An Examination of the Implementation of the Professional Development Activities

for the North Dakota Striving Readers Comprehensive Literacy Programs

Contact: Brian Lawton, Great Northwest Education Cooperative

Project Overview

The purpose of this project is to investigate the implementation of professional development activities across the 15 North Dakota Striving Readers Comprehensive Literacy Program (NDSRCL) grant sites. This project will be a collaboration between the eight Regional Education Associations (REAs) in North Dakota. Each collaborating REA partner will assist in this project by providing support to their regional schools participating in the program, ensuring that data collection is uniform across regions, and will participate in monthly meetings to determine project progress and any needed improvements to project activities. The primary objectives of this project are (a) to determine the extent to which the sites are implementing programs aligned with the updated North Dakota English Language Arts & Literacy Content Standards, (b) to determine the extent to which each site is using results from assessments and other data collected to inform their decision making and literacy instruction, (c) to determine the extent to which each site is implementing the components of their professional development with fidelity, (d) to determine if each site is using clear procedures and planning to inform ongoing program improvement, and (e) to determine if each site is showing consistency of transition for the grant-specified literacy goals between the four grade level groups (i.e., Pre-K to Elementary, Elementary to Middle, Middle to High). In addition to these primary objectives, this grant project will also leverage the implementation data and use the sites' professional development activities to determine the need for additional literacy coaching, community outreach planning (i.e., family engagement), and additional instruction to support disadvantaged students.

While our project's overall goal is to investigate the means of implementation of program activities, program alignment to standards, use of data, and examination about how effective the PD was in each of the grant sites, the nature of this investigation will also contribute to other valuable insights. For example, our project provides an empirical look at what programs might be most appropriate in what contexts for other schools looking to initiate a comprehensive literacy program. This project will also provide a comprehensive summary of NDSRCL program implementation. Moreover, by working collaboratively with each of the REAs and each of the grant sites, we will provide another layer of data to ensure that the projects have the necessary support in meeting their site objectives.

Project Rational

Measuring fidelity of implementation (FOI) is of great importance to educators and researchers studying the extent to which a program functions as intended. Without measures of FOI during program implementation, it may be unclear whether unsuccessful outcomes reflect a failure of the program or a failure to implement the program as intended. Studies that include measures of FOI increase the validity and feasibility of an intervention, protect against inaccurate conclusions about a program's effectiveness (e.g., Type III errors), and provide information about how the program might be improved in future interventions (Dusenbury, Brannigan, Falco, & Hansen, 2003; Ruiz-Primo, 2006; Sanchez et al., 2007). Conversely, when programs are not implemented with fidelity, they may be less effective, efficient, and predictable (Noell, Gresham, & Gansle, 2002; Wilder, Atwell, & Wine, 2006). Measuring FOI helps researchers and developers document and recommend changes to an intervention (Lane, Bocian, Macmillan, & Gresham, 2004); helps program developers understand the limits of an intervention, as well as its generalizability to other populations and settings (LeLaurin & Wolery, 1992); and informs

replication efforts by providing guidelines and documentation (Gresham, Gansle, & Noell, 1993; Gresham, MacMillan, Beebe-Frankenberger, & Bocian, 2000; Lane et al., 2004; Moncher & Prinz, 1991). The most commonly discussed components of FOI in the literature have been (a) *adherence*—the congruence between program delivery and program design, (b) *exposure* or *dose*—the frequency or duration of program activity use, (c) *quality*—how well a program is implemented using the methods prescribed, (d) *participant responsiveness*—the extent of program participants' positive involvement in program activities, and (e) *program differentiation*—the degree to which a program is distinguishable between comparison conditions or competing programs that have the same theoretical background (Berkel, Mauricio, Schoenfelder, & Sandler, 2011, Dane & Schneider 1998; Durlak & DuPre, 2008; Dusenbury et al., 2003; Giles et al., 2008; Hill & Owens, 2013; Ibrahim & Sidani, 2016). More recent research has concluded that there is a close relationship between quality and participant responsiveness (Lawton, 2017). That is, the teachers' perceived value of, and positive interactions with, the program is closely related to how well they implemented program activities. Therefore, given the complexities of measuring quality, which often requires the use of observation protocols that are both time consuming and expensive, as well as training an individual in an observation protocol who is also highly skilled in the intervention, we will omit collecting quality of implementation data. Fortunately, given the variety of goals and objectives among the 15 sites, this project provides a unique opportunity to investigate program differentiation—an often underreported aspect of fidelity of implementation. Program differentiation is a process of identifying unique features of different programs and identifying which elements of the programs are essential for having their intended effect (Carroll, 2007). In short, this will provide an opportunity to compare the components across programs and determine what works and why.

3

Professional Development and Literacy Instruction Best Practices

To help guide our investigation about the extent to which the professional development activities are implemented with fidelity, we will draw on four of the five components of Thomas Guskey's (2002) framework of professional development evaluation in a school context. These include, (a) participants' reactions, (b) participants' learning, (c) organizational support, and (d) participants' use of new knowledge and skills. This framework is also supported by other conceptual frameworks about effective PD (e.g., Desimone, 2009; Loucks-Horsley et al., 2003); namely, that effective PD creates an environment of active learning and participation, provides a model for application of new knowledge and skills, and results in changes in attitudes and behaviors that positively affect student learning outcomes. The fifth component of Guskey's (2002) framework, student learning outcomes, is addressed in the larger program evaluation of each program site. We will address student learning as part of our examination of fidelity; however, our data will be based on teachers' perceptions about the extent that student learning occurred because of their program implementation rather than a pre-post analysis of raw student achievement data.

According to an extensive meta-analysis conducted by the National Reading Panel (NRP) (2000), there are five underlying concepts that are critical to the development of a comprehensive literacy programs: phonemic awareness, phonics, fluency, vocabulary, and comprehension. These components are also central to the updated North Dakota English Language Arts & Literacy Content Standards (2017). For example, phonemic awareness is central to conventions of standard English in grades K-2; phonics is a foundational skill in grades 3-5; and fluency, vocabulary, and comprehension are central to the standards in grades K-12. Given the extensiveness of the ND state standards we will use the NRP (2000) guidelines as a

benchmark to examine the extent to which each program is addressing the updated ND literacy standards.

Data Collection Methods

This project will collect data using both direct and indirect methods to address the project objectives. Direct data will be collected though program artifacts, such as program guidelines, meeting minutes, and other program documentation (e.g., action plans, PD handouts, etc.). These data will help determine the extent to which each site has programs that are aligned with the state standards, have clear objectives and data collection methods for determining the extent to which the objectives are achieved, and provide organizational support for improved programming. Indirect data will be collected using teacher questionnaires and focus groups with site planning teams. Artifact data will be organized by each site and a simple rubric will be identified to organize the data according to program objectives. Artifact data is useful as both providing historical contexts (i.e., the path of program improvement) when moving through a multi-year study and provides the baseline information about the elements that each site has determined to be essential to their programs. We will provide program outlines to help analyze the artifact data and determine the programs' differentiation. Focus groups will be audio recorded, transcribed for analysis, and content analyzed using ATALAS.ti software. Staff from the REAs will independently analyze their region's data and have ongoing calibration training to ensure that results are coded consistently across sites (i.e., high inter-rater reliability – $\kappa \geq .70$). Quantitative data will be analyzed using SAS statistical software. Descriptive statistics (e.g., number of respondents, means, standard deviations, etc.) will be reported for each implementation variable set. We will primarily use non-parametric analysis (i.e., t-tests) to determine pre-post gains across years. As a result of these programs operating in largely case study-type contexts, we will

not base our analyses on the assumption that the data are drawn from a given probability distribution (i.e., random assignment in classic randomized control trials). However, we will perform some parametric tests (e.g., analysis of variance) among sites to examine the extent to which sites are different from each other and are implementing their programs with fidelity.

The first step in our study's planning process is to determine the extent to which the project schools have a working model about their individual programs. Using logic models in this process can help the stakeholders better understand their program's mechanics and structure and chart a clear course toward improved implementation (Lawton, 2014). This process will also contribute to the team's capacity building for creating a clear understanding about how their programs should function—an important aspect when getting teacher buy-in.

Year 1 of the project will be primarily dedicated to instrument development (i.e., questionnaires and focus group guides) and site documentation collection. Additionally, each REA will work with their regional site(s), with support provided by other REAs where needed, to ensure that each site has clear direction about how they will address each of their program goals. This will not only ensure that the programs can accurately measure their program success but will provide us with the information about the uniqueness of each program in our development of our instrumentation, as well as to provide a baseline from which we can determine the programs' differentiation from one another. Years 2 and 3 of the project will be dedicated to data collection using questionnaires deigned to gather implementation data, conducting focus groups with project planning teams to determine adherence to project activities and progress toward meeting objectives; and providing formative and summative feedback to projects about their program support activities, use of data, and grade-level literacy transitions. Additionally, we will focus on determining additional literacy coaching needs, extent to which

programs are addressing community and family engagement, and the extent to which their programs are meeting the need of disadvantaged students. For this part of the grant, it is our goal to utilize the programs PD structure to provide additional support as needed, this will both leverage the teachers time in the most efficient manner and minimize additional instructional time that may inhibit program implementation.

Timeline

A general outline of the proposed activities across the three years of the grant project is provided below:

Year 1 (Nov 2018-June 2019):

- Collect program documentation (action plans, manuals, etc.)
    - Work with site implementation planning teams to ensure clear implementation models
        - Develop site logic models/program maps with site planning teams
        - Identify each sites PD focus and theoretical background
- Develop data collection instruments
    - Questionnaires
    - Focus group guides
- Analyze and summarize site artifact data
- Report on instrument development and site summaries

Year 2 (July 2019-June 2020)

- Identify the extent to which each site is using data to inform decision-making processes, have clear grade-level literacy transitions, are aligned to state literacy standards (e.g., community engagement)

o   Based on Year 1 project activities and the projects' formative evaluation results

- Administer pre- and post-questionnaires about teachers' knowledge, use, participation, and the perceived effects of PD implementation in their classrooms.

- Conduct beginning-, mid-, and end-of-year focus groups with program implementation teams about challenges and success of PD implementation, as well as the extent to which programs are being supported by planning and implementation teams to improve programming and are addressing grant activity objectives.

- Begin to assess differences in projects and identify essential program components.

- Provide qualitative and quantitative summary of data.

Year 3 (July 2020-June 2021):

- Administer pre and post-questionnaires about teachers' knowledge, use, participation, perceived effects of PD topics.

- Conduct beginning-, mid-, and end-of-year focus groups with program implementation teams about challenges and success of PD implementation, as well as the extent to which programs are being supported by planning and implementation teams to improve programming and are addressing grant activities objectives.

- Summarize essential components across programs, identify success within specific contexts, and provide and summarization of projects implementation fidelity and determine the extent to which objectives were addressed.

Budget

Total Amount Requested: $150,000.00

We will use a flat daily rate approximation for grant activities; this is a preferred process given the collaboration among the different REAs and the varied costs for support staff and

travel distances to the regional sites. The $450 flat daily rate for activities will include staff

salaries and benefits, travel, and indirect costs.

Year 1: $30,343
- On-site logic-model creation:
  - $450/day x 1-day x 15 sites = $6,750
- Artifact analysis:
  - $450/day x 6 days x 5 staff = $13,500
- Instrument development:
  - Teacher questionnaires and focus group guides; focus group training
    - $450/day x 4 days x 5 staff = $9,000
- Software
  - ATLAS.ti (qualitative data analysis software)
    - 5 site licenses = $800/yearly
  - Survey Monkey (online surveys)
    - $384/yearly

Year 2: $60,000
- Site implementation team focus groups (3/year)
  - $450/day x 3 days x 15 sites = $20,250
- Teacher questionnaire administration and follow-up
  - $450/day x 2 days x 2 staff = $1,800
- Qualitative data content analyses (focus group results)
  - $450/day x 10 days x 5 staff = $22,500
- Quantitative data analysis (teacher questionnaire data)
  - $450/day x 5 days x 2 staff = $4,500
- Artifact analysis:
  - $450/day x 4 days x 5 staff = $9,000
- Software
  - ATLAS.ti (qualitative data analysis software)
    - 5 site licenses = $800/yearly
  - Survey Monkey (online surveys)
    - $384/yearly

Year 3: $60,000
- Site implementation team focus groups (3/year)
  - $450/day x 3 days x 15 sites = $20,250
- Teacher questionnaire administration and follow-up
  - $450/day x 2 days x 2 staff = $1,800
- Qualitative data content analyses (focus group results)
  - $450/day x 10 days x 5 staff = $22,500
- Quantitative data analysis (teacher questionnaire data)
  - $450/day x 5 days x 2 staff = $4,500
- Artifact analysis:
  - $450/day x 4 days x 5 staff = $9,000

- Software
  - ATLAS.ti (qualitative data analysis software)
    - 5 site licenses = $800/yearly
  - Survey Monkey (online surveys)
    - $384/yearly

Reporting

The major goals of the first year of the project are to examine each program site's plan for implementing a comprehensive preK-12 reading initiative and to develop corresponding instrumentation (i.e., questionnaires and focus group guides). Years 2 and 3 will be dedicated to collecting teacher implementation data and conducting and analyzing program planning and implementation team focus group data. We will also provide summaries about the delineations between programs' progress toward grant objectives. We will use the data to determine the extent to which each of the programs are aligned with state literacy standards, are using data to inform decision making, and have a clear understanding about the extent that each site has literacy transitions between grade-level cohorts. We will also report on the extent to which additional literacy coaching is warranted, and what steps the projects might take to address this need; the extent to which the programs have imbedded community and family engagement in their programming; and how the programs are supporting disadvantaged students. These data will mainly be collected during our focus group sessions with the site planning teams.

As mentioned previously, this grant provides a unique opportunity to examine the program differentiation among the 15 programs. That is, identifying the essential components of each program, the context in which the programs are operating, and the support structures in place that are used to improve programming. This information will provide invaluable insight to future projects intending to implement a comprehensive literacy program. Additionally, by collecting ongoing implementation data, as well as collecting focus group data, this project will also help

inform how different organizational support structures are used, the extent to which they help

improve project activities, and where improvements might be made for generalizing support to

other grant activities. That is, an interesting by-product of conducting this kind of study is that it

promotes both evaluation capacity building (Preskill & Boyle, 2008) among the participating

schools and has a component of evaluation process use (Preskill, Zuckerman, & Matthews,

2003)—what and how stakeholders (PD developers, planning teams, and teachers) learn from

their involvement in the evaluation process. Evaluation capacity building provides a setting in

which schools are provided the opportunity for a sustainable evaluation practice—where

members continuously ask questions about program purpose; collect, analyze, and interpret data;

and use evaluation findings for decision-making. For this practice to be sustained, participants

must be provided with leadership support, resources, and opportunities to transfer their learning

to their everyday work—a beneficial ancillary effect of this study. Furthermore, having this

mindset provides ongoing support in the development of processes, policies, and plans that help

embed evaluation work into the way the schools accomplishes their strategic goals. In summary,

the project aims to aid schools by providing additional review of their implementation fidelity;

help them solidify their implementation plans; conduct external reviews through artifact analysis,

focus groups, and questionnaires then measuring those data against FOI research. Through this

process we can help them to understand which elements of their plan were completed as

intended, which will allow them to see if their possible lack of improvement was due to FOI or

not and provide ongoing feedback that will help increase their likelihood of success.

References

Berkel, C., Mauricio, A. M., Schoenfelder, E., & Sandler, I. N. (2011). Putting the pieces together: An integrated model of program implementation. *Prevention Science*, *12*(1), 23-33.

Dane, A. V., & Schneider, B. H. (1998). Program integrity in primary and early secondary prevention: are implementation effects out of control? *Clinical Psychology Review*, *18*(1), 23-45.

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational researcher*, *38*(3), 181-199.

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, *41*, 327-350.

Dusenbury, L., Brannigan, R., Falco, M., & Hansen, W. B. (2003). A review of research on fidelity of implementation: implications for drug abuse prevention in school settings. *Health Education Research*, *18*, 237-256.

Giles, S., Jackson-Newsom, J., Pankratz, M. M., Hansen, W. B., Ringwalt, C. L., & Dusenbury, L. (2008). Measuring quality of delivery in a substance use prevention program. *The Journal of Primary Prevention*, *29*, 489-501.

Gresham, F. M., Gansle, K. A., & Noell, G. H. (1993). Treatment integrity in applied behavior analysis with children. *Journal of Applied Behavior Analysis*, *26*, 257-263.

Gresham, F. M., MacMillan, D. L., Beebe-Frankenberger, M. E., & Bocian, K. M. (2000). Treatment integrity in learning disabilities intervention research: Do we really know how treatments are implemented? *Learning Disabilities Research & Practice*, *15*, 198-205.

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, *8*, 381-391.

Hill, L. G., & Owens, R. W. (2013). Component analysis of adherence in a family intervention. *Health Education*, *113*, 264–280.

Ibrahim, S., & Sidani, S. (2016). Intervention Fidelity in Interventions: An Integrative Literature Review. *Research and Theory for Nursing Practice*, *30*, 258-271.

Lane, K. L., Bocian, K. M., MacMillan, D. L., & Gresham, F. M. (2004). Treatment integrity: An essential—but often forgotten—component of school-based interventions. *Preventing School Failure: Alternative Education for Children and Youth*, *48*(3), 36-43.

Lawton, B. E. (2017). *Evidence about the convergent and discriminant validity of the components of fidelity of implementation in a science-teacher professional development project* (Doctoral dissertation). University of Hawaiʻi at Mānoa.

Lawton, B. E, Brandon, P.R., Cicchinelli, L., & Kekahio, W. (2014). *Logic models: A tool for designing and monitoring program evaluations*. (REL 2014–007). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Pacific. Retrieved from https://ies.ed.gov/ncee/edlabs/regions/ pacific/pdf/REL_2014007.pdf.

LeLaurin, K., & Wolery, M. (1992). Research standards in early intervention: Defining, describing, and measuring the independent variable. *Journal of Early Intervention*, *16*, 275-287.

Loucks-Horsley, S., Stiles, K. E., Mundry, S., Love, N., & Hewson, P. W. (2009). *Designing professional development for teachers of science and mathematics*. Corwin Press.

Moncher, F. J., & Prinz, R. J. (1991). Treatment fidelity in outcome studies. *Clinical Psychology Review*, *11*, 247-266.

National Reading Panel (US), National Institute of Child Health, & Human Development (US). (2000). *Report of the national reading panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups*. National Institute of Child Health and Human Development, National Institutes of Health.

Noell, G. H., Gresham, F. M., & Gansle, K. A. (2002). Does treatment integrity matter? A preliminary investigation of instructional implementation and mathematics performance. *Journal of Behavioral Education*, *11*(1), 51-67.

Preskill, H., & Boyle, S. (2008). A multidisciplinary model of evaluation capacity building. *American journal of evaluation*, *29*(4), 443-459.

Preskill, H., Zuckerman, B., and Matthews, B. (2003). An Exploratory Study of Process Use: Findings and Implications for Future Research. *American Journal of Evaluation*, *24*(4), 423–442.

Ruiz-Primo, M. A. (2006, February). *A multi-method and multi-source approach for studying fidelity of implementation* (CSE Report 677). Los Angeles, CA: National Center for Research on Evaluation, Standards, and Student Testing (CRESST).

Sánchez, V., Steckler, A., Nitirat, P., Hallfors, D., Cho, H., & Brodish, P. (2007). Fidelity of implementation in a treatment effectiveness trial of reconnecting youth. *Health Education Research*, *22*, 95-107.

Wilder, D. A., Atwell, J., & Wine, B. (2006). The effects of varying levels of treatment integrity on child compliance during treatment with a three-step prompting procedure. *Journal of Applied Behavior Analysis*, *39*, 369-373.