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Early Intervention: a longitudinal study of reading and reading-related achievement of 64 students in kindergarten through second grade enrolled in the alpha program

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DATE: September 3, 2009

RESULTS SUMMARY: Dr. Anne Calhoon, Professor of Language, Literacy, and Socio-cultural Studies, UNM/Albuquerque, obtained data based on the results of the pre- and post-PPVT-III and Qualitative Reading Inventory Assessments administered to 32 students participating in the ALPHA Program, compared to a control group of 32 similarly developing peers in grades K-2. The ALPHA Program combines listening therapy with musical, visual, verbal, spatial/kinesthetic and logical modes of learning.

After the 3-month program, statistically significant gains in vocabulary and cognitive skills were made:

- **The test group gained on the average two grade levels in reading fluency and comprehension.**
- **Reading comprehension:** *The test group were able to respond correctly, on average, to 90% of the reading comprehension questions, as opposed to 25% among their control group peers.*
- **Reading accuracy.** *The test group made one-third the number of miscues in decoding in comparison to their control group peers.*
- **Reading fluency.** *Test group students read at twice the rate of their control group peers.*
- **Receptive vocabulary and cognitive skills:** *Statistically significant gains in receptive vocabulary and cognitive skills, according to a standardized measure, the Peabody Picture Vocabulary Test-III.*
- **Retelling ability:** *The test group could recall seven times more specific story-related information than their control group peers.*

“Taken as a whole, this analysis indicates that the students in the experimental group have improved in all categories associated with reading. This improved achievement is significantly greater (more meaningful) than the improvements of the control group peers. Overall the picture presented of the students in ALPHA is one that shows immense growth in cognitive, academic, and psychological areas.” Professor Anne Calhoon, Associate Professor of Literacy, University of New Mexico/Albuquerque

STUDY SUMMARY: The following is excerpted from Dr. Calhoun’s preliminary report.

Introduction

This report is the third in a series that examines outcomes of true longitudinal and cross-sectional cohort research design using an experimental and control group in a pre-test and post-test design at a small elementary school in a small city in the southwest region of the United States.

Students in kindergarten, first grade, and second grade were assessed on a number of measures including receptive vocabulary knowledge, letter name and letter sound knowledge, metalinguistic skill, reading components, motor skills, auditory assessments

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and “prosocial skills” (those skills which help students to relate in a positive manner to their peers, teachers, and the world).

The experimental groups, cohort one and cohort two, took part in a 12-week intervention that uses auditory sensory integration through music and free play structured through the materials available for manipulation by students. The control group participated in both in-school and after-school programs which addressed academic needs through instruction in specific academic areas.

The goal of the intervention for the experimental group is to allow students to fully develop their senses so as to better be able to attend to instruction and complete work in the classroom. The purpose of the study was to examine the relationship between auditory sensory integration and free play in developing a *whole child* who is prepared to learn fully in the classroom.

Discussion

This study was designed to examine the effects of one auditory/sensory integration intervention using a longitudinal, cross-cohort time-lag design with two experimental groups and two control groups. Using this design we could compare the effects of the intervention between time one and time two for two cohorts. One cohort of students in the experimental and control groups began in Fall 2005 while the second cohort began at the beginning of the second school semester in Winter 2006. In this way we could examine through replication the effects of the intervention as well as examine both the short-term and long-term effects within the Fall cohort.

It is interesting to note that, at the comparison at time three, the students in the experimental group compared to those in the control group (both cohorts combined) were younger in both grade and age, and that the experimental group was also made up of significantly more boys than the control group. Even with these differences, students in the experimental group retained significantly greater growth in a number of academic areas including phonemic awareness, reading tasks.

In addition, these improvements in reading were accompanied by improvements in auditory and motor skill tasks, with students in the experimental group making significant improvements in listening skills, and also improving their integration of body, language, and creativity skills.

In addition students in the total experimental group demonstrated stronger pro-social skills and better mental status than their peers in the control group at the time three testing. The findings that link better prosocial skills with earlier reading acquisition have also been explored by Miles and Stipek (2006).

The most striking findings in this study are the effectiveness of the intervention in raising experimental group students’ reading-related scores. Students in the experimental group have gained on average about two years of reading level while their control group peers have gained, on average, a year or less.

In addition the growth in the experimental group students’ ability to deal with their social world and to develop sound mental attitudes appears to have increased dramatically when compared to their control group peers. The longitudinal descriptions of growth demonstrate that this intervention has had very positive effects on a number of achievement-related and social skill variables.

Final Report: Dr. Calhoon’s final report (75 pp.) is available upon request.