
Acknowledge the families existing knowledge and abilities. SB, FCC	Explicitly mentions that the family is the "expert on their child and family" and that you are there to guide the progress towards their dreams. FCC	Express affirmations/interact in a non-judgemental manner. FCC, MI, TR Affirm effort, dedication, partnership etc. MI, TR, Coaching Demonstrate active listening: simple and complex reflections. MI, TR, Coaching Ask permission to share information (openly shares information therapist has gathered - transparency). FCC, MI, TR Ask first then explain. MI Use open-ended questions. MI TR, Coaching Display positive body language. MI, TR, Coaching Demonstrate equal partnership and the intention to share power. FCC, Coaching Use reflective or probing questioning Coaching
Determine child's motor level through direct observation and/or by family's summary. Expert role	In order to negotiate gaol, therapist assesses developmental level. Summarizes skills the child has (comments on even small changes, if applicable). SB, Coaching Comment on all changes observed (parents may not have observed).	
Guide family in establishing new short-term goal (if appropriate). Coaching	Ask family for permission to provide information regarding missing foundational skills. MI, Coaching Explain the developmental sequence Expert role. Explain, based on your assessment, where their child fits in the developmental sequence Expert role E.g. "So, you'd like to see an activity that will strengthen his core that will help him sit. Confirm family's understanding of their child's dev't abilities. Coaching Identifies with the family the targeted skills necessary to attain the goal Coaching	
Articulate and formalize new goal with family. Coaching	Refine goal to achievable objectives given child's current abilities Coaching Identify and write SMART goal with family Coaching Check parent's understanding of goal and its component skills. Write it down on recommendation sheet (or whiteboard for all to see) Coaching	

Appendix 4: Initial Draft of Applied Coaching Tool

Instruct and Demonstrate the Strategies		
Therapist Actions	**Elaboration of Actions**	**Interactional Behaviours**
Obtain permission to explain and demonstrate strategies. MI	Can I show you some strategies to achieve the goal? E.g., "Would you like to see an activity that will strengthen Johnny's core that will help him sit.	Express affirmations/interact in a non-judgemental manner. FCC, MI, TR Affirm effort, dedication, partnership etc. MI, TR, Coaching Demonstrate active listening: simple and complex reflections. MI, TR, Coaching Ask permission to share information (openly shares information therapist has gathered - transparency). FCC, MI, TR Ask first then explain. MI Use open-ended questions. MI TR, Coaching What … How. Display positive body language. MI, TR, Coaching Demonstrate equal partnership and the intention to share power. FCC, Coaching Use reflective or probing questions Coaching What …, How …
Explain and demonstrate the first specific activity to achieve the goal. Expert role Repeat this step for each strategy.	Always describe what you are going to do, and why, first. Modelling is meant to be intentional. Provide clear verbal instruction. The Coach may ask the caregiver to observe how she long she waits before… You may narrate (if appropriate) during your demo, your observations of their child so that parents can also observe what is happening Learning and Coaching Debrief with parent (what worked what didn't). Coaching Demonstrate handling. Provide clear handling instructions (hand/support placement). (E.g., How did I support Johnny during this transition). Does this match what you do, how is it different? Learning and Coaching Use open-ended questions to confirm understanding of how strategy helps achieve the goal Learning and Coaching Or explain how the strategy is connected and supports achievement of the goal. Use reflective questions to confirm understanding	

Appendix 4: Initial Draft of Applied Coaching Tool

Practice and Provide Feedback		
Therapist Actions	**Elaboration of Actions**	**Interactional Behaviours**
Encourage parent to imitate and practice handling Learning and Coaching	Ask learner if they would feel comfortable trying the skill with their child. Learning and Coaching Observe the learner practicing the skill. Learning and Coaching Encourage multiple opportunities. Learning and Coaching Ask open-ended questions to help caregiver problem solve handling. How is this consistent with what you intended to do?	Use a mixture of coaching techniques such as: Provide hints Coaching Use reflective or probing questions Coaching What … How … Encourage trial and error Coaching Encourage experiential learning Coaching Problem solving and discussion Coaching Use open ended questions Coaching, MI, TR Use an encouraging tone Coaching, MI, TR, SB Emphasise autonomy Coaching Demonstrate respect and compassion TR FCC MI
Provide opportunities for active participation. Coaching	Provide the appropriate environment for each child (less or more stimulating, big or small room, bright or dim lighting) Provide the appropriate developmental toys or games. Provide the appropriate rolls, mats, benches, table heights to practice on.	
Ask caregiver to reflect on practice using probing questions Learning and Coaching	Comment on child's ability Expert role or ask what family observed in child during their practice Coaching. Asks what worked well? What didn't work so well? How did you know that you needed to do something else? Coaching When you supported Johnny under his elbow did that make it easier or harder for him to sit up? Coaching Why do you think that happened? Coaching How did you know that you needed to do something different? Coaching Are there any other ways you could support Johnny? Coaching Address the caregiver's self-identified concerns with the activity. ("So, you had difficulty with… How could you provide support…?") Coaching What do you know now after trying…? What might work even better next time?	

Provide feedback. Communicate ways to improve the parent's handling and support through reflective questioning. Learning and Coaching	Use cheer leading-type praise. Learning and Coaching Ask if willing to receive specific feedback TR, MI Add specific positive feedback on actions and behaviours Learning and Coaching	

Appendix 4: Initial Draft of Applied Coaching Tool

Commit to Action		
Therapist Actions	**Elaboration of Actions**	**Interactional Behaviours**
Summarize session strategies. Learning and Coaching	Request recall and records activities. Learning and Coaching • "let's review the # strategies you practiced to work on (insert goal). • "Help me remember". • Record the strategies.	Use a mixture of coaching techniques such as: Provide hints Coaching Use reflective or probing questions Coaching What …, How … Encourage trial and error Coaching Encourage experiential learning Coaching Problem solving and discussion Coaching Use open ended questions Coaching, MI, TR Use an encouraging tone Coaching, MI, TR, SB Emphasise autonomy Coaching Demonstrate respect and compassion TR FCC MI
Ask family to connect strategies with the predetermined SMART goal (i.e., relate the strategies to the goal - this helps make strategies meaningful). Learning and Coaching	Review the rationale for the strategies. Learning and Coaching • Help family connect the strategy to the goal (e.g., using ball to strengthen back muscles, which relates to the sitting goal established earlier in the session.	
Offer options to support recall. Coaching	e.g., pictures, written format (offer parent to write it themselves).	
Confirm commitment to planned action. Develop a plan (when, what, where, and how) for how the activity will happen at home. Coaching	"How has this been helpful today?" Coaching "How do you think you can fit this into your routine?" What do you plan to do? When do you plan to do this? What would it take for you to be able to do…? What type of supports will you need? Discuss frequency of practice ("little and often").	
Schedule next appointment (If necessary)	Ask when family would like to return.	

Curriculum Vitae

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Post-Secondary Education and Degrees

Masters in Health and Rehabilitation Sciences — *2019-2021*
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Bachelor of Human Kinetics — *2015-2019*
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