

Project Bright IDEA Results and Data

Bright IDEA had a significant independent evaluation and its results qualify for the definition of Moderate Evidence under US Department of Education guidelines. Bright IDEA 2 was highly focused – addressing a specific aspect of a critical national problem (achievement gap among students) at a foundational period (K-2) and an under-representation of minority students in honors, advanced placement and gifted programs. Second, it utilized a holistic approach that combined a focus on multicultural experiences of students with teaching-learning-assessing processes in both mathematics and literacy. This was an advantage because reading and writing are critical for conceptual learning in mathematics and because such combinations capitalized on the aspect of mathematics as language. Moreover, this combination was consistent with the multiple intelligences and gifted behaviors view on which the project draws—students can bring forth their strong areas of interests and strengthen them. Third, the project utilized and explored the impact of two approaches to teacher education—top-down (first summer institute) and bottom-up (buddy-pairs, training over the school year and second summer institute) that heretofore were typically used in separation.

This combination, particularly the buddy-pair method stresses reflection on teaching strategies as the essential component for teacher development as reflective practitioners. Fourth, the project included a longitudinal, follow-up component that will allow studying the long-term impact of the program on student achievement. Fifth, the project added at least two new research instruments that can be used elsewhere (student mathematics problem-based questionnaire and teacher disposition questionnaire). Sixth, the project included a rigorous evaluation plan and an extensive dissemination plan. Thus, it created venues for a flow of information among all stakeholders of nurturing gifted students' development (parents; teachers; local districts; state administrators; researchers; and policy makers).

Javits Research Results *Project Bright IDEA 2: 2004-10*

Project Bright IDEA 2 met the goals of the Javits Research by significantly increasing the identification of the number of academically gifted students from underrepresented populations and demonstrated the critical role that teacher enhancement can play in promoting these students' achievements. It demonstrated that *Bright IDEA* is a research model that has the potential for increasing achievement for all students by focusing on nurturing their academic talent and by re-training teachers on engaging their students in a rigorous concept-based curriculum.

The research for Bright IDEA was carried out in twelve school districts (urban, rural, small towns, large and small); twenty-eight Title 1, very diverse schools; three hundred teachers and principals in the Bright IDEA treatment and an equal number of teachers in the control group and impacted approximately 10,000 students over the five year grant. Each school had 4 teachers in each grade level; 2 teachers from each of the three grade levels in the treatment and control group. Each of three cohorts of students was followed for three years, with testing for gifted programs at the end of the three years. Graduates of K-2 Bright IDEA teaching were given the Cognitive Abilities Test and or IOWA Test of Basic Skills at the end of second grade.

Thousands of teachers and students are now reaping the benefits of the Bright IDEA Model as districts expanded across more schools and classes, continuing after they were out of the Javits-funded research project. There is considerable evidence that the districts are seeing

positive changes in the culture of the schools; the enthusiasm and support of teachers and principals for more training and better performance on end of grade tests and meeting Annual Yearly Progress (AYP). Some schools met AYP for the first time after training all of their teachers in the model. Bright IDEA is a model for addressing low performing schools to achieve AYP; improve access for engaging curriculum for students with high learning needs; and provide teachers with current research pedagogy and practices aligned to the new Teacher Evaluation Instrument implemented in North Carolina during 2011.

Three measures were set forth to determine accomplishment of Javits Bright IDEA project goals: (1) Head Count of graduates of Bright IDEA in K-2 who are nominated for a school's gifted and talented program in the third grade; (2) The identified students' performances on a Math Problem-Based Questionnaire; and (3) Changes from pre- to post-intervention in teachers' responses to items of the Teacher Disposition Questionnaire. The measured results for Bright IDEA are from the K-2 research program. However, there are results from the pilot schools and schools that have expanded the project and other results and findings that have been reported anecdotally and are important to consider for academic achievement.

Head count Data: The primary academic measure for Bright IDEA 2 is the percentage of students identified and placed in gifted programs. All Bright IDEA districts require a score from the Cognitive Abilities Test or the Iowa Test of Basic Skills plus other criteria based on the Local District's Plan for Gifted Programs in North Carolina. The head count results for second graders identified for gifted programs over the three years showed for 2006-2007, Bright IDEA Students 24%, Non BI 10%; for 2007-2008, Bright IDEA Students 26%, control group 10% and in 2008-2009, Bright IDEA Students 47%, control group 9%, all statistically significant with a significant magnitude in the differences.

No overall statistical differences concerning race or gender were found when gifted nominated/selected students were compared between Bright IDEA and non-Bright IDEA graduates; *however, substantial racial differences were found among counties.*

Math Problem Based Questionnaire: Both Bright IDEA and non-Bright IDEA students who were nominated and or identified for gifted programs still fell short of the expected level of performance in mathematics on the questionnaire. All of these students were administered the Questionnaire based on 2nd grade state standards, but included a major area where students had to explain their answers and even the students who were selected for gifted programs did not do as well as expected on explaining their answers. Other research has suggested that gifted children do not do well in this area; another area for consideration as funds permit to evaluate the data more closely with teachers. (Many of Bright IDEA elementary teachers indicated on the disposition questionnaire, prior to training, and verbally that they did not like math, were not good at math and *cited it as a reason for wanting to teach in elementary school. Perhaps this is a cumulative effect of the fact that they were all taught math, poorly, themselves.* The math training devoted to understanding the number system (place value and base 10 and base 4) proved complex for many of the teachers and some of the principals, but their comprehension improved after additional training.)

Educator Disposition Questionnaire: In all three cohorts, the Bright IDEA professional development model had an effect on teachers' dispositions, toward establishing consistency with the project's agenda. The most important aspect of Cohort-3 dispositions in, unlike the two previous cohorts, NO negative change was found (e.g. on teacher's view of parents' contribution

to educating their children as gifted)! Dispositions that were improved were found on 27 items out of the 50 items of the Disposition Questionnaire (22 for Cohort-2). Among those, 17 increases reached statistical significance (only 7 for Cohort-2). The goals of the project were accomplished in terms of teachers' adoption of key pedagogical principles including two areas of concern from the two previous cohorts: dispositions toward parents' role and the teacher's need to proactively partner with the parents. Teachers were able to work toward dispelling their fear of math and to better understand the number system.

Gifted Intelligent Behaviors (GIB's): Teachers observed students on selected behaviors and evaluated the students on rubrics. Data was collected on all students and were put in charts to show growth from a pre to post evaluation. This data was not part of the evaluation for the Javits research measures, but turned out to be a significant finding. Teachers said that recording student progress on the rubrics and the GIB's training helped them to evaluate students on multiple intelligences and academic skills.

The large number of teachers and students participating in Bright IDEA 2 supports strong external validity for the results cited. While the project strove to make random assignments of teachers within schools to the Bright IDEA program, the research design could not control absolutely for their assignment to treatment or control and therefore creates some challenges to strong internal validity for these results. Proposed new programs will address these issues by using randomization at the school level (appropriate for a whole school change model) and significantly adding to the overall number and type of schools participating in the program.

Historical perspective: The Javits Bright IDEA project (2004-2010) was designed in response to a legislative mandate in North Carolina with the main goal of increasing the number of students from under-represented Title 1 populations into academically challenging and gifted programs by changing the dispositions of teachers and principals toward those students.

Nurturing Programs are now part of the standards for district's gifted programs. Building on this legislation, a study conducted in 1999, by Darity, Castellino, and Tyson recorded the lack of diversity in North Carolina's academically or intellectually gifted (AIG) programs as well as in Honors and Advanced Placement (AP) classes. Like previous studies, Darity and his colleagues pointed out that enrollment of underrepresented populations in more advanced courses in high school is highly linked to early identification and nurturing of those students as Academically Gifted. However, AIG programs historically have been characterized by disproportionate under representation of black, Latino, and Native American students and, hence, contributed to the achievement gap. This facet of the achievement gap relates to the lack of preparation of teachers in identifying and nurturing academic and intellectual potential among learners from disadvantaged populations. Informed by the legislation and studies, the state, through the Area of Exceptional Children, launched a strategic plan for developing programs that led to the Javits grant. The goals of the Javits research were met with significant results on student gifted data and changing dispositions of teachers.

The *Overarching Javits Goal*: Increase students from underrepresented groups into gifted and talented programs via changing teachers' dispositions to wisely use curricula tailored to those students and to increase the quality of their meta-cognitive and cognitive skills through gifted pedagogy.

Table 2. Academically and Intellectually Gifted Identified from Title 1 Classes *

		<u>Bright IDEA Students</u>	<u>Non-Bright IDEA Students</u>
2004-2007	Cohort-1	24%	10%
2005-2008	Cohort-2	46%	10%
2006-2009	Cohort-3	15%	10%

*Based on third graders in 28 participating schools in districts in North Carolina.

Gifted Education Program Criteria, including CoGAT and IOWA Test of Basic Skills

Dispositions of Educators

The Educator Disposition Survey was administered prior to training and at the end of the formal training and implementation in the classroom. Teachers and principals changed their beliefs about a number of previously held positions on teaching students of high needs and as they implemented more of their strategies and practices from their training, they saw students rise to the level of expectations and over the three years became excited about the changes they were able to make in differentiating instruction for all of their students and in the significant performance outcomes of their students.

Table 3. Educator Disposition Survey Results: Based on approximately 100 educators per cohort.

Cohort-3 – 2006-09: 27 out of 43 survey items improved; 17 items reached statistical significance

Cohort-2 – 2005-08-: 22 out of 43 survey items improved; 12 items reached statistical significance

Cohort-1 – 2004-07: 17 out of 43 survey items improved; 7 items reached statistical significance

Significant changes in attitudes by educators: A decreased thinking of the school's wealth as a reason for student outcomes; Tendency to be flexible and experiment with the unknown; Effort to involve parents in what the teacher does with students in class; Love for teaching science; Responsibility for actively nurturing Gifted; Awareness of link between goal accomplishment and student interests; Establishment of high expectations of ALL students; View of giftedness as a function of nature, not nurture; and Increased understanding of the role of meta-cognition in student learning.

Building Thinking Skills (BTS), (Black and Parks):

The Building Thinking Skills Program was not evaluated separately but is the first Bright IDEA component used to train teachers and to immediately implement with all grades has proven to have immediate and observable results with students, as described by teachers and principals. In the Javits, the Beginning (K-1) and Building (2-3) Thinking Skills Programs are built on developing the analysis skills and critical thinking mental models for children that provides a

foundation for all children to be successful on assessments as they advance through grade levels.

The main purpose for selecting this program for Project Bright IDEA 2 for nurturing the potential in underrepresented populations was the evidence gathered from the Pilot Project in student achievement and teacher, student and parent satisfaction with the knowledge and advances that the children made in BTS vocabulary development and on the NC Literacy and Math Assessments. The Pilot Program was implemented in 2001-2004. Based on the pilot, the Javits Award was granted to further study how to “scale up” the program across a larger population of students. After three years in Project Bright IDEA 2, teachers reported that Building Thinking Skills is a critical set of skills and processes that have helped make Project Bright IDEA successful.

When the North Carolina Department of Public Instruction was searching for a K-2 Thinking Skills Program as part of a nurturing program, the recommendation was made to look at the model that Miami-Dade and Palm Beach Schools were using and to evaluate their results. After reviewing the literature on other programs, BTS was selected because of the achievement results in Florida Schools, the developmental nature of the program and the competence and quality of the authors and the respect for their work in the field of Critical Thinking Researchers.

Building Thinking Skills Nurturing Potential Goals:

1. Promotes foundational and advanced k-2 cognitive skills and mental models for acquisition of the Standards in the North Carolina Course of Study.
2. Builds a large, universal vocabulary of English usage across all the disciplines. (BBTS = 1000 universal words. BTS=2000 universal words.)
3. Develops and produces descriptive writing paragraphs by end of Kindergarten because of the focus on speaking and writing in complete sentences.
4. Teaches learners the Piagetian Theory to proceed from the concrete to semi-concrete to abstract verbal form.
5. Builds students’ competence and confidence in taking assessments.
6. Provides success for all learners, including ESL and other Exceptionalities.

Skills and Processes

The five cognitive skills (describing, finding similarities and differences, sequencing, classifying and forming analogies) outlined in the program are research-based on the relevance and prevalence in academic disciplines and found on Standardized Tests. These analysis skills are required in all content areas and are all aligned with the Standards in the North Carolina Course of Study. Building Thinking Skills Programs teaches a rigorous lesson through the content lessons as children move beyond the Figural and Concrete activities. The lessons are integrated into local curriculum and pacing guides. The BTS lessons should be taught when the teachers are introducing new content or reviewing standards. This program can be adapted to meet local initiatives and used as another high-level resource for teaching critical thinking. In both figural and verbal strands, exercises are sequenced in the order that a developing child learns: cognition, evaluation and convergent production processes. The processes for all activities include: Select, Explain and Supply—all three processes provide an excellent strategy for doing tasks and activities for any lesson.

Training Approach

The training can be conducted in a half-day session on each of the levels to help teachers and administrators understand how to use the Teacher Manuals and how to teach the lessons. The training that has been implemented, as a result of Project Bright IDEA 2, now includes one half-day for the K-1 teachers with model lessons demonstrated and a half-day for 2nd grade teachers with model lessons. This training requires that the teachers read and understand the Teacher's Manual and that they use the recommended methods of instruction for the students. This training does not take the place of follow-up classroom visits by mentors, principals and curriculum specialists to assist with support and additional training. Mentors from Bright IDEA 2 can provide on-site classroom or school visits to assist teachers with strategies for task rotations and model lessons, when requested.

Individual Learning Needs

The BTS materials, when used appropriately, provide the teacher with built-in high level content strategies for meeting the individual needs of all children, including those identified as Exceptional Children. Some children will be able to move through the lessons quickly or may not need some of them at all. ESL children and those with learning disabilities or exceptionalities have been highly successful with BTS and in the pilot program--the gap was closed for these populations. Bright IDEA 2 districts continue to show evidence that all children are highly successful with this program. Identified gifted children can move beyond these lessons into thinking skills infused into content using gifted methodologies. These five analysis skills and strategies are also infused into subject area lesson plans and the concept based curriculum units developed by teachers. This program provides teachers with guidance on differentiating instruction for all children. For data on all populations from Project Bright IDEA 1, the pilot program, see www.aagc.org.

Summary

Building Thinking Skills is internationally recognized as superior in the field of cognitive-based critical thinking research. This program is one-of-a-kind program for K-2 children especially, even though it is a program for K-12 and materials are available for all grade levels. Project Bright IDEA 2, under dissemination of the Javits Research, has expanded the project across many districts based on principals, teachers and parents requesting it for all of the students in the Cohort schools. Much of the evidence to support expansion has been through observations and test scores, including high scores on the IOWA's. Building Thinking Skills is aligned with the Cognitive Abilities Test (CoGAT, which is used in many districts for identification of students for gifted programs. For truly understanding the program, a classroom observation is highly recommended.

Project Bright IDEA has been scaled-up to K-5 grades in some of the research districts and uses the Thinking Skills materials in the additional grades, 3-5. Teachers have reported that students are responding academically on improved test scores to the higher levels of vocabulary and abstract problems in the higher levels of BTS.

Results from the Pilot Bright IDEA 1 and the Javits research Bright IDEA 2 show that students improve on state tests when a district implements the Thinking Skills Program.