

# **BETWEEN THE LIONS® Mississippi Literacy Initiative**

## **Project Overview and Research Findings**

### **Introduction**

Two Mississippi communities, separated by language, culture, and hundreds of miles, share an urgent mission: how to address the nationwide literacy crisis that has hit their schools particularly hard. The Choctaw Indian Reservation and the town of Indianola in the Mississippi Delta struggle with language and economic issues that make learning to read particularly challenging for their children. Indeed, most children in these two communities are considered at high risk for reading failure when they begin school.

Could a television program help?

That was the hope of the BETWEEN THE LIONS Mississippi Literacy Initiative, launched in August 2001. The project was designed to discover if children in the Indianola and Choctaw Pearl River communities who were regularly exposed to the award-winning PBS KIDS children's literacy series BETWEEN THE LIONS would be better prepared for learning to read than their non-viewing peers in control groups.

The Mississippi Literacy Initiative was carried out by WGBH Boston and Sirius Thinking, Ltd. — producers of BETWEEN THE LIONS — in partnership with Mississippi ETV, the local public television station. Funding was provided by the Public Broadcasting Service and the Corporation for Public Broadcasting through a Ready To Learn grant from the U.S. Department of Education.

More than 50 teachers and nearly 1,000 students in three age groups (preschool, kindergarten, and first grade) participated in the project. Head Start, child care, and K-1 teachers in the Choctaw and Indianola communities attended workshops on how to use BETWEEN THE LIONS in their classrooms. They also received 55 episodes of the series on videocassettes as well as teachers' guides, handbooks, posters, a CD-ROM with content from the Web site, sets of classroom books, and take-home bags for every child containing three brand-new books, stickers, bookmarks, and information for parents.

### **Key Research Findings**

The Early Childhood Institute of Mississippi State University, which conducted a research study of the project, found that the children who watched half-hour episodes of BETWEEN THE LIONS regularly, and whose teachers carried out related activities, significantly outperformed control groups on several key reading skills. The purpose of the study was "to investigate the effect of the BETWEEN THE LIONS series on the acquisition of early learning skills of children in low-income communities and children who may speak English as a second language." The study was overseen by Dr. Cathy Grace, Coordinator of the Early Childhood Institute, and Dr. Debra Prince, Assistant Professor, Curriculum and Instruction, at Mississippi State University. The results were compiled in a report issued on July 15, 2002.

The measures used to evaluate student progress were the Test of Early Reading Ability (TERA-3), the Peabody Picture Vocabulary Test (PPVT-III), and the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). All three tests were administered to a sample of 285 children randomly selected from a larger group of viewing participants (the experimental group) and 279 children in the control groups for baseline measurements in September 2001 — prior to the start of the project — and again at the end of the school year. The DIBELS test was also administered at two additional points during the project.

Between October 1, 2001, and April 30, 2002, the children in the experimental groups watched at least two episodes of the television series each week. They also read a book and participated in an activity related to those episodes. Teachers were free to have their students watch an entire episode at one sitting, or break it up into smaller segments. Teachers could also show episodes in any order. Children in the control groups did not view *BETWEEN THE LIONS* in their classrooms or use the related project materials.

On the TERA-3, a standardized test that measures reading ability at the earliest stages, there were several positive findings for the children exposed to *BETWEEN THE LIONS*. For example, all the Choctaw viewers and the Indianola kindergarten viewers significantly outperformed the control groups on the Conventions subtest — which measures what children know about books and other basic concepts of print, such as reading from top to bottom and left to right. “The participants that viewed BTL displayed significantly better understanding of certain aspects of English print than their counterparts that did not view the show,” according to the study report.

“Knowing how to hold a book, turn the pages — you and I don’t think about that,” said Dr. Deborah Linebarger, a co-author of the study and currently an Assistant Professor at the Annenberg School for Communication, University of Pennsylvania. The fact that children made significant gains in this measure is one indication of how little they knew at the outset about how to handle a book, which way was right-side up, that English is read from left to right, and the difference between pictures and text.

On the Alphabet subtest of the TERA-3, the Indianola viewing group as a whole outperformed the control group. They “displayed significantly higher levels of knowledge and use of letters than their peers in the control condition,” according to the study report. Letters and the sounds they make are featured on *BETWEEN THE LIONS*, although the show does not explicitly teach the alphabet.

On the PPVT-III test, a widely used standardized test that measures receptive, or listening, vocabulary and knowledge of word meanings, only the Indianola kindergarten viewing group outperformed the control group. In Choctaw, there were no significant differences between the scores of the viewing and control groups.

The DIBELS measure consists of a series of one-minute tests that assess skills considered key predictors of future reading achievement. Besides measuring changes from the beginning of the project to the end, DIBELS results also show how quickly students gain new skills. In addition, the DIBELS test for phonemic awareness, which asks children to identify the sounds that make up words, is often used to determine whether a child is at risk for reading failure. A benchmark score of 35 (by the spring of the kindergarten year) indicates that a child’s performance is on track for learning to read fluently by third grade.

## 1. Students at Risk for Reading Failure

Site	% at Risk	Mean Score of Students at Risk*	Established Benchmark
Indianola Preschool	100%	3.07	—
Indianola Kindergarten	100%	5.77	35+
Indianola First Grade	74%	14.96	35+
Choctaw Preschool	100%	0.0	—
Choctaw Kindergarten	99%	1.66	35+
Choctaw First Grade	91%	10.46	35+

\* Based on DIBELS measure of Phonemic Segmentation Fluency before project intervention, in September 2001. Note that this measure has not been normed for American Indian populations.

At the outset of the project, based on this DIBELS measure, 100 percent of the Indianola kindergarten students and 74 percent of first graders fell into a high-risk group. Among Choctaw children, 99 percent of kindergartners and 91 percent of first graders also scored well below the benchmark. For example, the mean score was 1.66 for kindergartners and 10.46 for first graders who fell into this high-risk category, significantly lower than the established benchmark of 35 (Chart 1).

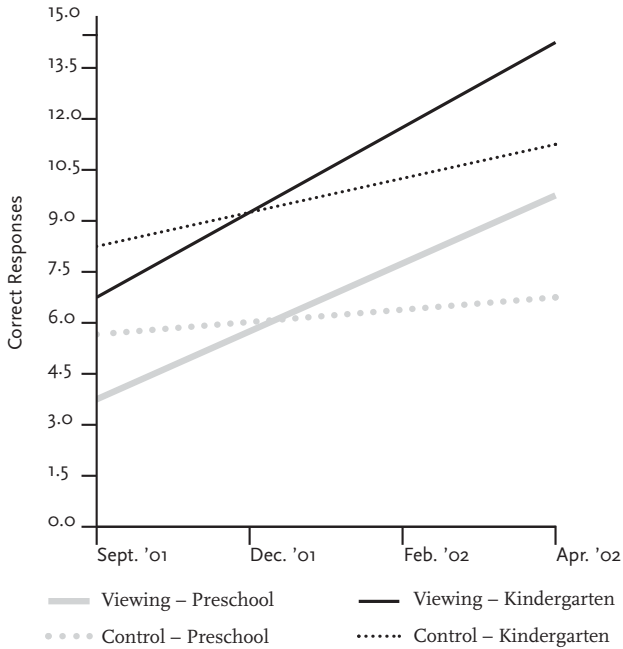
On two of the DIBELS measures, Indianola students exposed to BETWEEN THE LIONS scored significantly better and gained skills at a faster rate than their counterparts in the control groups. Initial Sound Fluency, a test given to preschool and kindergarten children, measures their ability to identify the initial sounds of words, an important

precursor for learning to read accurately. Before the project began, Indianola children in the non-viewing control groups had higher scores than the experimental groups. By the end of the study, however, preschool and kindergarten children who participated in the BETWEEN THE LIONS Mississippi Literacy Initiative significantly outperformed their non-viewing classmates, and were growing at a significantly faster rate (Chart 2). According to the study report, “It is noteworthy that the viewing group started significantly below the non-viewers, but gained skills at a faster rate and were able to overtake the non-viewers by the end of the intervention.”

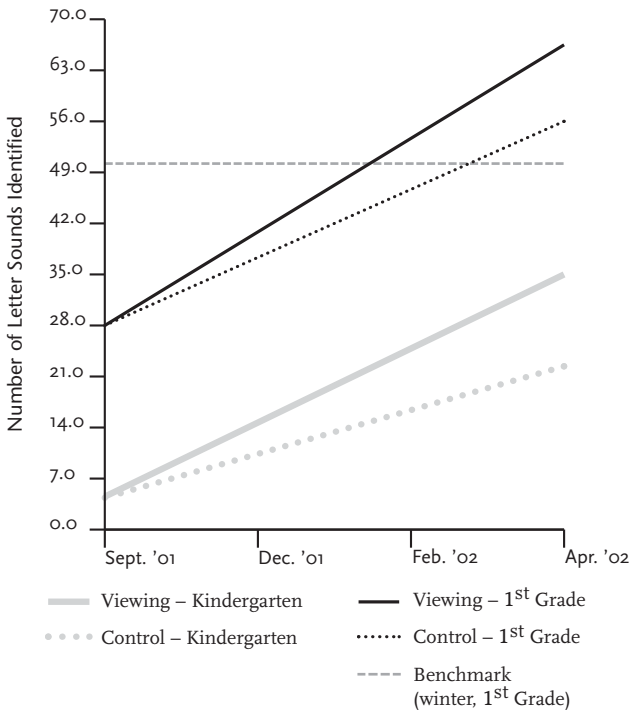
A DIBELS test for letter/sound correspondence, given to kindergarten and first grade students, measures performance on Nonsense Word Fluency, a high-level skill predictive of later, fluent reading. At the outset of the project, there were no differences between the viewing and control groups in Indianola. But by the end of the project, children who participated in BETWEEN THE LIONS viewing and activities performed significantly better than the control groups and gained new skills at a significantly faster rate (Chart 3). For example, on the final DIBELS test of Nonsense Word Fluency:

- Kindergarten viewers correctly identified 34.7 letter sounds compared to 23.2 letter sounds for the control group.
- Kindergarten viewers gained an average of 9.8 letter sounds each time they were tested, compared with 6.1 sounds per test for their counterparts in the control group.
- In first grade, viewers identified 67 letter sounds versus 55.5 for the control group.
- First grade viewers were able to identify an additional 12.8 letter sounds each time they took the test, versus 9.2 for the control group.

## 2. DIBELS: Initial Sound Fluency (Indianola)



## 3. DIBELS: Nonsense Word Fluency (Indianola)



Choctaw students in the viewing groups showed no significant gains on the DIBELS measures when compared with their classmates in the control groups. “I’m not surprised that the higher level skills did not show up, because of how low their skill levels were at the start,” noted Dr. Linebarger.

Dr. Linebarger conducted an earlier study, just before the series premiered in April 2000, using BETWEEN THE LIONS among 164 inner city Kansas City kindergarten and first grade students. The children in the experimental group viewed 17 episodes from the show’s first season during a four-week period. In that study, the kindergarten viewers scored significantly higher than the control group on all learning outcomes.

“From a straight numbers point of view, the Mississippi children were much more at risk than the Kansas City sample,” said Dr. Linebarger. Given their very low initial scores on most of the literacy tasks, the children may not have had enough literacy knowledge to benefit as much from the program and supplementary material in just one year, according to the researchers. The varying approaches, materials, and teacher backgrounds may have also affected outcomes, the researchers noted, as could class size, both factors that could not be clinically controlled in this field study involving many venues. The researchers recommended that both the Choctaw and Indianola populations need “more intensive reading intervention.”

On two of the measures, the TERA-3 Conventions subtest and the PPVT-III, the Indianola preschool control group scored higher than the viewing group. Researchers suggested that this finding may have been a result of experimental and control groups that could not be matched perfectly in this large field study. The preschool control group, for example, started out with more advantages than the viewing group, such as higher average family income and higher initial test scores. In some cases, the researchers concluded, children in the viewing group were not able to “overcome initial differences in favor of the control group.”

## **Beyond the Research Results**

Teachers and administrators in Choctaw and Indianola saw many benefits of the project — especially unprecedented enthusiasm about learning and reading among their children — that couldn't be measured on standardized tests.

“The children didn't just learn reading from this show,” stressed Janys Jones, a first grade teacher at the Pearl River Elementary School, part of the Choctaw experimental group. “They learned things they never knew before, like what jokes are, who Shakespeare is, what a poem is, what jazz is, what chess is....The show gave them a context for things that they hadn't seen before or didn't understand.”

Her class was unusually quiet when it finished watching an episode called “But, Mama, But...” In this episode, Leona talks about how much she will miss her mother Cleo, who is going away from home for a few days. In the conversation that followed the program, Jones discovered that some of the children don't live with their mothers — they live with foster families although they visit with their blood relatives. Without the show, she said, the discussion that resulted from watching the program never would have happened.

“The experience of using BETWEEN THE LIONS was just fantastic,” Jones said. “The kids loved it.”

“I have long been an advocate of no TV for children,” said Jerry Parr, Early Childhood Planner for the Mississippi Band of Choctaw Indians. But the BETWEEN THE LIONS project changed a belief he'd held firmly for the previous 27 years.

“Knowing what a book is and what to do with it once it's in your hands, that's called ‘conventions’ in the study results, and *all* the children improved in that category. That alone cannot be underestimated,” said Parr. The Choctaw children were jumping up and down and cheering when told they would get a book of their own at the end of the project, he added.

“A particular strength of BTL is the way it is able to engage both children and adults. One key to successful education is to develop partnerships between the classroom and the family,” Parr said. Among the Choctaws, “the resources, format, and content of BTL fostered a strong connection. Moms and dads got so caught up in what was happening they became a genuine part of the process — watching episodes as an entire family, collaborating over Web site adventures, writing, talking, thinking, and listening together.”

One thing he particularly liked was the project's multimedia approach, incorporating movement, singing, rhyming, crafts, and cooking. “BTL helped us confirm that the Choctaw culture is rich in literacy, that the dances and chants and basket-weaving are rich literacy experiences,” exulted Parr.

Those elements of Choctaw culture, however, are not necessarily reflected in the measures used by educational researchers to ascertain how well and how fast children are learning. It is also noteworthy that the DIBELS test, for example, had not been normed for American Indian children, many of whom are also English as a Second Language learners.

Dr. Sammi Crigler, Director of Instruction for the Indianola Public Schools, believes the project was important and “planted seeds,” but it was too early for the researchers to see them in full bloom. “The children here are eager, energetic students who are willing to learn. It just so happens that many come to us not having been versed in a rich literacy culture, so, of course, the schools have to work harder to bring them up to par.”

Although the study did not indicate substantial growth on every measure, Dr. Crigler said, “the entire experience piqued the students’ curiosity about reading. They were immersed in the culture, something a study would not capture.” Another very important result was “the collaboration that was fostered” among teachers and between the schools and the wider community, she said.

“The music and animation are fantastic,” she added. “So even though the kids were learning, they were entertained, necessary for what I call ‘a technological generation.’” And the district truly appreciated the additional materials that the teachers and libraries can keep, she said.

Dr. Crigler contends that if the study were done again this school year — now that the teachers are familiar with the material and the community knows what BETWEEN THE LIONS is — the statistical findings would be even more encouraging. It took time for some teachers to figure out that the BETWEEN THE LIONS materials could be well integrated into what they had already planned for the school year, and weren’t just an additional burden.

“It was a great program to be part of,” Dr. Crigler concluded. “We gained as a district and as a community.”

### **Background about the Communities**

The sample of 100 Indianola kindergarten and first grade students in the study’s experimental group were randomly selected from all the K–1 students participating in the project at both elementary schools in the Indianola School District in Sunflower County, a few hours north of Jackson. In one school, students are primarily African American; in the other school, about half the students are African American, and slightly less than half are Caucasian. The Indianola School District has an enrollment of approximately 3,000 pupils, of whom 87 percent participate in the federal free and reduced lunch program, a key poverty indicator.

Indianola preschoolers tested as part of the experimental group included 32 children from child care centers in Sunflower County serving low-income families and 8 children from centers serving medium- to high-income families. The control group, drawn from preschool programs in the nearby Bolivar and Washington counties, included 15 children from centers serving low-income families and 14 children from centers serving higher-income populations.

The land in this part of Mississippi is rich in cotton and soybean fields, but poor in sustenance now that much agricultural work is mechanized, two plants and a prison that provided employment have closed, and industries have “restructured,” laying off Delta residents. Some adults are doctors, lawyers, and teachers; others work in the catfish industry, and many compete for such low-paying jobs as fast food servers. Nearly 38 percent of the children in Sunflower County live below the poverty level, compared with 25 percent for the state as a whole, according to the U.S. Census Bureau.

Research has continually shown that poverty is a leading indicator of poor academic achievement. Studies have also shown that African American children living in poverty are especially at risk for reading difficulties, not just because they are poor but because of differences in oral language skills, vocabulary, and dialectal variations.

The sample of 145 Choctaw children in the preschool and K–1 experimental groups were drawn from all project participants in Pearl River, the largest of seven Mississippi Band of Choctaw Indians communities on reservation lands in Neshoba County northeast of Jackson. The 151 children in the control groups were drawn from reservation communities in Neshoba and four other nearby counties. The Choctaw language is part of the Muskogean linguistic family. The Choctaw tongue was considered so obscure it was used as a code during World War I. Chief Phillip Martin was first elected chairman of the Tribal Council in 1959, when 75 percent of the tribe was unemployed, 85 percent of the housing was classified as substandard, and infant mortality was the highest of any population in the United States. A year later, the Mississippi Choctaws were called the “worst poverty pocket in the poorest state in the Union.”

By 1998, the average Mississippi Choctaw family income had risen to \$24,000 a year and the average educational level to grade 12. By 2000, the Mississippi Band of Choctaw Indians had become one of the top 10 employers in the state, running 15 entities worth \$375 million in annual sales, according to a fact sheet on the tribe.

Still, the children and many of their parents are not yet sharing in the economic and educational boon such good news would seem to portend. Childhood poverty rates range from 31.3 percent in Pearl River to a high of 61.3 percent in the Bogue Homa Choctaw community, according to the 1997 Choctaw Demographic Survey. The Choctaw communities consistently have higher rates of childhood poverty than their surrounding counties.

While the number of children living in poverty is particularly high in the two communities that participated in the BETWEEN THE LIONS Mississippi Literacy Initiative, Mississippi as a whole “leads the nation in childhood poverty (KIDS COUNT 2002 Data Book),” according to the study report. Given the correlation between poverty and low reading skills, it’s not surprising that only 18 percent of Mississippi’s fourth grade students read at the proficient level, and only 48 percent read at or above the basic level, according to the 1998 National Assessment of Educational Progress. Mississippi’s reading scores are among the lowest in the nation.

### **About BETWEEN THE LIONS**

BETWEEN THE LIONS was created specifically to address the low reading scores of children across the country. BETWEEN THE LIONS is the only children’s program (of nearly 300 shows on network, cable, and public TV) designed solely to help children learn to read. It is available free and broadcast daily on nearly all PBS stations. Developed in consultation with the nation’s top reading and literacy experts, BETWEEN THE LIONS offers a comprehensive, evidence-based approach to reading instruction.

The series showcases the power and pleasure of reading and includes segments that foster language development and early literacy skills. Every episode addresses the five key areas of reading instruction: phonemic awareness, phonics, fluency, vocabulary, and text comprehension. The series is the centerpiece of a multimedia literacy initiative that includes a Web site ([pbskids.org/lions](http://pbskids.org/lions)), books, videos, teachers’ guides, and other outreach materials. The producers of BETWEEN THE LIONS — WGBH Boston and Sirius Thinking, Ltd., of New York — have a strong track record in developing educational shows that kids and parents want to watch, and have worked on a variety of award-winning programs such as *Arthur*, *ZOOM*, *Sesame Street*, and *The Electric Company*.

The show's "mane" characters, lion cubs Lionel (age 7) and Leona (age 4), serve as role models for young viewers. Cleo and Theo are their playful, understanding, and literary parents, who eagerly demonstrate the power and pleasure of literacy. The lions are joined by a cast of characters who play specific roles in reinforcing the literacy curriculum. Martha Reader and the Vowelles, a Motown-style vocal group, entertain with a repertoire comprising only vowel sounds. The Vowelles are just one example of how BETWEEN THE LIONS addresses phonics instruction. Cliff Hanger, the star of a continuing adventure series, helps to showcase key words in context. The recurring Cliff Hanger and Adventures of Chicken Jane segments also promote the development of reading fluency, by encouraging repeated reading of familiar texts, just as the experts recommend. The television medium adds a unique visual feature: words or phrases are highlighted as they're read aloud.

### **Significance of the Research**

While there has been extensive research over the last three decades on the positive effects of educational television programs like *Sesame Street*, *Mister Rogers' Neighborhood*, and most recently BETWEEN THE LIONS, there is very little data focusing on literacy among American Indian children of any socioeconomic group, according to Dr. Grace. Research data on economically disadvantaged rural preschool children is also slim. Further, few studies have looked at literacy programs in child care settings or assessed a literacy initiative used simultaneously in Head Start, child care, kindergarten, and first grade. The study conducted by the Early Childhood Institute on the BETWEEN THE LIONS Mississippi Literacy Initiative presents an important step, both in examining literacy among two rural groups and in pointing the way toward vital further research.

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This report is based on research findings presented in the July 15, 2002, report about the BETWEEN THE LIONS Mississippi Literacy Initiative prepared by the Early Childhood Institute, Mississippi State University; remarks made by participants at the July 15, 2002, project Advisory Board meeting; interviews with participants in the project; and written comments from participants.

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