

A. LETTER OF SUBMITTAL

The present proposal is submitted in response to an invitation by Thrive by Five to generate a plan to evaluate the effectiveness of the Ready for Kindergarten (READY!) program. Collaborators include Washington State University (WSU), the National Children's Reading Foundation (NCRF), and the Kennewick, Moses Lake, and Othello School Districts. The title of the proposal is, "**Empirical Evaluation of the Ready for Kindergarten Program on Kindergarten readiness scores: Evaluating a multi-ethnic and multi-linguistic sample of Pre-Schoolers**". The grant is being submitted through WSU (Tax# 91-6001108, UBI# 385000328). Letters of cooperation from the school districts and NCRF are enclosed.

Project Abstract

The proposal is to conduct two studies to evaluate the effectiveness of the Ready For Kindergarten Program (READY!), which is a Kindergarten readiness program that targets children birth to age 5, and has been adopted by over 50 school districts in the U.S. and Canada. Study 1 utilizes data gathered at Moses Lake and Othello to evaluate the effect of 1-year of exposure to READY! on Kindergarten reading readiness scores. Study 2 utilizes data gathered in Kennewick to evaluate the relationship between age of exposure to READY!, and amount of exposure to READY!, on Kindergarten math and reading readiness scores. In addition to evaluating the program, we intend to develop a Research Manual that outlines the steps necessary for the evaluation of READY! and other Kindergarten readiness programs by school districts that adopt them. The focus of the manual is on how to evaluate outcomes without assigning children to a no-treatment control group (which raises ethical and practical problems for school districts).

Sincerely,

Paul S. Strand, Ph.D.

Associate Professor of Psychology

Nancy Kerr, president

National Children's Reading Foundation

B. OVERVIEW AND PLAN

Ready for Kindergarten (READY!) is a community-focused program for improving the Kindergarten readiness of children ages birth to five (Fielding, Kerr, & Rosier, 1998; 2004; 2007). The program is based on the assumption that parents are motivated to prepare their children for academic success, but sometimes lack the necessary skills and support. Therefore, it is the goal of READY! to educate parents about the core skills and competencies that determine Kindergarten readiness (Bergeson, 2005; Kagan, Britto, Kaverz, & Tarrant, 2005). The focus is on skills in the following three domains: Language and Reading, Math and Reasoning, and Social and Emotional skills. Parents are taught age-specific milestones for each domain. They are also instructed about the types of parent-child interactions and activities that help children achieve these milestones. Lastly they are provided with educational materials that support early learning. In sum, READY! provides parents information regarding educationally relevant child development milestones, skills for teaching children developmentally-appropriate pre-academic skills, and educational materials and activities that ensure a rich early learning environment.

READY! was inaugurated in the Kennewick School District in 2002. The program has subsequently been adopted by over 50 school districts in the U.S. and Canada. The popularity of the program stems from the fact that it outlines

a commonsensical approach to engaging families in early learning that is rooted in research on best practices in early childhood development and education. As noted above, a defining feature of READY! is its focus on clearly defined skills and objectives that are specific to the many developmental milestones that occur across the critical early childhood years. Despite the popularity of the program, there exists a paucity of data regarding its effectiveness with respect to improving the kindergarten readiness of children exposed to the program. Moreover, many school districts who implement READY!, or programs like it, are at a loss with respect to how to evaluate its effectiveness. *It is the aim of the present proposal to (a) empirically evaluate the effectiveness of the program and (b) formalize a framework for program evaluation that can be disseminated to school districts that implement the program.*

C. EVALUATION STUDY PLAN

We propose two separate studies, using data gathered from three Washington State school districts. Through them we seek answers to the following questions: (a) do 4-year-olds whose families participate in READY! outperform matched controls on standardized pre-Kindergarten assessment instruments, and (b) do pre-Kindergarten assessment scores improve as a function of age of the child and amount of family exposure to READY!? The research design for each study will be described in turn, followed by an

overview of the proposed benefits stemming from these studies. The remainder of the proposal will outline the nature of the collaborative relationships that underlie the proposal, the scope of work of the project, and the budget.

1. Study 1: What is the effect of 1-year of exposure to READY! on pre-Kindergarten assessments?

1.1. Study design: Pre-Kindergarten assessments will be obtained on children from two school districts, matched with respect to ethnicity and students who qualify for free and reduced-priced lunch. The two districts, Othello and Moses Lake, have been gathering pre-Kindergarten assessment data for several years using a nationally standardized and normed instrument called the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good et al., 2003). This year, Othello implemented READY! for the first time. They will follow up this intervention with a baseline Kindergarten assessment within the first two weeks of the school year in August/Sept 2008. Therefore, by the end of September, Othello will have assessment data for a group of children exposed to READY!, and a more sizable group of children who have not. For the present study, data will be obtained from children tested in August 2008, and also data collected last August 2007. The former will serve as the experimental group and the latter a no-treatment control group. It is expected that each group will include approximately 100 children.

The Othello data will allow for a test of the effectiveness of 1-year of exposure to READY! Although a relatively strong test, these data fail to control for an important experimental confound that clouds the interpretation of the results. Specifically, it could be that any observed differences between the experimental and the control groups did not result from the experimental intervention but, instead, reflect pre-existing differences across these two cohorts of children. This potential confound is known as a cohort effect. Controlling for cohort effects involves illustrating no improvement (or less of an improvement) for a comparable sample of children not exposed to the intervention.

Therefore, DIBELS data identical to that obtained for the Othello sample will also be obtained for a matched group of Kindergarteners attending the Moses Lake School District. Moses Lake is a neighboring community with similar demographics to Othello, making it a good control group. As with Othello, data will be obtained for Kindergarteners assessed in August/September for school years 2007-2008 and 2008-2009. Unlike Othello, Moses Lake will not implement READY! Therefore, if pre-existing differences across the two years (cohorts) are responsible for differences for Othello students, they should also be apparent in the Moses Lake data. Conversely, if scores for children in Moses Lake do not differ from one year to the next, cohort effects can be ruled out as an explanation for differences across the Othello cohorts.

This research procedure is referred to as a nonequivalent control group design (Bordens & Abbott, 1991). It qualifies as a quasi-experimental design because it does not involve random assignment of participants to groups. Instead, the design establishes the effectiveness or ineffectiveness of the intervention based on a comparison of time-series data from two sources. In the present case, the time-series involves two years of data obtained at the two school districts, Othello and Moses Lake. The design requires that the intervention be implemented at one source only. In this case, that source is Othello. Given that the participants across the sites are comparable, cohort effects are ruled out if significant effects are observed across time for the source that implemented the intervention, but not for the source that did not implement the intervention. Therefore, if differences emerge across the two years for Othello and not Moses Lake, one can be certain that the effects are not attributable to cohort effects.

It is also important to note that comparisons will be based on all Othello participants for whom Kindergarten data are obtained—both those who participated in READY! and those who did not. Including all children eliminates the problem of self-selection effects as a potential confound to the study (see Bordens & Abbott, 1991). That is, by including all children and not just those who choose to participate, results cannot be attributed to having selected only the children whose families are highly motivated. This is possible because we

anticipate a very high participation rate in Othello, approaching 70% of eligible families.

Therefore, the present design allows for overcoming the two primary confounds that plague the interpretation of research data gathered at sites that cannot, for ethical or practical reasons, implement random assignment of participants to a control group. Those confounds include self-selection effects and cohort effects.

1.2. Participants: The study will utilize archival data from the Othello and Moses Lake School Districts. These neighboring districts are similar in population demographics and percentage of students meeting requirements for free and reduced lunch. The districts differ somewhat in terms of percent of ethnic minority students, but participants from the larger district, Moses Lake, will be chosen so as to control for this difference. It is expected that Othello Kindergarten assessment data for both school years will include about 200 students (100 in each group). A similar number of students will be obtained from Moses Lake, matched with respect to age, ethnicity, home language, and free and reduced lunch status.

1.3. Measures: The data to be analyzed includes pre-Kindergarten assessments of a subset of skills assessed by both districts using DIBELS. DIBELS is a nationally standardized and normed test that provides estimates of a variety of pre-reading and reading skills across several age groups and ability levels (Good

et al., 2003). At the level of Kindergarteners, the primary skills assessed are Initial Sound Fluency (ISF) and Letter Naming Fluency (LNF). These skills are predictive of subsequent reading scores, and therefore map onto the domain, Language and Reading. They do not tap other skills targeted by READY!, including Math and Reasoning, and Social and Emotional skills. Therefore, the present evaluation concerns only the effect of READY! on pre-reading skills.

DIBELS has been thoroughly researched and each measure demonstrated to be a reliable and valid indicator of early literacy development. In addition, the DIBELS website, located at <http://dibels.uoregon.edu/>, allows for managing data at the level of individual children and for individual schools.

1.4. Procedure: All data for this project are archival in nature. That is, they were or will be collected at the initiative of the school districts for purposes of implementing district policy, and not in order to conduct the present study. In order to protect confidentiality, the school districts will score and enter the data into a spreadsheet, eliminating the names of all participants. The spreadsheet will then be made available to WSU researcher, Paul Strand, Ph.D., for data analysis and write up. Only he and his research assistants will have access to the data. The primary variables of interest for the present study include DIBELS Initial Sound Fluency (ISF) and DIBELS Letter Naming Fluency (LNF). For purposes of ensuring comparability across groups, data concerning age, ethnicity, home language, free and reduced-price lunch status will also be included on the

spreadsheet. Data analysis will involve evaluating ISF and LNF mean differences across the cohorts for each district.

2. Study 2: Do pre-Kindergarten assessment scores improve as a function of age and intensity of exposure to READY!?

2.1. *Research Design*: A primary assumption of READY! is that when it comes to Kindergarten readiness, the most effective interventions occur early and often. At the same time, however, interventions must be developmentally appropriate. For that reason, READY! reaches out to families of children ages birth to five, with the information, activities, and materials tailored to age-specific benchmarks. However, little is known about the effects of the *developmental timing* or *intensity* of exposure to such programs. This is the focus of study 2. We hypothesize that higher rates of exposure to the program—as measured by parent attendance—will predict better pre-Kindergarten assessment scores. We also anticipate that earlier exposure (i.e., when children are younger) is more effective than later exposure. This, after all, is the basic idea behind early intervention. To test these predictions, this study will utilize a simple correlational design (Abbott & Borden, 1991). That is, it will explore the extent to which age of exposure and intensity of exposure to READY! relate to Kindergarten assessment scores.

2.2. *Participants*. All data are archival data. Participants include Kindergarteners for whom pre-Kindergarten assessments were completed over

the previous five school years at the Kennewick School District (beginning in 2002-2003 to 2006-2007). We estimate that complete data will be available for 100 children each of those years. Complete data will include READY! participation data and also Kindergarten assessment data for approximately 550 children.

2.3. *Measures.* The NCRF keeps data concerning parent attendance at READY! classes. This attendance data can be organized to identify frequency of attendance across all years of eligibility for participating families. Maximum participation would be five years and minimum participation would be one year. In addition, demographic information is also kept including, ethnicity, family structure, geographic stability, home language, and family income. These data will be matched with the pre-kindergarten assessment scores for children for whom a Kennewick School District Kindergarten assessment form exists. This form measures foundational reading skills such as letter recognition and letter-sound recognition.

D. BENEFITS OF THE PROPOSED STUDIES

1. *Evaluation of READY!* The primary benefit of conducting these studies is that they provide an evaluation of some of the important assumptions of this widely utilized program. Study 1 tests the idea that exposure to the program when a child is within one year of Kindergarten entry will improve that child's readiness for Kindergarten with respect to pre-reading skills. Study 2 tests the

ideas that earlier and more intense exposure to programs designed to increase parent-directed instruction to preschoolers will increase the Kindergarten pre-reading readiness of those children.

2. *Manualized Program Evaluation Framework.* A second benefit of this project is that it will allow us to develop a manual outlining a model program evaluation framework for school districts who utilize READY! or some other pre-Kindergarten readiness program. Indeed, participating districts frequently ask for advice and guidance about how to evaluate the effects of the program in their own districts. It is clear from these requests that there exists an unmet need for guidance with respect to evaluation of program outcomes. Therefore, a primary deliverable of this project will be a manualized program evaluation framework for assessing pre-Kindergarten readiness interventions. The framework will be formalized and made available to school districts that adopt READY! It is hoped that the popularity and dissemination of preschool readiness programs will be enhanced to the extent that they include a formal program evaluation framework such as the one we are proposing to develop.

Making this particular framework especially valuable is the fact that it allows for overcoming the primary nemeses of educational research in real-world-settings—cohort effects and self-selection effects. Using the proposed procedures allow for overcoming these deleterious effects *without* exposing districts to the ethical and practical problems arising from the random

assignment of students to a control group (Barlow & Hersen, 1984). Therefore, Study 1 will serve as a template for a step-by-step guide to the utilization of the nonequivalent control group design as a method for program evaluation for districts for whom the random assignment of subjects to groups is untenable.

3. Theory and Practice of Early Intervention. At an even broader level, the present study has implications for theory and practice of early intervention. That is, it is a basic tenet of early intervention that early interventions are better than later interventions. It is also a basic tenet that more exposure to developmentally appropriate intervention programs is also better. The present proposal involves data gathering and analyses that involve assessing the validity of these claims.

E. ORGANIZATIONAL CAPACITY

Staff Qualifications/Experience and project responsibilities.

Paul S. Strand, Ph.D. (Washington State University). The project will be directed by Dr. Strand who is an Associate Professor in the Department of Psychology at Washington State University Tri-Cities. He will oversee all aspects of the program and will be responsible for quarterly reports. Strand has worked with READY! staff since its inception to generate instruments necessary to evaluate program outcomes including child learning outcomes and parent participation. This work is part of a larger program of research undertaken by Dr. Strand to develop and implement effective academic and social interventions

for preschoolers. In addition to working with READY!, Dr. Strand actively collaborates with Head Start, and together they have authored several papers having to do with empowering teachers through more efficient use of child outcomes data (see for example, Strand, Cerna, & Skucy, 2007).

Virginia Smith (National Children's Reading Foundation). Virginia serves as the READY! Director and has experience in early childhood reading development. She will supervise the development of a list of names of children whose families participated in READY! between the school years 2002-2003 to 2006-2007. This list will serve as the basis for identifying children who subsequently matriculated to the Kennewick school district. As noted below, the list will be used by the district to develop a spreadsheet that includes the Kindergarten assessment scores for each child for whom such data is available.

Greg Fancher, Director of Elementary Education (Kennewick School District). Kennewick school district staff will provide Virginia Smith the Kindergarten assessment scores for children whose families participated in READY! The product generated by the district will be a spreadsheet that contains the Kindergarten assessment outcomes of all children who matriculated to Kennewick including those whose parents have participated in READY!

Michelle Price (Moses Lake School District Staff). Michelle Price is the curriculum coordinator at Moses Lake School District. She and her staff will oversee the Kindergarten assessment for the District and also do data entry and

data management of the DIBELS data. Her work on this project will entail these activities and also generating a data spreadsheet that includes DIBEL scores and demographic data for all participating children for the two academic years, 2006-2007 and 2007-2008.

Heather Franklin (Othello School District Staff). Heather Franklin is the Director of Curriculum, Assessment, and Grants at Othello School District. She and her staff oversee the Kindergarten assessment for the District and also do data entry and data management of the DIBELS data. She has also been involved in the planning and implementation of the READY! program in the Othello district. Her work on the present project will entail these activities and also generating a data spreadsheet that includes DIBELS scores and demographic data for all participating children for the two academic years, 2006-2007 and 2007-2008.

F. SCOPE OF WORK (ACTIVITIES AND TIMELINE)

1. Goal 1: *Evaluation of READY!* (Conducting Study 1 and 2).

May to August 2008. Obtain Kindergarten assessment data from Kennewick School District, gathered from 2002-3003 to 2006-2007 school years. This work will be conducted by KSD personnel. Simultaneously, Virginia Smith of NCRF will obtain READY! attendance data for those same years. Virginia will then work with the KSD personnel to generate a spreadsheet that includes complete data for all children who completed a Kindergarten assessment, and

whose parents attended READY! That data will be made available to Strand (WSU), who will oversee those efforts to ensure the usability of the data. During this time period Dr. Strand will conduct the analyses that are outlined above as constituting Study 2. The goal is to evaluate the effect of the developmental timing and intensity of intervention on Kindergarten readiness.

September and October 2008. Efforts will be made to score and enter into the DIBELS website data management system the Kindergarten assessment data collected at Othello and Moses Lake school districts. This activity will be undertaken by Heather Franklin (Othello) and Michelle Price (Moses Lake). In addition, each district will generate a second spreadsheet that includes the DIBELS scores and also, in the case of Othello, information about READY! participation, but that will not include identifying information. This information will be made available to Strand, who will serve to coordinate these efforts.

November and December. Strand will conduct statistical analyses testing the hypotheses for both Study 1 and Study 2. He will also undertake a write-up of the results of both studies in order to report those results to Thrive by Five and READY!

2. Goal 2: Model Program Evaluation Framework

January and February 2009. Write-up of Program Evaluation Manual outlining the steps to conducting a program evaluation that does not require random assignment of subjects to a no-treatment control group. This work will

be conducted by Strand. The final product will be provided to both Thrive by Five, WA, and READY! for dissemination.

G. PROJECT BUDGET

Data Collection and Data Entry

Bev Abersfeller (National Children's Reading Foundation)	
(60 hours at \$50 per hour)	3000.00
Staff (Kennewick School District)	
(60 hours at \$50 per hour)	3000.00
Michelle Price (Moses Lake School District)	
(60 hours at \$50 per hour)	3000.00
Heather Franklin (Othello School District)	
(60 hours at \$50 per hour)	3000.00
Principal Investigator	
Paul Strand (Washington State University)	
(\$6,849.84 x 3.0 mos. X 30%FTE + Benefits 33%)	8198.22
Facilities and Administration Costs (26%)	5251.54
Total Amount Requested	25, 449.76

H. REFERENCES

- Barlow, D.H., & Hersen, M. (1984). *Single case experimental designs: Strategies for studying behavior change* (2nd ed.). New York: Pergamon.
- Bergeson, T. (2005). *Student readiness for Kindergarten: A survey of Kindergarten teachers in Washington State*. Olympia: Office of Superintendent of Public Instruction.
- Bordens, K.S., & Abbott, B.B. (1991). *Research design and methods: A process approach* (2nd ed). Mountain View, CA: Mayfield Publishing Co.
- Fielding, L., Kerr, N., & Rosier, P. (1998). *The 90% reading goal*. Kennewick, WA: The New Foundation Press.
- Fielding, L., Kerr, N., & Rosier, P. (2004). *Delivering on the promise*. Kennewick, WA: The New Foundation Press.
- Fielding, L., Kerr, N., & Rosier, P. (2007). *Annual growth for all students*. Kennewick, WA: The New Foundation Press.
- Good, R.H., Kaminski, R.A., Smith, S.B., Simmons, D.C., Kameenui, E., & Wallin, J. (2003). Reviewing outcomes: Using DIBELS to evaluate Kindergarten curricula and interventions. In S. Vaughn & K.L. Briggs (Eds.). *Reading in the classroom: Systems for the observation of teaching and learning* (pp. 221-266). Baltimore: Paul H. Brookes Co.
- Kagan, S.L., Britto, P.B., Kaverz, K., & Tarrant, K., (2005). *Washington State early learning and development benchmarks*. Olympia: The State of Washington. (<http://www.k12.wa.us/EarlyLearning/Benchmarks.aspx>).
- Strand, P.S., Cerna, S., & Skucy, J. (2007). Assessment and decision-making in early childhood education and intervention. *Journal of Child and Family Studies*, 16, 209-218.