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Effects of individual direct-instruction tutoring on foster children's academic skills: A randomized trial☆

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ABSTRACT

We conducted a randomized effectiveness trial to test the hypothesis that foster children of primary-school age who were exposed to an individualized direct-instruction tutoring intervention delivered by their foster parents would experience significantly greater pre-test to post-test gains in reading and math than would foster children in a wait-list control group. The sample consisted of 77 foster children in 9 local Children's Aid Societies in Ontario, Canada. At the pre-test, the foster children were aged 6 to 13 years ($M = 10.7$ years, $SD = 1.6$) and were in primary-school grades 2 through 7. Forty-two foster children were randomly assigned to the experimental (tutoring) group and 35 to the wait-list control group. The sub-tests of the Wide Range Achievement Test—Fourth edition (WRAT4; Wilkinson & Robertson, 2006) served as the outcome measures. At the post-test, the foster children in the experimental group had made statistically and practically greater gains than those in the control group on the WRAT4 sub-tests of Sentence Comprehension (Hedges' $g = 0.38$, $p < .05$), Reading Composite ($g = 0.29$, $p < .10$), and Math Computation ($g = 0.46$, $p < .01$) but not on Word Reading ($g = 0.19$, *ns*) or Spelling ($g = -0.08$, *ns*). The implications of the results for improving foster children's educational achievement were discussed.

1. Introduction

Research in many countries indicates that one of the greatest needs of many young people living in out-of-home care (hereafter, 'in care') is improvement in their educational achievement (Flynn, Ghazal, Legault, Vandermeulen, & Petrick, 2004; Jackson, 2007; Trout, Hagaman, Casey, Reid, & Epstein, 2008). Studies have consistently shown that many young people in care experience serious difficulties in primary and secondary school, often lagging one or two years behind their peers in the general population (Trout et al., 2008). As a result, young people in care are less likely to obtain a high school diploma or enroll in and graduate from post-secondary education (PSE), including university, college, and skilled-trade/apprenticeship programs (Pecora et al., 2010). Moreover, recent research in Sweden has demonstrated that care leavers' educational success in primary school is strongly related to their subsequent psychological adjustment (Berlin, Vinnerljung, & Hjern, 2011). These findings underline the necessity of increasing the amount of intervention research focused on effective ways of helping young people in care improve their short-term and long-term educational outcomes. The main purpose of the present study was to investigate whether individual direct-instruction tutoring by foster parents would improve their foster children's basic academic skills in reading and math.

The international literature reveals that many young people in care experience significant academic problems, including inconsistent school attendance, below-grade academic performance, and low scores on standardized tests of academic achievement in reading, writing and mathematics (Jackson, 2007; Mitic & Rimer, 2002; Pantin & Flynn, 2006; Shonk & Cicchetti, 2001; Trout et al., 2008). As a result, they are approximately three times as likely as their peers in the general population to be involved in special education (Trout et al., 2008).

The relatively few published Canadian studies on the educational attainment of children and adolescents in care have found results similar to those in the international literature. Flynn and Biro (1998) reported that young people in care in Ontario had higher rates of grade retention and school suspension than their age peers in the general population. In the long-term Ontario Looking After Children (OnLAC) project, Flynn et al. (2004) compared two groups of looked-after young people, aged 5 to 9 and 10 to 15, respectively, with nationally representative samples of the same age from the general Canadian population. Eighty percent of the looked-after older children and 78% of the younger children were rated by their foster parents as performing educationally in the same range as the lowest

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third of the comparison groups from the general population (who had been rated by their parents on reading, spelling, math, and overall educational performance). In more recent data from the OnLAC project, Miller, Flynn, and Vandermeulen (2008) found that 68% of their sample of young people in care who were 10–15 years of age had changed schools three or more times for reasons unrelated to normal progression through the school system. Also, the proportion who had repeated a grade increased with age, such that 16% of their sample of 5–9 year olds in care had repeated a grade, compared with 27% of their 10–15 year olds and 32% of their 16–20 year olds.

Given the substantial educational difficulties of children and adolescents in care, it is surprising—and grounds for a call to action by educational and child welfare researchers—that there are so few validated interventions to improve the academic status of children in care. We note that Trout et al. (2008) found, in their comprehensive review of 66 years (1940–2006) of research in the USA on the academic status of young people in care, too few validated programs to be able to include a synthesis of such interventions. Forsman and Vinerljung (2012) were able to find, after a comprehensive search of the literature in English, Swedish, Danish, or Norwegian, only 11 interventions that had aimed at improving the school achievement of children in care of primary-school age (6 to 15 years) and that had also used school achievements as outcome measures and a pre-test/post-test design.

Forsman and Vinerljung (2012) found that nine of the 11 studies they located had reported some indication of significant improvement, with tutoring the best supported intervention. These positive results for the tutoring of children in care dovetail with the positive findings of a recent meta-analysis of randomized studies of tutoring of children of primary-school age (K-8) in the general population (Ritter, Barnett, Denny, & Albin, 2009). In their meta-analysis of 21 randomized field trials, comprising 28 different study cohorts and published between 1986 and 2004, Ritter et al. (2009) found that tutoring was significantly effective in improving children's progress on reading overall (Hedges' $g = 0.30$), reading global ($g = 0.26$), reading letters and words ($g = 0.41$), reading oral fluency ($g = 0.30$), and writing ($g = 0.45$), with positive but statistically non-significant mean effect sizes also found on reading comprehension ($g = 0.18$) and mathematics ($g = 0.27$). The type of tutor (i.e., parent, college-age, or community tutors) was unrelated to the effect sizes of the outcomes. Ritter et al. (2009) concluded that volunteer tutoring has a positive effect on young students' reading skills but that little is known about the effectiveness of tutoring on math outcomes. They also concluded that small randomized field trials were useful for extending the evidence base on tutoring.

With tutoring suggesting itself as a promising approach, we decided to test a tutoring intervention based on direct instruction. The latter is a well-organized, structured, and empirically supported teaching methodology designed to enhance the reading, language, and arithmetic skills of educationally disadvantaged children (Ryder, Burton, & Silberg, 2006). In Project Follow Through, direct instruction was identified as the most effective method for teaching educationally disadvantaged children (Bereiter & Kurland, 1981–1982), and, in a more recent meta-analysis, direct instruction emerged as one of the three most effective school-level models for improving educational outcomes in low-performance urban schools (Borman, Hewes, Overman, & Brown, 2003). Finally, in combination with contingency management, direct instruction has been found effective in improving academic outcomes for young people at risk of school failure (Dolezal, Weber, Evavold, Wylie, & McLaughlin, 2007).

We chose to evaluate Maloney's (1998) Teach Your Children Well (TYCW) tutoring program, for several reasons. TYCW is based on direct instruction principles, was developed in Ontario, and includes a full array of curricular materials for learners at different levels. Together, the present investigation and Harper and Schmidt's study (2012) constitute the first controlled assessments of the impact of Maloney's (1998) TYCW program.

Our research hypothesis was the following: *foster children in primary school who are exposed to an individual version of the direct-instruction tutoring program known as Teach Your Children Well and delivered by their foster parents will experience statistically and practically greater pre-test to post-test gains in the basic academic skills of reading and math than will foster children in a wait-list control group.* We tested this hypothesis by means of a randomized *effectiveness* trial that was conducted under real-world conditions, rather than by an *efficacy* trial that would have required near-ideal, laboratory-like conditions. The study had obtained the prior approval of the Social Sciences and Humanities Research Ethics Board of the University of Ottawa.

2. Method

2.1. Participants

Nine local child welfare organizations, known in Ontario as Children's Aid Societies (CASs) and located in widely dispersed regions of the province, chose to participate in the study. In each CAS, child welfare workers and their supervisors nominated foster child–foster parent pairs as candidates for the study because both the children and parents were seen as likely to agree to participate in the tutoring. Also, the foster parents were viewed as likely to be able to deliver the intervention, and the children were perceived as likely to benefit.

2.1.1. Foster children participants

Seventy-seven children, residing in family foster care, assented to participate and were enrolled in the study. At the pre-intervention assessment (i.e., in September–October, 2008), the 77 foster children were aged 6–13 years ($M = 10.7$ years, $SD = 1.6$) and in primary-school grades 2–7 ($M = 5.3$ years, $SD = 1.5$). Forty-two were randomly assigned to the tutoring (intervention) group (50.0% male, 50.0% female) and 35 to the wait-list control group (42.9% male, 57.1% female).

In order to participate, each child had to meet several eligibility criteria. Besides being aged 6–13 years and enrolled in grades 2–7, they had to be nominated by their child welfare worker and supervisor as likely to benefit from tutoring by one of their foster parents, fluent in English (the tutoring work books and other materials existed only in English), resident in a foster home or kinship care home (whether run by the local CAS or a private provider), living in a placement assessed as stable by the child welfare worker and supervisor, possessing the legal status of a Crown Ward or Society Ward (and thus likely to remain in care for the duration of the study), and willing to sign an informed assent form. Foster children were excluded from the study if they were living in a group home or if, in the judgment of the child welfare worker and supervisor, they were either very strong students (and thus not likely to need tutoring) or extremely weak students or very behaviourally disturbed (and thus not likely to benefit).

2.1.2. Foster parent participants

Sixty-eight foster parents (63 female, five male) met the study inclusion criteria and were enrolled in the study. Thirty-six were randomly assigned to the experimental group and 32 to the wait-list control group. Of the 42 children in the experimental group, 92.9% were tutored by a female foster parent; of the 34 children in the wait-list control group whose foster parents had indicated their gender on their foster-parent questionnaires, 91.4% were tutored by a female foster parent. The foster parents ranged in age from their 20s to their 60s and over, with most in their 40s and 50s. The majority had completed high school or community college, with only a few having obtained a university degree.

The foster parents had to satisfy the following inclusion criteria: nominated by staff of the local CAS as sufficiently motivated and literate to function as a tutor; able to read well (as assessed by a reading test administered at the pre-test by the research staff); willing to undergo a day of tutoring training and to have their subsequent tutoring