Teaching Thinking in Tulsa

LARRY ZENKE AND LARRY ALEXANDER

A thinking skills program has given test scores in two Tulsa middle schools a quick boost.

The decision to implement a thinking skills program in several northside Tulsa schools was part of a broad and comprehensive plan to improve student achievement in an area characterized by low student test scores and low morale. A complex set of factors influenced the poor student achievement. The far northside of Tulsa, where the population had been almost totally working class white families, saw a steady influx of Tulsa's black community the past two decades. Coinciding with this migration was the conversion of several historic black schools on the near north side into magnet schools as part of a voluntary desegregation plan. These magnet schools tended to draw the higher-achieving black students while those who were not accepted transferred to predominantly white southside schools. As this "brain drain" intensified, more experienced teachers were attracted to the southside schools while northside staffs were composed of a disproportionate share of marginal teachers. These are, in brief, the problems faced by the Board of Education and Superintendent.

Their improvement plan, initiated in 1982, included designation of the northside schools as "priority" and the appointment of four key educators to a task force with overall responsibility for improvement. Teachers who had reached the stage of burnout were allowed to transfer. Northside principals were permitted to transfer teachers who could no longer meet the needs of their schools and to seek out teachers who thrived on challenges and were willing to commit themselves to bringing about effective change.

Among the many changes that occurred during the 1982–83 and 1983–84 school years were the following:

- Provision of common basal text materials to all northside schools to help systematize instruction both horizontally and vertically.
- Participation by all teaching, counseling, and administrative personnel in an intensive continuing teacher effectiveness program.

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• Intensified efforts to bring about community and parental involvement in the schools through broad-based communication and by working through the Area Five Planning Council already in place.

Because by far the largest number of students fell into the lowest quartile of national norms on standardized tests, we reviewed information about thinking skills programs, considering them as vehicles to improve student achievement. The most promising program seemed to be the Think program, also known as Strategic Reasoning, offered by Innovative Sciences, Inc. Once the decision was made to implement this program on a trial basis, a workshop for teachers was scheduled for the beginning of school in 1983.

The Program

The teaching strategies used in the Think program are based largely on the premises that students can learn the relationships between words and things and that they can learn new words and develop new understandings once they perceive a resemblance between new and familiar words and ideas. This pattern of analytical thought, long established within the scientific community in its search for answers to natural riddles, is equally applicable to other academic disciplines—language, reading, mathematics, and the like. The analytical system operates on the assumption that there is an analogy—a relationship between a word and an idea—that exists and can be perceived. Logic (and the thinking process) does not refer to any specific group of things to which we choose to affix a name but rather to the *process* through which we consider these things and attempt to establish mental relationships.

Programs for Teaching Thinking

Strategic Reasoning

Developer:	John Glade, Innovative Sciences, Inc. Based on Albert Upton's "Design For Thinking" model.
Goal:	Teach the conscious thinking skills students must have to function effectively in school and in "real life."
Skills:	Thing-making (identification) Qualification (description) Classification (organization) Structure Analysis (part-whole relations) Operation Analysis (sequencing) Seeing Analogies
Assumptions:	• Six thinking skills form the fundamental core of *all* thinking and problem solving. • Instruction in the six thinking skills improves both school and "real life" performance and success. • Thinking instruction must be integrated with, not separated from, regular classroom learning.
Intended Audience:	All types of students 4th grade and up.
Process:	Students do group activities and paper-and-pencil exercises. Teachers lead discussions of problem-solving processes and rationales. Program materials provide for transition from developmental IQ-type exercises to subject-matter exercises, then to life applications.
Time:	One period per week.
Available from:	Innovative Sciences, Inc. Park Square Station P.O. Box 15129 Stamford, CT 06901-0129

The Thinking Skills program was used in several ways at two junior highs—Gilcrease and Monroe—in 1983–84. The major program thrust and most of the materials were committed to Chapter I, the federally funded program for students who fall outside the special education category but

below the 35th percentile on national norms in either reading or mathematics. At both schools, students in this category represent by far the largest proportion of students.

Chapter I students spent five days per week for one semester of the year with a regular reading and/or mathematics teacher and five days per week for one semester with a Chapter I teacher, who taught the thinking skills program. In addition, special education and learning disability teachers taught miniprograms as supplements to their usual reading lessons, and all 6th-grade English teachers used supplemental materials once a week within their regular plan of activities.

Whether the subject matter is mathematics, reading, or English, the methodology of the Think program is similar. Each lesson uses tapes and/or workbook exercises in a multi-analytical process moving from the simple to the more complex. The primary skill is called *Thingmaking*, the process by which we develop awareness of things and give these things a name. The next skill is *Qualification*, which involves a student's ability to see the unique qualities, parts, and characteristics of things. For example, apples are red, among other things. The next skill is called *Classification*—putting things into groups according to their common qualities. The program proceeds to *Structure Analysis*, which involves

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learning to divide things into their parts. For example, human beings have such component parts as muscles, a circulatory system, bones, skin, and the like. The next skill is *Operation Analysis*. Events generally happen in phases or stages which have a chronological sequence: C follows B follows A. To envision a simple illustration, think through the stages involved in starting and driving a car. The final skill is *Analogies*: the ability to recognize a similarity in the way Thing C is related to Thing D. From the simple and obvious to the abstract and complex, the ability to perceive analogies is the heart of the analytical process. These operations, oversimplified in this brief description, are the focus of the Think program.

Early Results

At the end of the first year of the program test data were still incomplete, but we had already seen dramatic improvement in student test scores. To determine the effect of the supplementary once-a-week program in the 6th-grade English classes, the E.A.S. (Educational Abilities Series) Section of the S.R.A. Test Battery was administered in April 1984 to 251 students. When these test results were compared to results from April 1983, the increases were as follows: from 286 to 344 in Growth Scale Values; from 32nd to 40th in Percentile Ranks; and from 95 to 99 in Intelligence Quotients.

To measure the progress of the Chapter I students, the Gates MacGinitie Reading Test was used for reading; and the Iowa Test of Basic Skills was used for mathematics. In late September 1983 the pretest was administered; the post-test was given in early January 1984, covering essentially two and one-half months of instruction. For grades 6–8, with 287 students tested, grade equivalent scores in reading showed an average gain of five months in Vocabulary, seven months in Comprehension; and seven months in Total score. For grades 6–8, with 237 students tested in mathematics, grade equivalent scores showed an average gain of three months in Concepts, seven months in Problem Solving, six months in Computation, and five months in the Total score. Although data from the second semester testing have not been fully tabulated, we are encouraged by these strong gains, which were achieved in such a brief period.

Perhaps it *is* possible to teach students how to think. These indicators of success are particularly encouraging to administrators who make suggestions for instructional improvement and live to write about it.□