

Examining the effectiveness of Educational Therapy for school-age children: an outcome
evaluation of NILD Canada

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Introduction

National Institute for Learning Development (NILD) Canada is a non-profit organization that trains therapists to work with children and adults with learning difficulties using an individualized, Educational Therapy based approach. Educational Therapy sessions with students are provided on a one-to-one or group basis, depending on the needs of the student. Using a combined neurodevelopmental and cognitive approach, NILD Canada seeks to improve students' ability to think more clearly, improve their test scores and teach students how to learn (NILD, n.d.). Through use of an individualized program, students are assisted in developing core academic and higher order thinking skills (NILD, n.d.).

The Project

To start this project a logic model was created in order to visually demonstrate the program's goals and intended outcomes. Logic models are helpful for program design and evaluation as they build an understanding of the program, outline areas of weakness and strength, and effectively communicate the goals, resources, outputs, and outcomes of the program (McLaughlin and Jordan, 1999). The logic model is attached as Appendix A.

For the next step for this project, an outcome evaluation was conducted to answer the following research question: *Is the Educational Therapy-based approach provided by NILD Canada effective in increasing test scores in school-age children in Ontario?*

Outcome evaluation designs are useful in evaluating whether or not a program is meeting its goals, whether effectiveness of the program varies in different subgroups in the community, and is important for justifying program funding (Mertens & Wilson, 2012). This design fits well with the research question to be examined. Woodcock Johnson Revised (WJ-R) and Woodcock Johnson III (WJ-III) test scores served as the outcome to be measured, and was measured using a

pre-post design. This research design has been previously used to evaluate the effectiveness of the corresponding NILD U.S.-based program (Keafer, 2008) and remains relevant for use in this current study. This study received approval from the Research Ethics Board at the University of Guelph.

Analysis

Woodcock and Mather (1990) suggest that analysis which includes letter-word identification scores, passage comprehension scores, calculation scores, applied problem scores, dictation scores, and writing samples scores yields three broad category scores: broad reading, broad math, and broad writing. As such, letter-word identification scores, passage comprehension scores, calculation scores, applied problem scores, dictation scores, and writing samples scores were all included in the analysis for this current study. Given that t-tests provide a mean difference between two groups, the dictation scores (from the WJ-III) and spelling scores (from the WJ-R) were interpreted as one variable, rather than separating them into two unique categories. This was deemed to be an appropriate decision as all other test scores have been merged, and not classified separately by test type (i.e., WJ-R vs. WJ-III).

Paired samples t-tests were used to examine the mean differences between standard scores on the initial test and standard scores at first testing. Eight therapists provided data from a total of 40 students to be included in the study, with an average age of 10.8 years (range: 7.08-15.75 years) at the time of the initial test (time one). For time two (the first test after receiving Educational Therapy for a period of time), data were included from 36 students, with an average age of 11.5 years. The average time between initial testing and first testing was 11.1 months (range: 4-26 months).

Results

There was a significant increase found between passage comprehension standard scores at initial test ($M= 24.8, SD= 16.2$) and standard scores at first test ($M= 91.9, SD= 9.8$); $t(22)= -2.1, p<0.05$. There was a significant increase found between applied problem standard scores at initial test ($M= 92.4, SD= 16.7$) and first test standard scores ($M= 100.0, SD= 11.0$); $t(23)= -2.8, p<0.05$. There was also a significant increase found between writing samples standard scores at initial test ($M= 85.7, SD= 19.9$) and first test standard scores ($M= 95.0, SD= 15.2$); $t(16)= -3.1,$

$p < 0.05$. This analysis suggests that there is a statistically significant improvement in passage comprehension, applied problem solving as well as writing samples scores, after approximately 11 months in NILD Educational Therapy, implying that the Educational Therapy techniques that NILD therapists use are indeed effective.

There was no significant difference found between the standard scores between the initial and first tests for the other three subscales - letter-word identification, calculation, and dictation. This may be due to the fact that these areas take longer to improve than applied problem scores, writing samples scores or passage comprehension scores and require a higher number of Educational Therapy sessions to improve skills in these areas.

Spelling and dictation scores have been combined for the purposes of this study, yet exist as two separate subscales on different versions of the Woodcock Johnson. The combination of these scores, while necessary for the current analysis, may be biasing the results and leading to the lack of statistically significant improvement. Similarly, it is possible that collapsing all of the data from the WJ-R and the WJ-III may have biased results. Although the WJ-III builds upon the techniques used in the WJ-R, it is not clear whether scores from both tests are entirely compatible.

Recommendations for Practice

As part of this project some recommendations have been made, in order to aid future research. The recommendations are as follows:

In order to ensure consistency in practice and improve ability to make comparisons, especially as it relates to dictation versus spelling scores, it is important that only one test be used by all therapists. This will be beneficial for future research as data will be easily comparable, and helps to eliminate the question of compatibility between tests.

It would be very beneficial to create an online database where data can be stored. Data should be anonymized, and students can be identified using an ID number to be assigned by NILD Canada. Access to this database should be password protected in order to ensure security.

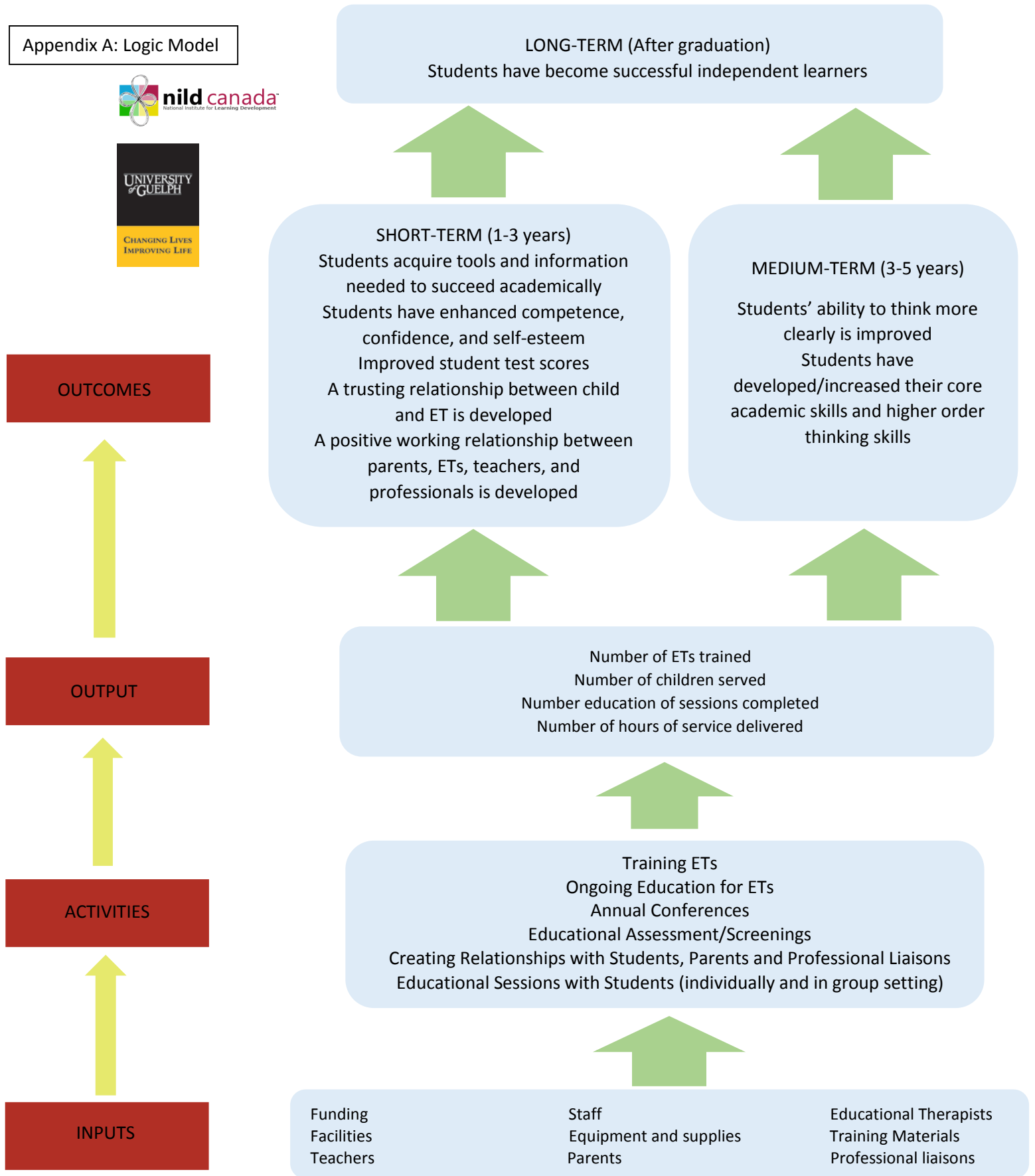
A data collection sheet can be an instrumental tool in gathering data; however, it is important that only one data collection sheet be used. When respondents are able to alter the

sheet, it creates inconsistencies in results, such as dates written in inconsistent formats, and information not being correctly completed. An unalterable, clear and concise data sheet would likely be very helpful in collecting information in the future.

For future outcome evaluations it may be helpful to collect the following variables: child's gender; frequency and duration of Educational Therapy session (i.e., how many sessions per week and how many hours each session); and, as the organization expands, whether the child attends public school versus private school. Although this study attempted to assess the impacts of public school compared to private school, these data were often incomplete as many respondents seemed to interpret this question to be asking whether the child was enrolled in therapy in private versus therapy at school. Both variables may be important to assess but it should be noted that they are two unique variables: public school versus private school and therapy at school versus therapy in a private setting. Dates are important to research and should be included in a consistent format to ensure accuracy. For example both child's birthdate and date of testing can be written as Month, day, year (e.g., May 28, 1995). As was done in this current study it is important to include a variable describing the date of each testing, as future research may consider the impact of time that has elapsed between each testing. Furthermore, this date format should be consistent on the data collection sheet and the online database where the data is collected.

As NILD Canada continues to expand, number of students wanting services may exceed number of therapists, and thus waitlists may be created. Data from students on these waitlists can be collected and used to create a control group to compare to those students who are receiving services.

Appendix A: Logic Model



OUTCOMES

OUTPUT

ACTIVITIES

INPUTS

LONG-TERM (After graduation)
Students have become successful independent learners

SHORT-TERM (1-3 years)
Students acquire tools and information needed to succeed academically
Students have enhanced competence, confidence, and self-esteem
Improved student test scores
A trusting relationship between child and ET is developed
A positive working relationship between parents, ETs, teachers, and professionals is developed

MEDIUM-TERM (3-5 years)
Students' ability to think more clearly is improved
Students have developed/increased their core academic skills and higher order thinking skills

Number of ETs trained
Number of children served
Number education of sessions completed
Number of hours of service delivered

Training ETs
Ongoing Education for ETs
Annual Conferences
Educational Assessment/Screenings
Creating Relationships with Students, Parents and Professional Liaisons
Educational Sessions with Students (individually and in group setting)

Funding
Facilities
Teachers

Staff
Equipment and supplies
Parents

Educational Therapists
Training Materials
Professional liaisons

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