



*Thinking*Foundation &



An Introduction to
Thinking Maps®
Research and Practice

David Hyerle, Ed.D.
Thinking Maps® Developer
Founder, Thinking Foundation

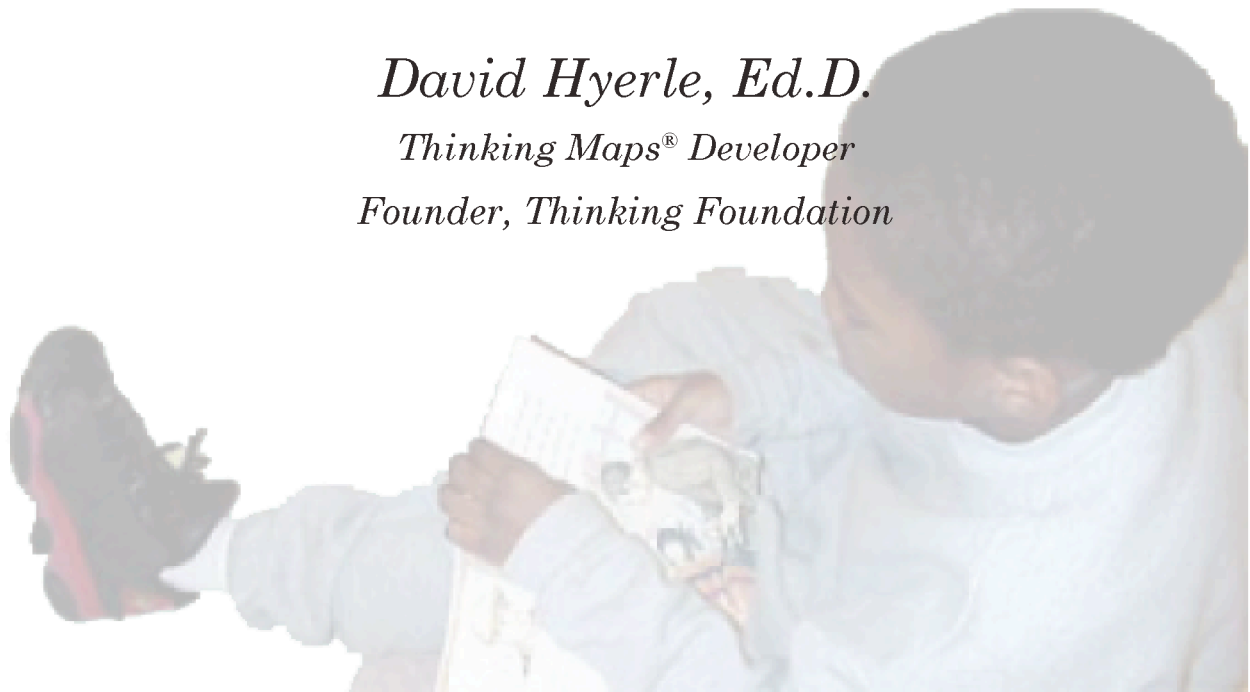


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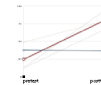
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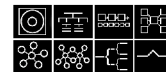
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Thinking Maps, Inc. is an educational consulting and publishing company.

Why does a
map
 make our
 thoughts
 neat?

First Grade
 Student




Thinking Foundation

An Introduction to Thinking Maps® Research and Practice

Thinking Foundation focuses on research and support of cognitive and critical thinking development in schools toward the goal of creating Thinking Schools nationally and internationally. The goal of this booklet is to provide an overview, and glimpse into, many examples of success with the Thinking Schools including pre-k, elementary, secondary and college examples. We encourage you to visit our website to learn more about these examples through in-depth studies, video clips, books, and other support materials. And we hope you have the opportunity to visit these schools to learn first hand their success with Thinking Maps® and being a thinking school.

I'm able to
 think
 easier...
 [Thinking Maps]
 make things
 clearer...
 ...I get more
 between
 the lines...

High School Student
 Great Britain



Neuroscientists
 tell us that
the brain
 organizes information
 in networks and
 maps

Pat Wolfe
 Author, *Building the
 Reading Brain*



...is within reach of
any school,
 replicable, and may
 refine
 and even
reframe
 reading and writing
 instruction

Thomasina DePinto Ph.D.
 Principal
 Mt. Airy Elementary School



"...we provide
tools
 that enable teachers
 to build on
 the capacity of
the students
 to think critically
 through
 instruction..."

Yvette Jackson, Ed.D
 CEO
 National Urban Alliance





*Thinking*Foundation

Mission Statement

The mission of the nonprofit Thinking Foundation is to support high quality academic and applied “action” research on cognitive and critical thinking skills development at the pre-school, K-12 and college levels. Initial grant awards will emphasize qualitative and quantitative research on Thinking Maps® as a foundational language for thinking, learning, teaching, and leading across educational organizations.

Purpose and Focus

Thinking Foundation will offer small (\$2,500) to medium size grants (\$10,000) to individual teachers, administrators, and independent researchers as well as schools, school systems and organizations based on a criteria for advancing research for the purpose of significantly improving learning, teaching, leadership and assessment practices in schools. The central focus of the foundation will be on supporting research that is investigating and facilitating change in those public schools with the greatest academic need. The secondary focus is on facilitating research that looks at the interdependency and interplay of culture, language, and cognition through the use of Thinking Maps®.

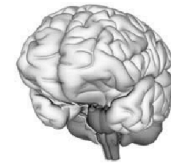
www.thinkingfoundation.org



Cognitive Mediation

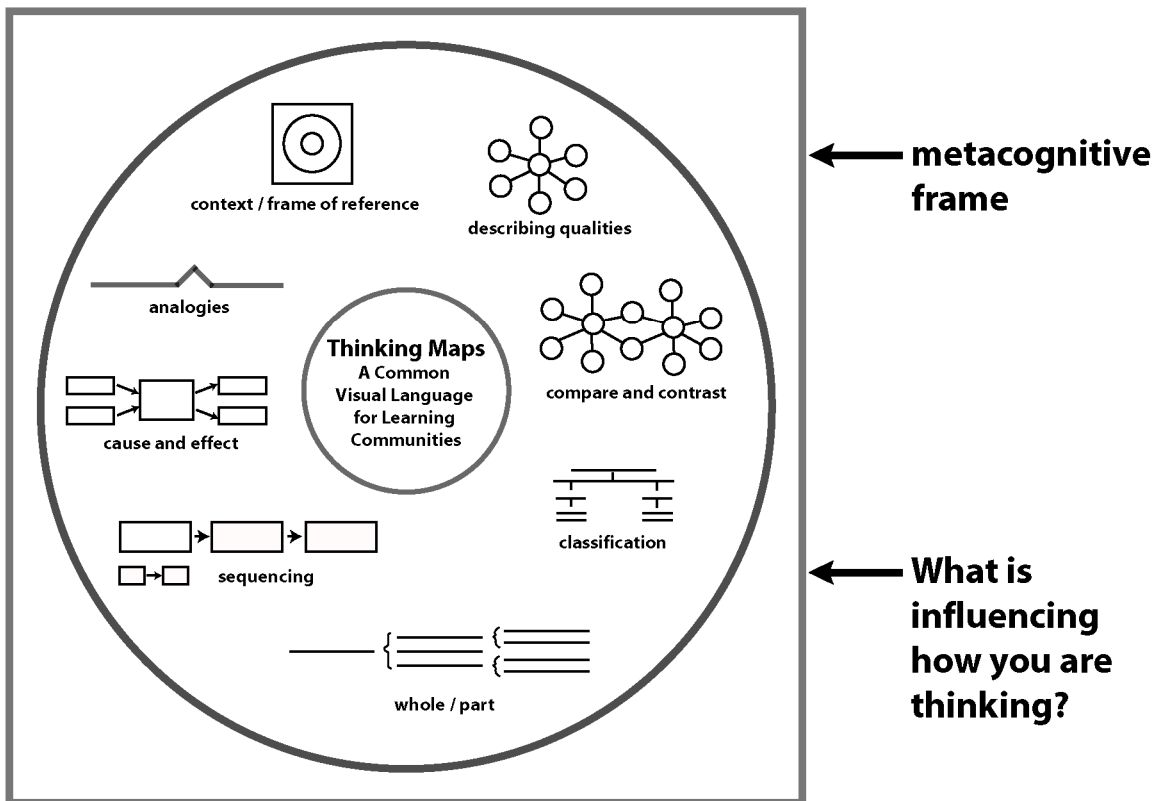
Thinking Maps® as a Transformational Language for Learning

Thinking Maps are a transformational language for learning — eight fundamental thinking skills defined and animated by maps. Thinking Maps are a common visual language for thinking and learning across whole learning communities.



The Potential

Thinking Maps ultimately unite a school faculty around a well-documented need in classrooms and a central organizing principle for twenty-first century education: equity of access to—and explicit teaching of—higher-order thinking tools for every child and every adult on the journey of lifelong learning.



Creating a Thinking School

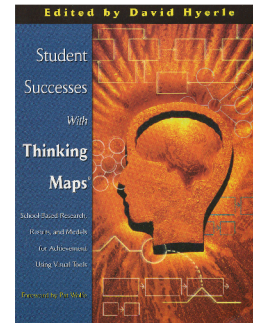
Thinking Foundation focuses on research and support of cognitive and critical thinking development in schools toward the goal of creating Thinking Schools nationally and internationally. As part of our mission we have a range of collaborations with different organizations and people. Learn more about Thinking Maps and other mediating tools for thinking such as Habits of Mind at the Thinking Foundation website.

Organizing Information

“Thinking Maps® is what the brain does.”

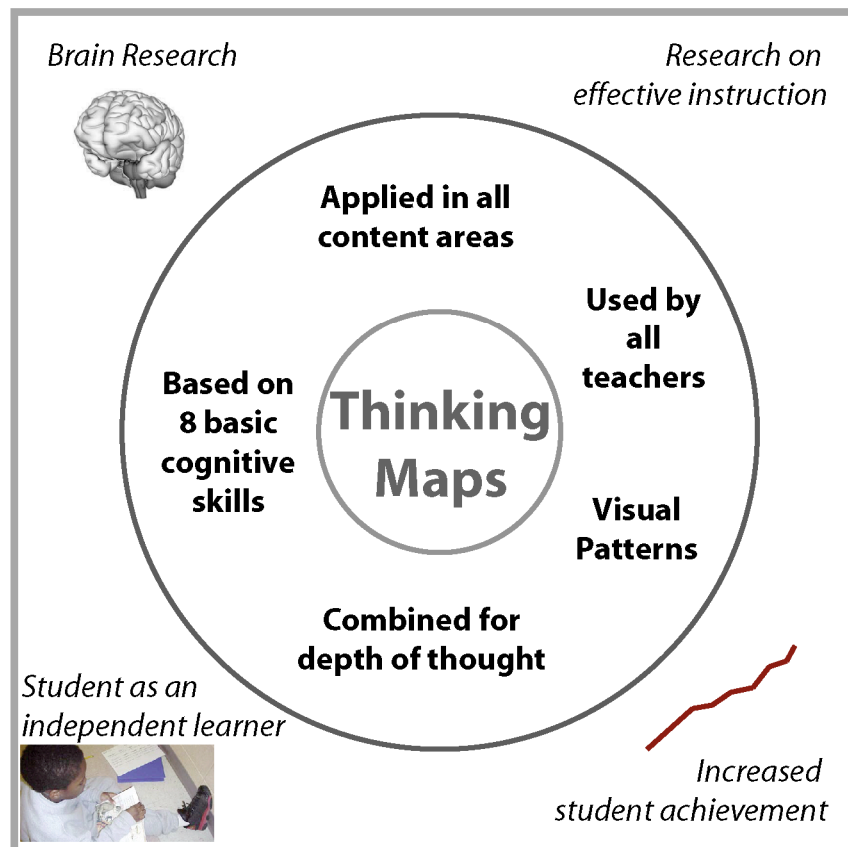
Neuroscientists tell us that the brain organizes information in networks and maps. What better way to teach students to think about ideas and organize and express their ideas than to use the very same method that the brain uses. Thinking Maps® is what the brain does.

Pat Wolfe from the forward in the book ‘Student Successes With Thinking Maps’



Questioning Using the Frame

As you are looking at Thinking Maps and the research on Thinking Maps, what is influencing how you are thinking and evaluating this work?

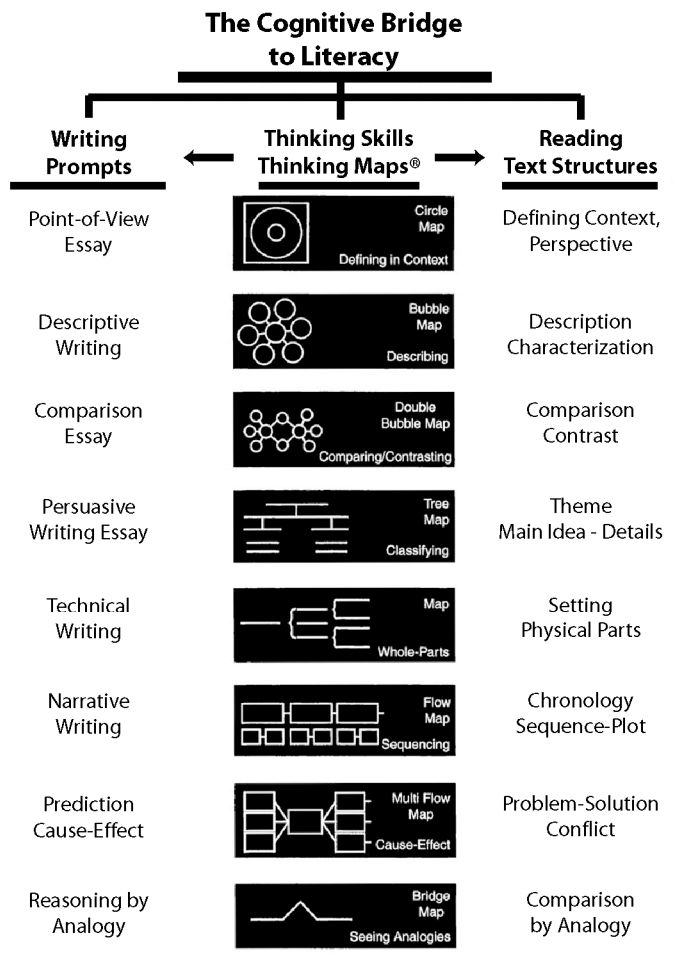


Research

There is abundant research on the success of Thinking Maps in schools across disciplines and grade levels including Pre-K, K-12, and college. This includes graduate studies, dissertations, action research, video clips, books, and more. Access many of these studies online at the Thinking Foundation website — www.thinkingfoundation.org.

The Cognitive Bridge to Literacy

Students are better able to make sense of a selection when they consciously identify the text structure or pattern of thinking developed by the author. When students can consciously identify the thinking pattern and map it out (either in their head or on paper) they are then able to remember, analyze, and synthesize information into meaningful understandings.



Thinking Maps are the paper of my mind.
third grade student

My Thinking Maps have power. I have all these ideas and nowhere to put them. Thinking Maps let me get them out.
first grade student

Thinking Maps just happen! They work automatically while I am reading!
fifth grade student

While I am reading, my mind adds to my Thinking Maps all by itself, and suddenly I know more than I knew!
first grade student

The above student comments are from students at Mt. Airy School in Maryland.

Figure 6.2 Reading, Thinking, Writing Connection

From the chapter *Maps for the Road to Reading Comprehension* in the book *Student Successes with Thinking Maps®* by Thomasina DePinto Piercy, Ph.D.

Thinking Maps for the Road to Reading Comprehension

"This teacher had brought students to such a high level of fluency with thinking maps that they could begin to identify text patterns on their own. They were able to use fundamental thinking skills vocabulary (describing, compare, causes, etc.) and respective cognitive maps (bubble, double bubble, multi-flow, etc.) and had the metacognitive awareness of being able to explicitly transfer these processes and tools to reading comprehension through identifying text structures."

Thomasina DePinto Ph.D., Principal, Mt. Airy Elementary School talking about first graders

Read Dr. DePinto's study and view video clips on the Thinking Foundation website

Student Performance

Implementing Thinking Maps® Results in Tennessee Schools

Katharine Mabie Hickie's doctoral dissertation 'An Examination of Student Performance after Two Years of Thinking Maps® Implementation in Three Tennessee Schools' was presented in May 2006. The



purpose of this study was to determine what, if any, association exists between Thinking Maps® instruction and student achievement in fifth grade students as reported by the State NCE scores of the criterion referenced portion of the Tennessee Comprehensive Assessment Program (TCAP) Achievement Test in three Title I elementary schools in northeast Tennessee.

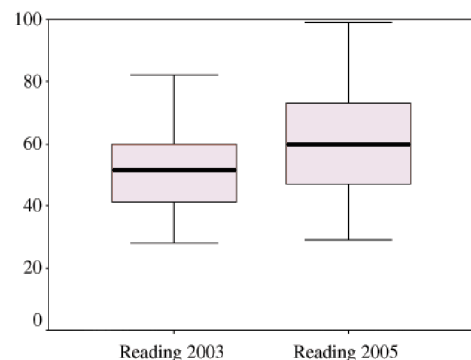
Findings

Based on the analysis and findings of this study, implementing the Thinking Maps® program in the whole school approach appears to have been a successful step in improving student achievement in the area of Reading/Language.

Conclusions

The following are conclusions from Katharine Mabie Hickie's doctoral dissertation which is available online at the Thinking Foundation website:

Significant Gains: Based on findings from the study there appears to be a positive relationship between participation in Thinking Maps® for 2 years and Reading/Language achievement. Reading/Language State NCE scores showed a significant difference between the 2003 and 2005 reading means.

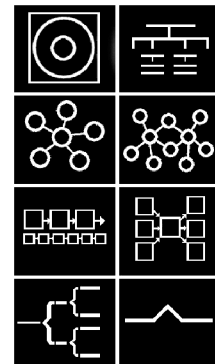


Positive Findings: Based on the findings from the study, there appears to be a positive relationship between participation in the Thinking Maps® program for 2 years and Reading/Language test performance as compared to students in a school with a similar economically disadvantaged student population who did not participate in the Thinking Maps® program.

Equity: Based on the findings of the study, it appears that the implementation of the Thinking Maps® program for 2 years affects different student populations.

Read and View the Research

Katharine Mabie Hickie's doctoral dissertation is available online at the Thinking Foundation website. Additionally, there are studies and video clips on student and teacher successes with Thinking Maps® in the US and internationally. This represents implementation across disciplines and at different grade levels including Pre-K, elementary, middle school, secondary, and college.



Results

A First Language for Thinking in a Multilingual School

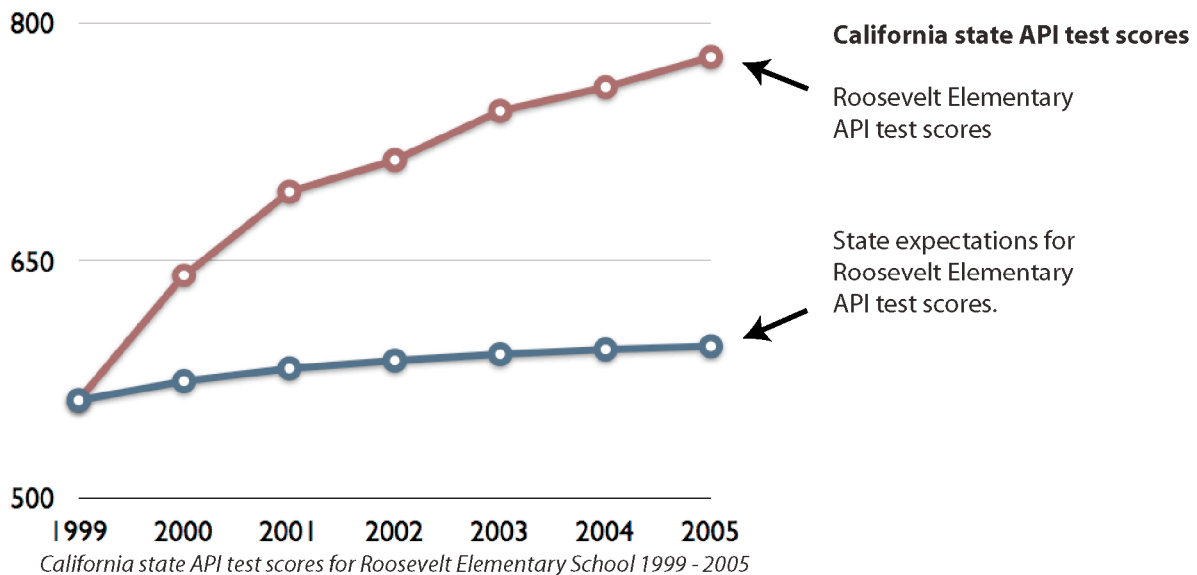
“The Thinking Maps become a translator of language and thinking from one language-mind (Spanish) to another language-mind (English). Thinking Maps became our *first language* for thinking, thus supporting the languages, content learning, and cognitive development of our multi-lingual population.”

*Stefanie Holzman, Principal, Roosevelt Elementary School
Long Beach, California*



The Results

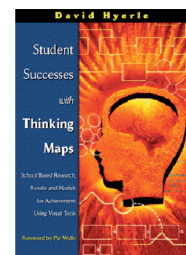
The students at this urban, inner city year round school of 1200 students have achieved extraordinary results on the California API test for the past five years. The school is comprised of 85% of ELL students, with 100% of the students receiving free lunch.



“Not only did the school as a single unit make growth, but so did our significant subgroups: Hispanic students, English language learners, and students of low socioeconomic status as determined by free lunches.”

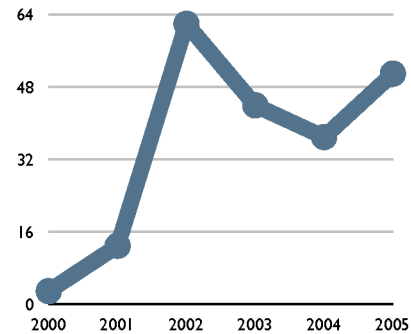
Research

Learn more about Roosevelt Elementary School in Long Beach, California, and other ‘thinking schools’ success stories at the Thinking Foundation website www.thinkingfoundation.org including current research, action research, video clips, and other resources. Stefanie Holzman’s chapter in *Student Successes with Thinking Maps* provides information and data on the success of Roosevelt Elementary School. Excerpts from this and other chapters may be found on the Thinking Foundation’s website.



2006 Albert Upton Award Recipient
“Thinking Maps Give Me a Chance To Learn” *

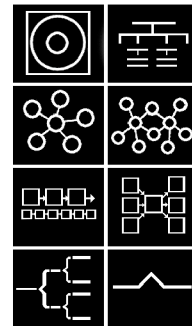
Learning Prep School, the 2006 Albert Upton Award recipient, stands out because of their extensive documentation of individual student work, the comprehensive and adaptive use of Thinking Maps, the significant changes in student performance, and the multifaceted research conducted by Cynthia Manning, Vice Principal at Learning Prep. The graph at the right reflects Learning Prep students passing the Massachusetts Comprehensive Assessment System (MCAS) Test from 2001 - 2005.



The Results

“Thinking Maps is one of the most powerful tools that Learning Prep School uses to facilitate learning for students who have been unable to succeed in other educational environments. We now see the significant results of our students’ performance through the use of these visual tools as integrated into our overall program. The MCAS is the Massachusetts Comprehensive Assessment System test for school assessment and accountability in the state of Massachusetts.”

Cynthia Manning, M.Ed., Vice Principal, Learning Prep School Newton, Massachusetts



Research

Learn more about Learning Prep in Newton, Massachusetts and other ‘thinking schools’ success stories at the Thinking Foundation website www.thinkingfoundation.org including current research, action research, video clips, and other resources. Read the book *Student Successes with Thinking Maps* for information and data on the successes of Thinking Maps including excerpts from the book on the Thinking Foundation’s website.

**Learning Prep Student*

“I couldn’t get it when one of my old teachers talked to me all day and then wanted me to write a lot of words. At this new school, I can understand the teachers when they use the maps. And I can finally do the work because I get it!”



photo courtesy of www.learningprep.org

The Mississippi Community College Study

The purpose of this study and dissertation* was to analyze the effects on test scores of using Thinking Maps in conjunction with regularly prescribed curriculum in reading classes in a community college. The instruction for both the experimental and control groups was as identical as possible for 2 semesters except that **mapping was added to the curriculum for the experimental group**. The data obtained were analyzed to determine if mapping would result in a significant difference in posttest reading scores.



It may be concluded that mapping made a significant difference on test scores.

Since the strategy of mapping produced significantly higher reading test scores and resulted in positive comments of personal satisfaction from the participants of the study, **it is recommended that Thinking Maps become a component of the prescribed curriculum of reading classes.**

* read the complete study on Jones County Junior College by Marjann Kalehoff Ball, Ed.D. at www.thinkingfoundation.org

From College to Kindergarten

"After using Thinking Maps in my [college] classes and seeing positive results...I felt compelled to share these visual tools with others. My outreach began...I contacted school districts from which many JJC students come. The Jones County School District piloted Thinking Maps across the district in Grade 4. Twenty five fourth-grade teachers utilized the maps, and after one year, the district's score increased from 3.5 to 4.3 (with 5.0 being the highest). Because of this improvement in fourth-grade students' scores, implementation began with the whole district. Eight years later, Jones county continues to show growth and maintain high achievement."

Marjann Kalehoff Ball, Ed.D.



"There is a map for everything — every part of the day, every aspect of your life."
Student, Jones County Junior College, Ellisville, Mississippi
See the video clip at www.thinkingfoundation.org

Bridging the Generation Gap

"Thinking Maps allow children when confronted with a problem to have a process that they can use to organize their thoughts enabling them to solve that problem. As a result, the students in our district have excelled district-wide."

Thomas Prine, Superintendent, Jones County School District

eye

- cornea
- pupil
- veins
- eyeball
- iris

Ariel
5th Grade

eye

- cornea
- iris
- pupil
- lens
- optic nerve
- retina
- side
- base

Kaley
8th Grade

parts of the eye

- vitreous body
- sclera
- choroid
- retina
- fovea
- centralis
- optic disk
- optic nerve
- conjunctival sac
- ciliary muscle
- lens (crystalline lens)
- cornea
- iris
- suspensory ligaments

Diana
College Nursing Student

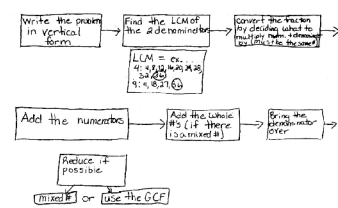
Rhen
Kindergarten

Thinking Maps are not only a bridge from subject to subject but also from generation to generation.

The Challenge of High Stakes Testing

Middle School Mathematics

The statistics indicate considerable growth in mathematical achievement, so how and why does applying Thinking Maps in math instruction improve math ability as measured on these tests? Qualitative results in the form of student and teacher anecdotal reports and instructional logs indicate that Thinking Maps support mathematical thinking by enabling students and teachers to clearly and visually explain, understand, monitor, and assess mathematical processes and problems.



from the chapter *The Challenge of High-Stakes Testing in Middle School Mathematics in Student Successes with Thinking Maps*

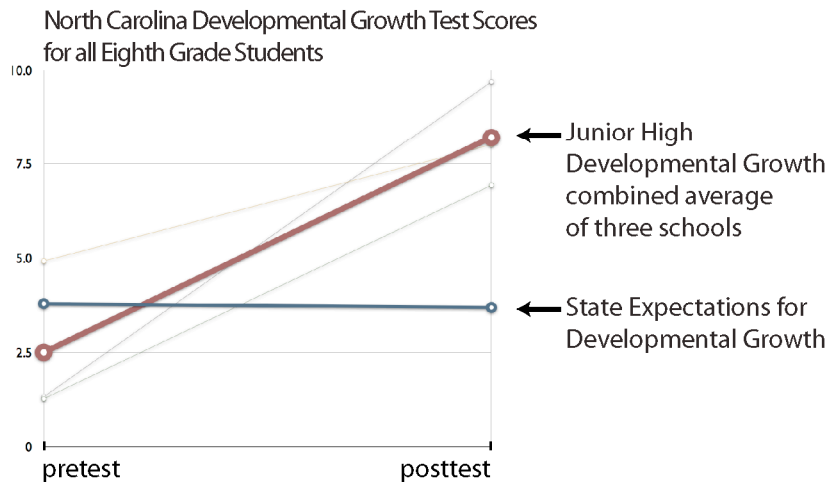
Results in Developmental Growth

“What we learned about Thinking Maps during this era of high-stakes testing and accountability continues to evolve, but this study confirmed two findings:

- 1) When Thinking Maps are utilized in daily math instruction, student learning and demonstration of mastery exceeds exemplary developmental growth expectations on state tests;
- 2) Thinking Map strategies and applications in math are replicable.”

Janie B. MacIntyre, Ed.D.

The graph represents a study done for all eighth grades in three junior high schools in the Nash-Rocky Mount School System. The data is from the state pre- and posttest design model to determine a student’s developmental growth with math. The schools serve both an inner city and rural population of middle to lower middle class families with approximately 50% of the student African American and 50% white. The light lines represent the individual growth for each of the three schools. Additional information on the study may be found at www.thinkingfoundation.org.



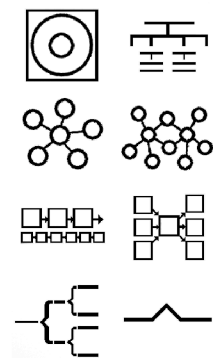
Thinking Maps a Bridge to Success

A student from Edwards Junior High explained how Thinking Maps scaffolded her learning by translating abstract thinking processes and mathematical processes into explicit and tangible visual representations:

“Thinking Maps help me in math class by explaining something complex or abstract in a simple way. They allow you to see where you have made your mistake and how TO SHOW your math in words that make sense. I wish someone had taught me math this way before. Now, I can understand exactly what we’re doing in class.”

“The more we use Thinking Maps, the more I understand, and the easier the work becomes to do.”

Student, Edwards Junior High School



Thinking Maps:

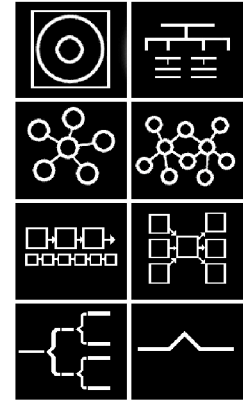
A Language for Leading and Learning

"Thinking Maps help us to harness ideas and put them together in powerful ways." "It's the difference between seeing a pyramid and knowing how to build it."
Teacher

The ability of people to make meaning together, visualize the unknown, and formulate effective action is vital to the success of any organization. In today's school environment, where change is not an event but an ever present reality, it is imperative that people develop the individual and collective capacity to process information, transform it into new understandings, and shape their futures.

"The language our school community decided to adopt as part of our foundation for learning was Thinking Maps...Not unlike our students, we also learn by patterning information and linking ideas...Clearly, Thinking Maps were facilitating this rich communication among us by creating a safe, noncombative way to build meaning together."

from Larry Alper's chapter in Student Successes with Thinking Maps



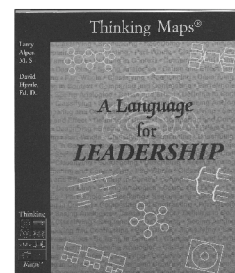
Examining Our Practices

David Hawkins (1973) describes the importance of having, " ... some, third thing ... in which they can join in outward projection" to move people beyond self-consciousness and the conventions of their thinking. This third thing can open the space for possibilities to exist and be jointly constructed. Thinking maps become the third corner of Hawkins' "I-Thou-It" triangle and provide us with the "common engrossment for discussion." The use of thinking maps promotes curiosity, thinking in action, and collaboration. They give us the confidence to embrace complexity and deepen our appreciation for each other's ideas and experiences.

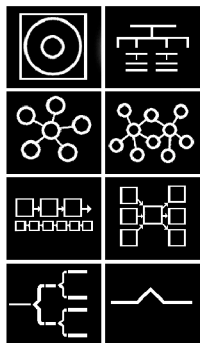
read more excerpts from Student Successes with Thinking Maps at www.thinkingfoundation.org

Seeing Openings and Opportunities

School communities are living organisms and exhibit the full range of emotions of the people within them. Stress is not only specific to the individuals within the community but can, in its many manifestations, begin to characterize the entire environment....we saw Thinking Maps as an ideal tool for helping us address this challenge...having Thinking Maps as a tool to conduct these difficult conversations was reassuring and empowering to people...Thinking Maps help us to have conversations that truly make a difference in how we think and in what we are able to do with our ideas.



Training Guide to A Language for Leadership.



Thinking Maps® , Inc.

Thinking Maps® . . . Building a common language for learning through visual tools to achieve lifelong student success!

Thinking Maps, Inc. is an educational consulting and publishing company specializing in providing professional staff development for K-12 schools across the country. Our primary focus is the implementation, on a school-wide and district-wide basis, of Thinking Maps®, a common visual language for learning within and across disciplines.

History of Thinking Maps, Inc.

Innovative Sciences, Inc. (ISI) was founded in 1970. In 1994, a special division of ISI called the Innovative Learning Group was established to further research, development, and implementation of Thinking Maps® as tools for learning.

1960 New York Times publishes Bellevue-Wechsler IQ test results showing that the Upton Method (using Creative Analysis) changed the "intelligence" of the 210 students in his class by an average of 10 points using the "Upton-Samson" model.

1970 Innovative Sciences, Inc. (ISI) is founded in Stamford, Connecticut by Charles Adams based on funding by Prudential Insurance, the identified need to improve the thinking and problem-solving abilities of the work force, and research findings by Albert Upton.

1972 With leadership from Mike Gilrod, ISI creates the THINK! reading program and INTUITIVE MATH for schools K-12. These comprehensive materials are based on Upton and Guilford's "Structure of Intellect" as content-based thinking skills programs.

1975 900 school systems have introduced ISI thinking skills programs into their schools. Reading score gains are verified in Detroit, Michigan, Cleveland, Ohio, Tacoma, Washington, and many other sites around the country.

1982 ISI revises materials and creates the Strategic Reasoning program for regular classroom applications. Dr. Antoinette Worsham publishes dissertation results in ASCD's Educational Leadership showing significant changes in student performance.

1983 Dr. Arthur Whimbey's texts, *Analytical Reading and Reasoning* (1983) and *Mastering Reading Through Reasoning* (1985) are first published by ISI and show significant changes in students' cross-discipline reading comprehension performance.

1988 Using the Upton Model as a guide the Thinking Maps® are created by David Hyerle during the writing of *Expand Your Thinking*. This first resource for teaching using Thinking Maps® is published by ISI and training using Thinking Maps® begins.

1990 Designs for Thinking Connectively manual is produced by David Hyerle as a theoretical and practical revision of the Upton-Samson Model using Thinking Maps®. *Expand Your Thinking* article is published by ASCD in *Developing Minds*.

ISI is acquired by new owners, including the new president, Sherwin Suddreth, and is moved to Cary, North Carolina. The company focuses efforts on professional development with whole schools using Thinking Maps® as learning tools.

1992 Thinking Maps® resource materials (*Draw Your Thinking*, *Show Your Thinking*, and *Map Your Thinking*) are developed for every elementary grade level. Thinking Maps® pilot sites are established in North Carolina, New York City, Texas, and Mississippi, in grades K-12.

1994 Test results show that Thinking Maps® significantly affect standardized and qualitative measures of student performance. David Hyerle publishes dissertation on Thinking Maps®. The Innovative Learning Group is formed as a division of ISI.

1995 Thinking Maps®: Tools for Learning guide is published as a synthesis of key resources for using Thinking Maps®. Implementation continues in over 300 whole schools from 12 states. Thinking Maps® software is developed and piloted in schools.

1996 *Visual Tools for Constructing Knowledge* by David Hyerle is published by ASCD.

1998 *Write... from the Beginning*, a writing program by Jane Buckner based on Thinking Maps®, is published. Initially a K-3 writing program, it is later expanded to K-5.

2004 Research on Thinking Maps is published by Corwin Press — *Student Successes with Thinking Maps®*.

2006 Thinking Maps®: A Language for Leadership Training Guide is published for whole schools. Thinking Maps® Software: Technology for Learning 2.0 is released.

Present Over 5,000 whole schools from across the United States have received in-depth training and follow-up using Thinking Maps®. Internationally, Thinking Maps® are now being used in England, New Zealand, and Singapore.

www.thinkingmaps.com

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