

# A First Language for Thinking in a Multilingual School

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## KEY CONCEPTS

- Results from an inner-city school with students learning a second language while differentiating instruction with a common language
- Moving expectations to a higher level across a low-performing school
- Changing school climate and culture toward higher-order thinking and literacy development

## BREAKING THE RULES FOR CHANGE

“But I already use graphic organizers in my class,” was the cry from my staff. As a first-year principal, I was breaking the most basic rule in the book for new administrators. I was immediately changing the mind-set of the culture—the way we do things around here—and I was making all these changes rapidly. A dynamic set of tools for activating the mind and directly influencing performance, Thinking Maps® were included in these changes. This was not an easy thing to do. Many of the teachers in this urban, inner-city, K–5 school of 1,200 minority students (85% of whom were entering with Spanish as their primary language) thought they were already getting the best out of their students. As the newcomer to the school, I had expectations that students should be achieving at higher levels than current test results indicated.

My high expectations are rooted in an understanding of what many of us who have attempted to learn a second language know: Learning content while learning a second language is a complex process. It is frustrating for a child to have ideas, vocabulary, and rich patterns of thinking in one language that are not immediately translated and understood by

teachers in the context of the classroom. This is because the acquisition of a second language obviously gets in the way of students' thinking and learning. 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 multilingual population.

My experiences from seeing the maps in use in other schools in Long Beach Unified School District made me believe that our students would learn the maps, and the result of all this would be higher academic achievement. This did happen. The numbers are in from the standardized tests given in California. The state has a very complicated formula to determine expected growth. Roosevelt Elementary School was expected to gain 11 points overall. We exceeded that goal with a 60-point gain. 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. In addition, with the implementation of the No Child Left Behind legislation, the expectation has been that 13.6% of the students in our school should meet the standards in language arts (including reading, vocabulary, spelling, grammar, and punctuation) and that 16% should meet the standards in math (including basic math facts and word problems). If a school does not meet the expectations, then it is identified as a program-improvement school and must take a number of corrective actions. As of this writing, and with two of our four tracks' test results in (including tracks with literacy classes for retainees and for students who entered school in fourth and fifth grade with no English skills), the results demonstrate that we are clearly not in program improvement.

Ironically, my intent as the instructional leader of Roosevelt Elementary School was initially isolated on these tools for a direct and immediate impact on student performance. What I did not realize and could not foresee were the deeper effects on the development of teachers across our year-round, multitrack school as a result of the use of Thinking Maps in their classrooms. I discovered that from an administrator's point of view, Thinking Maps did much more than what I had understood from both practical and theoretical points of view. First, there are changes in how teachers learn and teach and evaluate student work, especially with differentiated processes for our second-language learners. Second, there have been shifts in the culture and climate of our school, most obviously in the quality of professional conversations that now rise to the surface (see Chapter 17, "Mentoring Mathematics Teaching and Learning"). Third, there is a new level of access and discourse in the areas of teacher evaluation and accountability, which has led to a higher quality of teacher decision making. All of these changes—often referenced as keys to school change—will continue to have a long-term positive outcome on the academic achievement of the students at my school beyond the direct application of these tools by students to academic tasks and tests.

It is important for me to restate that I brought Thinking Maps into this school not for the purpose of bringing about change in these three areas but for an immediate shift of student performance that could cascade over time. Below are my discoveries about the interdependent ripple effects that I found in these other areas of teacher learning (including higher-order thinking for English-language learners), school culture, and accountability.

## TEACHER LEARNING

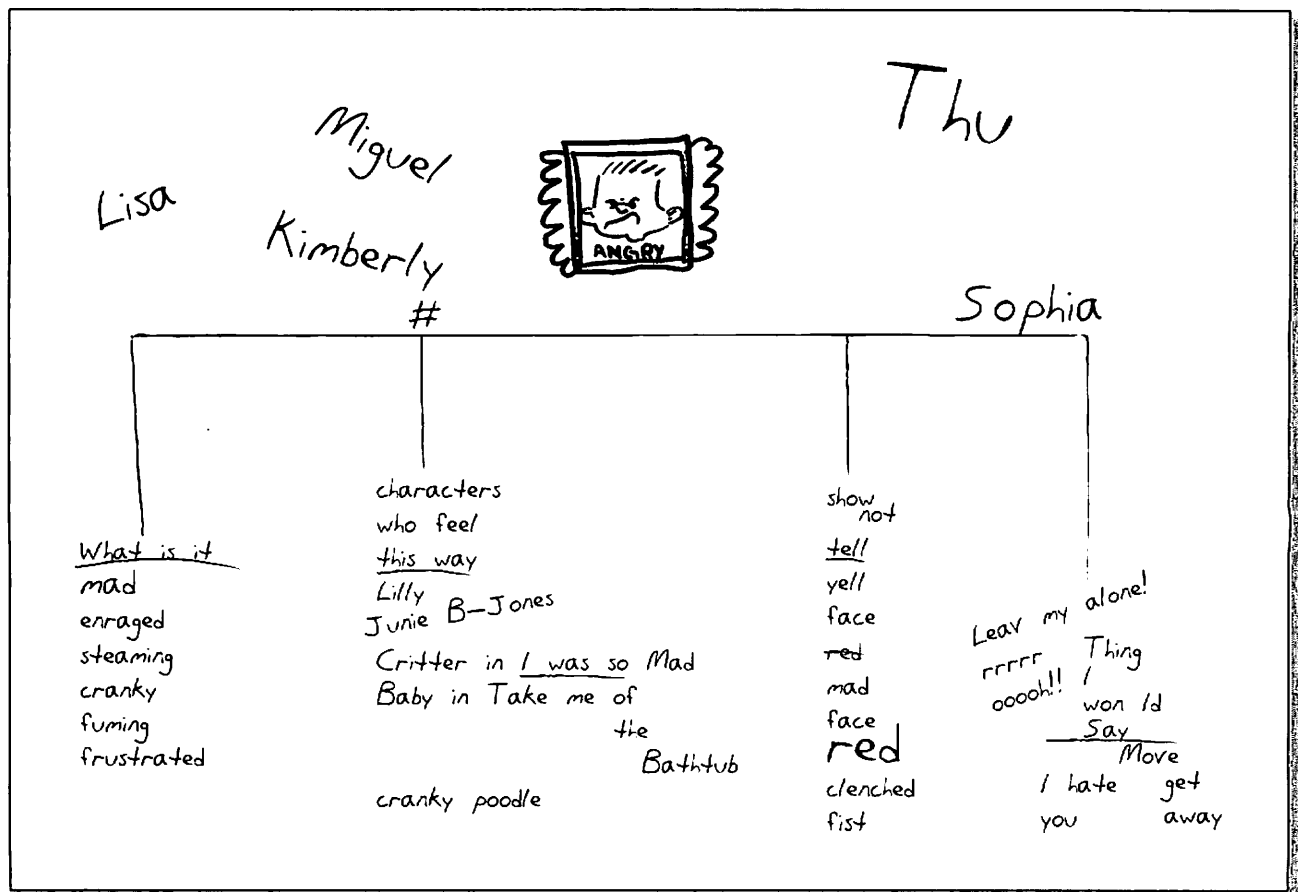
The work of teaching is not only difficult, but it is also fast paced. It is the exceptional teacher who is self-reflective and aware of metacognitive processes (see Chapter 16, "Inviting Explicit Thinking"). Too often teachers are so focused on working with students that they rarely turn inward to notice what and *how* they are thinking. Yet I believe our students should be learning to do what we adults do as we internally process our experiences. Our internal dialogue and thinking are often hidden away, as are our emotional states, but teachers need to let students

know what is happening in their heads; this can't happen if teachers are not aware of what they are doing. Once my teachers began learning Thinking Maps, they suddenly realized the types of thinking that were flowing through their minds and how the maps can show the students their adult thinking strategies and processes.

When my teachers became aware of their own thinking processes and how the Thinking Maps can communicate these to their students, they were so surprised that they had to check with someone to see if "they were doing it right." One very experienced teacher had an insight during a lesson about "the city and the country" in her first-grade class of English-language learners and came to me to check in. Lots of conversation had happened during her lesson, but at the end of the lesson, she realized that she could have organized this information into a Tree Map.

An example of this is the Tree Map created by a cooperative group about an emotion that surfaced during the reading of a Junie B. Jones book (see Figure 11.1). These five students were able to use the map to organize their thinking about anger: what it is, references to characters in other books who show anger (text-to-text connections), what it looks like, and, then, things that one would say when angry. "Mr. Angry" is at the top of the tree. By visually modeling a process for thinking through ideas, and even working through the content of emotions, a teacher can let her students know how she had organized this information in her head. The students see thinking evolve and then use the tools independently and in cooperative groups. Language and cognitive development then go hand in hand.

Figure 11.1 "Angry" Tree Map for Writing



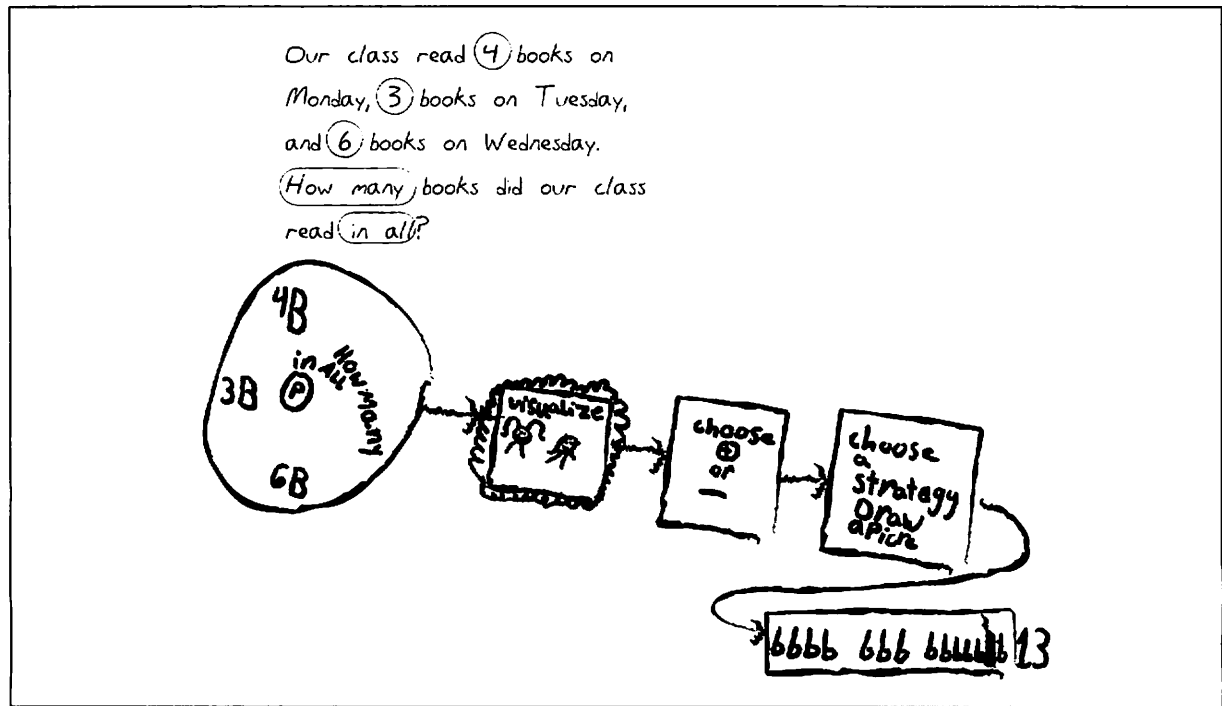
## TEACHERS TEACHING AT A HIGHER ORDER

The capacity for students to be able to apply higher-order thinking skills is referenced everywhere as an ultimate goal of school outcomes in content standards, in textbooks, and on standardized tests. Most teachers are aware of a hierarchy of skills as referenced in Bloom's (1956) Taxonomy of Educational Objectives. For example, they know that synthesis-level questions are more complex than knowledge, or fact-based, questions. However, many teachers are not as cognizant of the kinds of thinking associated with higher-level thinking skills. For many, learning the Thinking Maps was the first time teachers actually had a clear understanding of specific types of thinking skills, how the skills interrelated and transferred across disciplines, and, most important, how the skills worked together to engage and sustain higher-order thinking on a day-to-day basis in classroom settings.

After the training, the positive energy from the teachers from this new understanding and related tools immediately transferred itself to the students in their classrooms. This is because these teachers realized that the focus was on immediate use and translation for students. When I walk into classes and I want to know what kinds of thinking the students are learning about and how they are applying these foundational skills to content learning, my teachers can now identify this because they know Thinking Maps. They can also tell what kind of thinking the students are expected to use. Importantly, Thinking Maps were used to promote critical thinking skills even for students who were still acquiring English.

All students in Grades 1–5 were tested on a standardized test in reading and math, and students in Grades 2–5 were also tested on the California standards test. Much of the math section includes reading. The teachers taught students to analyze the type of math question they needed to solve—for example, comparison, whole to part/part to whole, relationships, patterns, and so on—and the map associated with each. Once the students understood the five kinds of “story problems,” they were able to tease out the critical attributes of these and apply them to the test. For example, in response to the word problem shown in Figure 11.2,

**Figure 11.2** Math Problem-Solving Flow Map



one first-grade student selected the key information from the problem using a Circle Map and then used the Flow Map to show the steps and the strategies involved in solving the problem based on the information in the initial Circle Map. The change in students' ability to do these problems made a significant difference between last year's and this year's school scores.

Each year in our district, students are also required to take a writing test that is scored on a holistic scoring rubric. The task is response to literature, which parallels one of the state's required tasks. Although primarily a reading task, students must read a passage and then respond to a prompt. In Grade 1 at my school, students had to read a story and then demonstrate their understanding of the text by using a Thinking Map to demonstrate the sequence of the story and then show how the characters changed over time. Most students used a Flow Map and then a Bubble Map as their response to the task. This type of task gave us insight into the students' comprehension both at a knowledge level (the sequence) and at deeper levels (how the character changed over time), without burdening them with having to write a complex essay.

This was especially helpful for teachers in analyzing the understanding of the English-language learners. The use of the Thinking Maps for this task also enabled the students to read more critically on the standardized test. Kristin Tucker, a first-grade teacher, reflected that "the Thinking Maps took the English-language learner to the highest level of thinking . . . in a very simple way. I didn't have to explain in words what I was doing; instead I just exposed the students to the maps, and the students just 'got' them very easily. It was so easy that students quickly learned to combine maps by themselves." This facilitated student learning of content, and the explicit transfer of thinking skills by students also provided her with additional time to teach!

Other teachers commented on how they noticed that the type of thinking used in one curriculum could be used in another. Because the teachers were able to make these connections, they were able to help students make the same connections. The results were that students were able to more quickly learn the content once they understood the underlying types of thinking they needed. Instead of teaching specialized skills and strategies particular to one content area, teachers began to generalize these deeply within and across disciplines.

## **DIFFERENTIATION OF INSTRUCTION AND ENGLISH AS A SECOND LANGUAGE**

Over 85% of the students who enter kindergarten in our school speak Spanish as their primary language. By law, we are required to differentiate the instructional practices based on the level of English-language proficiency of students. Theoretically, differentiation seems so simple: Teach differently to different students based on their individual needs. Easier said than done. However, one of the differences that Thinking Maps has made at my school is that teachers teach the same content to various groups in their classroom, but they have begun to provide alternative means for students to access the content and show what they know. For example, some teachers expect students to use the Thinking Maps as processes to a final product, while others expect students to use the tools as a final product to demonstrate their thinking and comprehension of the content.

In one of the third-grade classes, the students were expected to understand the similarities and differences between two planets. All students were required to complete a Double Bubble Map comparing and contrasting the two planets, which was the stated outcome of the lesson. However, to differentiate the lesson, students who were fluent in English were also expected to write a report that contained this information. Students less fluent in English needed only to create the Double Bubble Map. The teacher was able to evaluate the factual and conceptual

learning by every student using either strategy (the map alone or the map and writing). With fluent English speakers, she was also able to evaluate their ability to communicate their learning in writing, something she already knew the less fluent English speakers would not yet be able to do. Of course, it is also essential to have the students who are not fluent in English begin to write from the Thinking Maps, as this provides the bridge from their primary language to the mainstream spoken and written form. As a first language for thinking, the maps became vocabulary builders, visible organizers, and starting points for writing in a second language.

The important point here is that the teachers are able to assess content learning and use student maps as data points to see whether or not language is getting in the way of understanding or if there are content misconceptions that need reteaching. It is often difficult to determine how much limited English-proficient students understand of what is taught. If a teacher wants to know what a second-language learner has learned, does the teacher ask the student to use the second language if the student does not have verbal or written fluency? If assignments ask them to write what they know, these students often drown in the English language. They have to figure out the vocabulary, the syntax, the spelling, and the punctuation of English and at the same time remember the content they have learned. The results are that teachers often evaluate the students' English skills and sentence construction and not their content knowledge or their reasoning. However, when teachers ask students to use Thinking Maps to demonstrate what they know, the students do not have to focus on English and can use their mental energies to communicate what they know about the content. They do not even have to use words to convey this information. In most cases, Thinking Maps lend themselves to visuals (e.g., drawings or pictures from magazines) to communicate the content.

## EVALUATION OF STUDENT WORK

One of the key components of the changes I focused on in my first year as principal was to insist that teachers be able to evaluate the degree to which students learned what was taught. In some cases, such as in mathematics, which has its own universal symbol system, this was easy to do with a pre- and posttest. We did not wait until the results of the state's standardized tests to determine if students achieved growth. Thinking Maps became a powerful strategy that teachers used to evaluate student learning. The results provided teachers with information that was used to monitor student growth and to adjust teaching.

Teachers used Thinking Maps in various ways to determine the quantity and quality of what students learned. Some used Circle Maps as pre- and posttests to determine what they learned. Other teachers gave students an assignment that required them to demonstrate their thinking. For example, one first-grade teacher asked students to retell a story. She was able to evaluate the students' comprehension based on the Flow Maps they created. A third-grade teacher asked students to determine the causes and effects of pollution on the ocean. It was quite evident who "got it" and who didn't. The teacher was able to quickly reteach those who needed it. In all these cases, our English-language learners were able to participate fully in the core curriculum.

## CLIMATE AND CULTURE CHANGES

During this initial phase of training, I was impressed by the rapid, contagious nature of the spreading of these tools. The Thinking Maps kept "bobbing up" into other classrooms, even though not all teachers got trained immediately. It appeared that teachers were sharing ideas in the lounge, during grade-level meetings, or wherever they met. Teachers actually met on their own time to talk about professional concepts.

I realized that one of the unplanned benefits was that because Thinking Maps were so easy to implement, they could easily become the topic of professional talk. This occurred not only between pairs of teachers but between teachers who rarely had occasion to share ideas, such as a kindergarten teacher and a third-grade teacher. Suddenly, teachers had a first language for thinking in which to talk about student learning, one that was not dependent on grade level or content area.

Another change that occurred was that the teachers realized that the culture of the school was going to be one in which lifelong learning was not reserved just for students. The expectation was that teachers should be learning new strategies that help accelerate student achievement and that “doing things as we’ve always done them” was no longer acceptable. The difference between learning the maps and participating in other staff development was that these tools emulated adult thinking and strategies. These were then shared with students. Thus, the strategies were authentic. Rather than teachers learning a “canned program” that did not reflect what they as adults did and did not give them what their students needed, teachers were learning lifelong strategies for themselves and then teaching them to their students. As teachers began to experiment with the Thinking Maps in their own lives—such as making Tree Map shopping lists—they developed into the learning community that I was trying to foster at my school but never expected to get from these tools.

Another benefit I was surprised and pleased to see was that new teachers could participate in the discussions about high-quality tools as equals. The visual language and common vocabulary were not a mysteriously complex formula that created a wall between veteran teachers who had internalized a thoroughly unique and idiosyncratic teaching style and the new teachers and instructional aides who were just learning the ropes. With a common language, veteran teachers could model expert applications along a continuum—one rope—that novice teachers could easily grab onto and make their own (see Chapter 17).

## **TEACHER EVALUATION AND ACCOUNTABILITY**

Not only can teachers use Thinking Maps to determine the depth of learning of their students, but this language also creates an easy opportunity for an administrator to determine teachers’ depth of learning and implementation of Thinking Maps. This is because these tools are visual and become a running record of application, and because the ultimate end user is the student, not the teacher. Often teachers go to staff development workshops and come back excited about what they have learned. However, it is difficult to determine the quality and consistency of the applications over the short and long term.

A quick walk through a classroom looking for evidence of the Thinking Maps and talking with students gave me a good feel for how well, in what context, and at what level of thinking the maps were being used. However, the evidence became much more clear as I looked at student work, especially in writing.

As a school, we analyze student writing once a month. Teachers from the same grade level get together, score student work against a district-created rubric, and then analyze the work as to what the students do well and what still needs to be taught. Teachers who taught Thinking Maps to students as aids in writing found that the quality of student writing improved (see Chapter 7, “Empowering Students From Thinking to Writing”). These results were similar for students in kindergarten and in Grade 3. Teachers used these data to make professional decisions as to how to adjust their teaching to better meet the needs of their students. This was done without any intervention or pressure on my part. Teachers made these types of professional decisions based on the results from the student work—the holistic thinking translated into linear writing—from their class.

## IMPLICATIONS FOR IMPLEMENTATION

The implementation of Thinking Maps at my school has brought changes that affect not only student performance as shown in the results presented above but also the quality of instruction and the culture of the school. I know that over time, I will continue to have the same high-level results as other schools in terms of academic performance for my students. I also know that the changes I see as Thinking Maps become a regular part of the instructional program will also become more deeply embedded in the culture of the school.

There are several dramatic changes I put forward during my first year as a principal that I regret. The implementation of Thinking Maps was not one of them. I asked my staff what they thought accounted for the growth in student achievement. Obviously, I wanted to make sure that we repeated these successful strategies. Every member of my staff responded that it was the implementation of Thinking Maps that made a significant difference in student outcomes. When we analyzed exactly how teachers used the maps, we found two patterns throughout the school. First, Thinking Maps were used across the curriculum in all grade levels including kindergarten. Second, Thinking Maps were used to promote critical thinking skills even for students who were still acquiring English.

Heather Krstich (who taught the third-grade combination literacy class with all the third-grade retainees and fourth-grade very limited English-language learners) suggested that the reason the Thinking Maps helped was that they gave the students a cohesive feeling across all the curricula. "The students did not feel [that the curriculum] was so segmented. They were able to focus on their thinking instead of on individual activities in each of the curricula. Thinking Maps gave the students a systematic approach to thinking that they can use over the years." She added that the English-language learners in her classroom had a cohesive strategy built on the language of the maps. "The maps have such a consistent language that students were able to concentrate on their thinking rather than what they were doing."

With this experience of implementing Thinking Maps, I also now have a standard by which I can compare other professional development trainings and other changes I plan to promote at Roosevelt Elementary School. This standard includes implementing changes that successfully affect student academic outcomes, teacher learning, reflection, accountability, and the school climate as effectively as this common language for learning, teaching, and assessing.

We now have this new standard in our school—including for our students—because we have a first language for thinking, whether it be in a first or second language for speaking and writing. This language will help us to think and act on complex problems—such as how to transform and continually grow in an inner-city environment—with the confidence that we will be able to see more clearly each other's thinking.

## REFERENCE

Bloom, B. S. (Ed.) (with Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R.). (1956). *Taxonomy of educational objectives: Handbook: Cognitive domain*. New York: David McKay.