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# Research in Developmental Disabilities



## Use of the Medical Research Council Framework to develop a complex intervention in pediatric occupational therapy: Assessing feasibility

Cheryl Missiuna<sup>a,b,\*</sup>, Nancy Pollock<sup>a,b</sup>, Wenonah N. Campbell<sup>a</sup>, Sheila Bennett<sup>c</sup>, Catherine Hecimovich<sup>d</sup>, Robin Gaines<sup>a,e</sup>, Cindy DeCola<sup>a</sup>, John Cairney<sup>a,f</sup>, Dianne Russell<sup>a,b</sup>, Elizabeth Molinaro<sup>a</sup>

<sup>a</sup> CanChild Centre for Childhood Disability Research, McMaster University, 1400 Main Street West, IAHS 408 Hamilton, Ontario, Canada L8S 1C7

<sup>b</sup> School of Rehabilitation Science, McMaster University, 1400 Main Street West, IAHS 403 Hamilton, Ontario, Canada L8S 1C7

<sup>c</sup> Department of Teacher Education, Brock University, 500 Glenridge Avenue, St. Catharines, Ontario, Canada L2S 3A1

<sup>d</sup> Central West Community Care Access Centre (CW-CCAC), 199 County Court Drive, Brampton, Ontario, Canada L6W 4P3

<sup>e</sup> Children's Hospital of Eastern Ontario (CHEO), 401 Smyth Road, Ottawa, Ontario, Canada K1H 8L1

<sup>f</sup> Department of Family Medicine and Psychiatry and Behavioural Neurosciences, McMaster University, 175 Longwood Road South, Hamilton, Ontario, Canada L8P 0A1

### ARTICLE INFO

#### Article history:

Received 1 February 2012

Received in revised form 7 March 2012

Accepted 8 March 2012

Available online 21 April 2012

#### Keywords:

Developmental Coordination Disorder

School

Occupational therapy

Health services research

Complex intervention

### ABSTRACT

The United Kingdom Medical Research Council recommends use of a conceptual framework for designing and testing complex therapeutic interventions. *Partnering for Change* (P4C) is an innovative school-based intervention for children with Developmental Coordination Disorder (DCD) that was developed by an interdisciplinary team who were guided by this framework. The goals of P4C are to facilitate earlier identification, build capacity of educators and parents to manage DCD, and improve children's participation in school and at home. Eight occupational therapists worked in school settings during the 2009–2010 school year. Their mandate was to build capacity through collaboration and coaching with the school becoming the "client", rather than any individual student. Over 2600 students and 160 teachers in 11 elementary schools received service during the project. Results from questionnaires and individual interviews indicated that this model was highly successful in increasing knowledge and capacity. P4C intervention holds promise for transforming service delivery in schools.

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## 1. Introduction

The United Kingdom's Medical Research Council (MRC) describes complex interventions as those programs that have multiple components, which interact to produce one or more outcomes, often in a nonlinear fashion. Owing to their complexity, it is recognized that these types of interventions pose special challenges with respect to their design, development, evaluation, and implementation (Craig et al., 2008). To help address these challenges and encourage high quality intervention research, the MRC published a conceptual framework in 2000 and updated it in 2008 to guide researchers through the process of designing and testing complex therapeutic interventions (MRC, 2000). The framework

\* Corresponding author at: CanChild, McMaster University, 1400 Main Street West, IAHS 414 Hamilton, Ontario, Canada L8S1C7.

Tel.: +1 905 525 9140x27842; fax: +1 905 524 0069.

E-mail addresses: missiuna@mcmaster.ca (C. Missiuna), pollock@mcmaster.ca (N. Pollock), campbelw@mcmaster.ca (W.N. Campbell), sbennett@brocku.ca (S. Bennett), cathy.hecimovich@ccac-ont.ca (C. Hecimovich), gaines@cheo.on.ca (R. Gaines), decolac@mcmaster.ca (C. DeCola), cairnej@mcmaster.ca (J. Cairney), russelld@mcmaster.ca (D. Russell), molinaro@cogeco.ca (E. Molinaro).

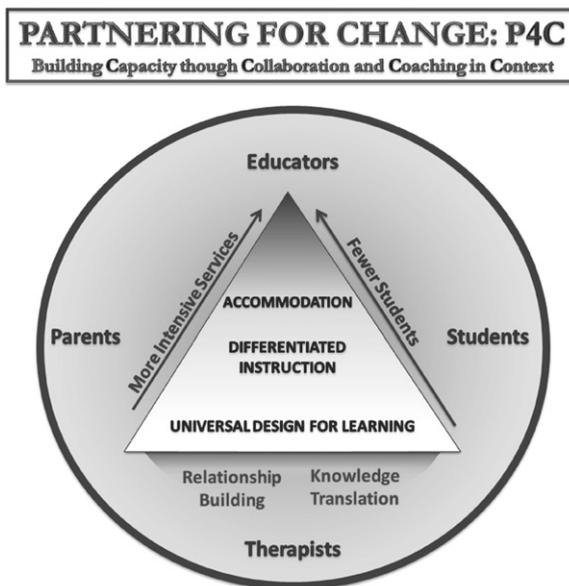
identifies a four-phase interactive process that recognizes the iterative and nonlinear nature of this research (Craig et al., 2008). The phases include: (1) development; (2) feasibility and pilot testing; (3) evaluation; and (4) implementation. In its current form, the MRC framework offers researchers a flexible yet systematic method for moving complex interventions from their conception to final implementation in clinical practice.

In Phase 1, the development phase, researchers engage in three tasks: (1) identifying and reviewing existing evidence; (2) identifying relevant theory on which to ground the new intervention; and (3) modeling the intervention in order to identify its components, understand its possible affects, and identify areas for refinement. In Phase 2, the feasibility of the intervention is tested using a mixture of qualitative and quantitative research methods. The goal is to better understand logistical issues such as the acceptability of the intervention, recruitment and retention of participants, as well as fidelity of the intervention procedures. With further refinements, the complex intervention is then evaluated on a larger scale in Phase 3 with a focus on the intervention's effectiveness, its impact on relevant outcomes, the processes that might explain outcomes, and its cost-effectiveness. Finally, if supported in Phase 3, Phase 4 involves moving the complex intervention into clinical practice through targeted knowledge translation and dissemination. Depending upon the outcome of any particular phase, it may be necessary to revisit prior phases in the cycle, making the MRC framework iterative and cyclical rather than linear (Craig et al., 2008).

Our research team was interdisciplinary so found it useful to be guided by this conceptual framework when developing and testing a complex occupational therapy intervention to support children with special needs in school settings. Phase 1 has been reported in a paper by Missiuna et al. (2012) which outlined the theoretical rationale, evidence from the literature and the conceptual model that resulted from the pilot study (see Fig. 1). Phase 2 is the focus of this paper; specifically, we report the results of and lessons learned from a year-long feasibility study of *Partnering for Change*, an innovative service delivery model for school-age children with Developmental Coordination Disorder (DCD).

### 1.1. Background

DCD is a chronic health condition that affects 5–6% of all school-age children (American Psychiatric Association, 2000). Children with DCD have difficulty performing everyday motor-based activities in academics, self-care, and recreation such as writing and using scissors, doing up zippers and buttons, and learning to ride a bike (Missiuna, Moll, King, King, & Law, 2007; Summers, Larkin, & Dewey, 2008; Wang, Tseng, Wilson, & Hu, 2009). Without appropriate support, research has shown that children with DCD are at increased risk of physical and mental health issues including decreased physical fitness (Cairney,



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Fig. 1. *Partnering for Change* Model.

Reprinted with permission of the authors. The *Partnering for Change* team used evidence from the literature to design a conceptual model that was tested in school settings and refined. This figure reflects the partnership that is needed between *therapists, parents and educators* to create environments that will facilitate successful participation for *all students*. Working from a foundation that focuses on *relationship building and sharing of knowledge*, these partners collaboratively *design environments* that foster motor skill development in children of all abilities, *differentiate instruction* for children who are experiencing challenges and *accommodate* for students who need to participate in a different way. While the school remains the target of intervention, allowing therapists to impact the greatest numbers of children, therapists are able to increase the intensity of the service that they provide as they coach educators and/or parents about individual students who have more complex needs. In this model, all collaboration and intervention occurs in the context of the school environment.

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