Executive Summary

In 2005, The Vermont Center for the Book (VCB) received funding from the National Science Foundation (NSF) to develop and implement a program called *What's the BIG Idea?*™ to help librarians change their children's story hours to include more mathematics and science content and vocabulary. The project resulted in the creation of a professional development seminar; a manual with guidelines, activities, and other information for librarians; parent kits for families to take home and use to reinforce and extend learning in mathematics and science; and a Web site filled with ideas, bibliographies, and other information intended to support librarians and others as they implemented the program. Evaluations of the project showed that librarians changed their practices in statistically significant ways. The original cohort of librarians acquired specific knowledge and skills and confidence in their abilities to provide children with activities and vocabulary related to mathematics and science. They implemented the program with varying degrees of fidelity, and those with the strongest fidelity to the original program guide had the strongest impacts on children.

Because of the success, VCB sought additional funds from NSF to bring the project to scale. VCB recognized that its small staff could not possibly deliver the training to all of the librarians that requested it, so they developed a training-of-trainers approach wherein others could offer the training. This study was conducted to determine whether the training was as effective when staff other than VCB provided the training.

Methodology

The study designed called for random assignment of individuals to be in one of two cohorts: Level One trainers would be trained directly by VCB. Level Two trainers would be trained by Level One trainers. Differences in the quality and impact of training would be assessed. Then trainers from both levels would be asked to train at least five librarians each, and impact on those they trained would be compared.

Librarians from seven states comprised the sample. Thirteen librarians were randomly selected for Level One and fifteen for Level Two. The "cascade" of training was then implemented and evaluated.

Methods for evaluation included pre-/post- and follow-up surveys for all trainers and librarians who received the training; interviews with a randomly selected sample from each of the cohort groups, both trainers and librarians, receiving the training; and analysis of program reports. Data were triangulated and analyzed to determine quality and fidelity of training, immediate and longer-term impacts on participants, and perceived impacts on children. Differences between outcomes for cohort members were explored.

Results

- **Results clearly showed that the *What's the BIG Idea?*™ programming attained the same strong impacts no matter who provided the training.** There were significant impacts on all participants in both Level One and Level Two cohorts. Participants in these cohorts had nearly the same results as those librarians who participated in the original *What's the BIG Idea?*™ program.

- **Statistically significant impacts occurred in librarians' knowledge acquisition, confidence and comfort levels in training others, and in implementing mathematics and science activities.** The only area measured that did not show a significant positive change was in the area of designing programs for young children to learn literacy concepts, an area where most librarians already felt competent.

- **Trainers in both Level One and Level Two cohorts felt well prepared to deliver the training.** The only challenges that most trainers reported were in the areas of recruiting librarians to participate in the training and in organizing the training. Nearly all reported that the training was "easy" to provide.

- **There was some variation in the degree of fidelity of the training to the manual and the original training.** While trainers uniformly reported that they "stuck closely to the manual," data showed that some condensed the information, added activities, or customized approaches to the audiences they had. Level Two trainers were more likely than Level One trainers to vary the training from the original.

- **Trainers found the support they received from VCB to be valuable.** Most strongly agreed that the follow up was responsive and had excellent content.

- **Librarians who received the training from Level One or Level Two trainers rated their experiences as "excellent" or "above average."** They reported that the length of the training was appropriate, the pacing was "good," and the utility of the information for their practice was "great." There was some variation in ratings of the expertise of presenters, with a few trainers from Level Two receiving lower ratings.

- **Librarians had very few suggestions for improving the training, stating that they liked it as it is.** The few who made suggestions generally wanted additional ways to share ideas (mostly electronically), or desired more support especially with creating their own "lessons." Several librarians who received Level Two training recommended that the purpose of the training should be clarified and more background information about the training should be given before the workshops.

- **Librarians who received the training also changed their resource acquisition practices.** After receiving the training, librarians were more likely to order nonfiction books and books related to mathematics and science for young children.

- **Impacts endured over time.** Follow-up surveys showed that the impacts on the librarians in terms of their implementation of mathematics and science activities endured and sometimes increased over time.

- **Certain activities were more likely to be implemented than others.** In general, librarians tended to implement activities related to graphing and charting, patterns, shapes, growth, building, and matching more than other activities. Patterns of implementation were somewhat different for those exposed to Level One versus Level Two trainers.

- **Fidelity of implementation was highest for those librarians trained by Level One trainers.** In their training, Level One trainers tended to have more fidelity to the manual. In their implementation, librarians who received training from the Level One cohort tended to have greater fidelity to the manual.

- **There was great variation in fidelity by state.** Several states showed stronger implementation fidelity than others, the fidelity also varied by cohort.

- **Specific skills addressed by librarians in their activities did not vary substantially by cohort.** Librarians in both cohorts tended to address numbers and operations, geometry and spatial sense, estimating and predicting, recognizing relationships, and sorting and classifying more often than other skills.

- **Librarians tended to pose "what," "how many," and "how" questions to children most often.** The manual suggests that there is a need to ask "why" questions more often.

- **Librarians noted that children responded very positively to the *What's the BIG Idea?*™ programming.** Both immediate and longer term estimations of impacts on children revealed that librarians thought children were more likely to use mathematics and science vocabulary, became more interested in nonfiction books, more often checked out both the books read during story hours and the family kits, were more engaged in story hour than usual, interacted with other children more than usual, and engaged their parents in more activities than usual.

- **Librarians who implemented the *What's the BIG Idea?*™ programming were likely to sustain implementation in the future.**

- **Additional unsolicited comments nearly uniformly showed that librarians and trainers both thought the programming was "wonderful," useful, worthwhile, and added value to their libraries.**