



OERE

Ontario Education Research Exchange



Supporting Students with Developmental Coordination Disorder (DCD): An Intervention Model

What is this research about?

Many students in Ontario's public schools receive occupational therapy services to meet a variety of needs. Often, this involves a qualified occupational therapist (OT) working one-on-one with a student within the school setting. Unfortunately, there are not enough OTs available to work with all the students who need support, and students can wait between 1 to 2 years on a waitlist before receiving OT service (Deloitte & Touche, 2010).

Partnering for Change (P4C) is an innovative service delivery intervention model for students with Developmental Coordination Disorder (DCD). Citing the work by Missiuna, Moll, King, King & Law (2007), the researchers explain that 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” (p. 1444).

What you need to know:

This study reports on the effectiveness of the *Partnering for Change* intervention model for supporting students with Developmental Coordination Disorder (DCD). Researchers found that the model was successful at increasing the number of students and classes that received support for DCD, as well as increasing teachers' and parents' knowledge and efficacy in supporting students with DCD.

In the *P4C* intervention model, OTs work with classroom teachers and parents to build their capacity in supporting students' occupational therapy needs. For example, OTs will coach parents and teachers to identify and implement strategies to improve students' functioning at school.

This research article reports the results of a *Partnering for Change* intervention



initiative. Particularly, how successful the *P4C* intervention was at building knowledge and capacity amongst teachers and parents to support students with DCD.

The research study had five main objectives:

- 1) Determine the effectiveness of the OT training provided to teachers and parents;
- 2) Test the procedures for documenting therapist activities to assess the fidelity of the implemented intervention;
- 3) Examine the receptivity of teachers and schools to coaching by OTs and their uptake of knowledge around early identification and management of children with DCD;
- 4) Examine parents' awareness and knowledge uptake;
- 5) Document participant recruitment and retention.

What did the researchers do?

During the 2009-2010 school year, the researchers implemented the *Partnering for Change* intervention program in eleven public schools within two school boards in southern Ontario. The length of

implementation for the intervention program ranged from 5 to 9 months at each school. *Partnering for Change* occupational therapists were assigned to each participating school and facilitated introductory presentations to teachers and parent councils about the service delivery model, and about children with DCD. Classroom teachers identified students with coordination challenges and contacted parents to obtain permission to have their child participate in the study.

Partnering for Change occupational therapists completed a half day training course on the program delivery model and on the research study. Therapists also completed a 3 month on-line course to further develop their knowledge and skills in delivering the *P4C* intervention.

Data for this study was collected from four main sources:

1. Occupational Therapist questionnaire: a 36 item questionnaire that assessed OT's beliefs about their knowledge, self-efficacy, beliefs, and skills about the *Partnering for Change* intervention program and DCD. The questionnaire was administered in September prior to the OT training



session and then again before the interviews in June. Sample statements included: “I believe I can successfully implement the P4C model of service delivery in a school”, and “I am able to coach teachers within their classrooms with respect to understanding typical motor development”. OTs responded using a 7 point Likert scale ranging from “(1) not at all” to “(7) strongly agree” for beliefs and knowledge items, or “(1) area for learning and growth” to “(7) high level of competence” for skills questions;

2. Teacher questionnaire: each online questionnaire was completed anonymously at the beginning and end of the school year. Teachers were asked about: past experiences with OT services in schools; knowledge about motor skills; perceived ability to teach students new motor skills; impact of motor coordination difficulties on function; ability to differentiate instruction for children with motor coordination difficulties;
3. Year-end interviews with the OT therapists, telephone interviews with

two teachers from each school, and telephone interviews with parents of students who participated in the study;

4. Daily log books kept by OTs.

What did the researchers find?

Effectiveness of Training and change in OTs skills

The researchers found that in-person discussions with peers and trainers during the training course were rated as most helpful to OTs in implementing the P4C service (mean score of 6.7 out of 7), followed by case studies (6.6) and video clips (6.4).

Procedures for documenting activities to monitor intervention fidelity

The researchers found that OTs were most frequently involved in helping teachers identify students with motor difficulties and those at risk; making environmental adaptations to the classroom; working with the teacher to trial and implement instructional strategies; and liaising with teachers and parents.





Teacher receptivity and knowledge uptake

The researchers found that teachers reported a high level of satisfaction with the P4C model and indicated that the suggestions made by the OTs were helpful (5.8 out of 7); that the recommendations were helpful and could be carried out in the classroom (5.7); and that they were satisfied with the service (5.7).

Further, telephone interviews with 15 teachers revealed an increase in teacher capacity and a change in teaching practices. Teachers were more easily able to identify students with motor difficulties and reported making changes to the classroom environment. Teachers also felt more confident in speaking to parents about motor concerns.

Parent knowledge and awareness uptake

The researchers found that 56 of the 83 parents of children who participated in the study agreed to a follow-up telephone interview and 73% of these parents reported that they shared information about DCD with others; 68% had read information about DCD; 41% sought advice from their physician; and 36%

shared information about DCD with their child's new teacher.

Participant recruitment, retention and reach

The researchers found that, overall, the P4C's 8 OTs worked with: teachers of over 2600 students at a whole class level in 183 different classes; 428 students in small groups; and collaborated closely with 168 classroom teachers, 17 special education teachers, and 24 educational assistants.

Recruitment took time as the OTs needed to establish a relationship with teachers before teachers were comfortable identifying students with DCD in their classrooms. 89 children were identified by teachers and OTs as having coordination difficulties and 83 received parental consent to participate in this study.

When compared with a traditional OT service model, the P4C model:

- increased the number of students and classes that received support for DCD;



OERE

Ontario Education Research Exchange

- enhanced teachers' and parents' knowledge and efficacy in supporting their students/children.

How can you use this research?

This research can be used by teachers and administrators who wish to increase their knowledge of Developmental Coordination Disorder, who are considering ways to support students with DCD within their school, and the potential benefits of offering professional development programs for teachers on the early identification of students with coordination difficulties. This article can be used as a starting point for staff discussions about support for children for DCD and can act as an entry point to the wider body of research on interventions for children with coordination difficulties.

Original article:

To learn more about this study, we invite you to read the original research article:

Missiuna, Cheryl., Pollock, Nancy., Campbell, Wenonah N., Bennett, Sheila., Hecimovich, Catherine., Gaines, Robin., DeCola, Cindy., Cairney, John., Russell, Dianne., Molinaro, Elizabeth. (2012). Use of the Medical Research

Council Framework to develop a complex intervention in pediatric occupational therapy: Assessing feasibility. *Research in Developmental Disabilities* 33, 1443-1452.

The Model:

To view the *Partnering for Change* school-based occupational therapy service delivery model, please see:

Missiuna, C., Pollock, N., Levac, D., Campbell, W., Whalen, S., Bennett, S., Hecimovich, C., Gaines, B., Cairney, J., and Russell, D. (2012). Partnering for change: an innovative school-based occupational therapy service delivery model for children with developmental coordination disorder. *Canadian Journal of Occupational Therapy*, 79(1), 41–50.

<http://www.ncbi.nlm.nih.gov/pubmed/22439291>

Other useful resources:

Educators can access free evidence-based resources applicable in the classroom on the CanChild website: <http://www.canchild.ca>



UNIVERSITY OF TORONTO
OISE | ONTARIO INSTITUTE
FOR STUDIES IN EDUCATION





OERE

Ontario Education Research Exchange

To view a free online evidence-based workshop about DCD, designed for parents and teachers, please visit:
http://canchild.ca/elearning/dcd_workshop/index.html

At the above website you can also view booklets developed for teachers and parents, as well as grade-by-grade descriptions of what teachers will see in the classroom and how they can accommodate for children's difficulties:
<http://dcd.canchild.ca/en/EducationalMaterials/school.asp>

Other references included in this article:

Deloitte & Touche, L.L.P.(2010). *Review of school health support services: Final report. Ministry of Health and Long Term Care*. Retrieved from https://www.osla.on.ca/uploads/deloitte_shss_review_report.pdf.

Missiuna, C., Moll, S., King, S., King, G., & Law, M.(2007). A trajectory of troubles: Parents' impressions of the impact of developmental coordination disorder. *Physical & Occupational Therapy in Pediatrics*, 27(1), 81–101.

About the researchers:

Cheryl Missiuna, Nancy Pollock, Wenonah Campbell, Robin Gaines, Cindy DeCola, John Cairney, Dianne Russell, and **Elizabeth Molinaro** are with the CanChild Centre for Childhood Disability Research at McMaster University. missiuna@mcmaster.ca

Cheryl Missiuna, Nancy Pollock and **Dianne Russell** are also with the School of Rehabilitation Science at McMaster University.

Sheila Bennett is with the Department of Teacher Education at Brock University.

Catherine Hecimovich is with the Central West Community Care Access Centre (CW-CCAC) in Brampton, Ontario.

Robin Gaines is with the Children's Hospital of Eastern Ontario (CHEO) in Ottawa, Ontario.

John Cairney is with the Department of Family Medicine and Psychiatry and Behavioural Neurosciences at McMaster University in Hamilton, Ontario.



OERE

Ontario Education Research Exchange

Keywords:

Developmental Coordination Disorder, School, Occupational Therapy, Health Services Research, Complex Intervention.

About this summary

The Ontario Education Research Exchange (OERE) is a project of the *Knowledge Network for Applied Education Research*, an Ontario network promoting the use of research in education. The OERE's clear language summaries of academic research aim to support this mandate.

This summary has been adapted from the *ResearchSnapshot* series developed by York University and ResearchImpact and has been developed according to writing and design principles unique to OERE. For more information about this summary or the OERE network please contact oere.knaer.oise@utoronto.ca.

This summary reflects findings from this study *only* and is not necessarily representative of the broader body of literature on this subject. Please consult the original document for complete details about this research. In case of any disagreement, the original document should be understood as authoritative.



UNIVERSITY OF TORONTO
OISE | ONTARIO INSTITUTE
FOR STUDIES IN EDUCATION

