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Inviting Explicit Thinking

Sarah Curtis, M.Ed.

KEY CONCEPTS

- Facilitating reflective practice by teachers through a Training of Trainers model
- Using student-centered work to heighten teachers' understandings of teaching, learning, and assessment
- Flexibility with Thinking Maps® for planning and in-the-moment teaching

RESPONSIBLE AND RESPONSIVE PROFESSIONAL DEVELOPMENT

Reacting to the urgency to improve student performance, schools have implemented program upon program and offered workshop after workshop with few opportunities and insufficient time for teachers to deeply learn, integrate, or reflect upon these approaches. Educators of the early 21st century face a daunting challenge in trying to meet the needs of all students, of all languages, ethnicities, abilities, and socioeconomic backgrounds, while being held to new standards of achievement. An increase in accountability and a leveling of support leave many educators feeling overwhelmed, undirected, and unprepared. Michael Fullan, a researcher of change processes, states that "the greatest problem faced by school districts and schools is not resistance to innovation, *but the fragmentation, overload and incoherence resulting from the uncritical acceptance of too many different innovations*" (Sparks, 1997).

As a teacher, I felt burdened and exhausted because everywhere I turned it seemed like I had to teach one more unit of content, administer another test, or address the state standards. Buried under district initiatives, school memos, the new math program, and a recently adopted curriculum, I could barely see through to the real purpose for all these improvements: student achievement. After spending weeks wading through a topic-driven curriculum and figuratively traveling the globe and spanning centuries of time to reteach myself Renaissance history, the ancient cultures of Meso-America, and the principles of force and motion, I wondered, how could I integrate these isolated topics, and how would my students be able to jump from stone to stone constructing a pathway of understanding?

My unsettling experience with fragmentation was transformed as I began to apply Thinking Maps as learning and thinking tools for myself and for my students. While constructing a whole from the pieces, it became apparent to me that educators need tools and processes to meaningfully translate these initiatives into practice and to support and engage teacher thinking through the implementation process. As a result of my experiences with Thinking Maps, engaging educators in reflective thinking about teaching and learning through the use of this language became the focus of my professional inquiry and practice.

With the goal to improve teaching for student improvement, educators are now seeing that there must be a systemic plan in place for school improvement. Schools need to engage in professional development that really develops the professional so that teachers, just as students, have time to reflect on their own learning processes. Donald Schön (1983), a leading author on reflective practice, describes expert practice as "an artful inquiry into situations of uncertainty." Reflective practitioners ask themselves, "What am I doing and why? What worked and what didn't and why?" Providing occasions for teachers "to reflect critically on their practice and to fashion new knowledge and beliefs about content, pedagogy, and learners" is a key component of a new vision for staff development (Sparks, 1997). In its standards, the National Staff Development Council recommends "organizing adults into learning communities," "guiding continuous instructional improvement," and emphasizing collaboration with colleagues to engage the entire school culture in reflections about teaching and learning. Defining the broad goals of professional development is one component of this new vision, but we also need to identify best models, not merely a laundry list of best practices, that will explicitly integrate theory, practice, and reflection and directly impact student learning.

THINKING MAPS: A MODEL FOR REFLECTIVE PRACTICE

As my teaching progressed in the early 1990s, my school in Lebanon, New Hampshire, as a whole faculty began to implement Thinking Maps as tools for learning, planning, and instruction. Our principal was very interested in the facilitation of metacognition over the long term, not just for students, but also for teachers and administrators. As the first year of using these tools progressed, I began to see student discourse and meaning making reflected in the types of thinking inherent in the Thinking Maps. These tools also helped me reflect on the content in a holistic and connected way and design units of study focusing on threading concepts rather than streaming content. Simultaneously, I gained insights into student learning and my own instruction. Students who previously had trouble learning new and difficult content now had a means of connecting new information, processes, and interactions with prior knowledge. They were very capable of thinking deeply about the subject matter but needed an explicit way to examine it and express their thinking. I realized that instead of modifying the content, I needed to fortify their tools for learning.

The students were not alone in their growth. When I used Thinking Maps in planning and instruction, my own patterns of thinking improved. The avalanche of curriculum, assessments, district programs, and school memos that buried me in September now seemed more manageable. I could understand and articulate concepts more coherently, synthesize the fragmented curriculum, and feel confident about my ability to help students be successful learners. My professional and personal experiences applying Thinking Maps fueled my curiosity to see what happened in other classrooms and, more specifically, what happens in the minds of teachers as they use Thinking Maps with their students. How do Thinking Maps, tools that facilitate both continuous cognitive development and explicit visual representations of metacognition, promote teacher reflection?

After leaving the classroom to begin providing in-depth Thinking Maps professional development training and follow-up, I wanted to examine these issues in depth. My teaching

experiences were exclusively in rural settings in New England, so I also became interested in how this model would work in inner-city classrooms with teachers who worked with diverse populations, in low socioeconomic neighborhoods, and in schools with historically low achievement. I conducted action research as part of a master's project during the 2000–2001 school year, working with two groups of 15 educators: one group from the Syracuse City School District in Syracuse, New York, and another in Community School District 27 in Queens, New York.

What I found mirrored my experiences; not only did the Thinking Maps improve teaching and student performance, but the model itself deepened teachers' reflection on their own teaching and instruction and produced richer reflections about their students' thinking. For one fifth-grade teacher of particularly challenging students in Syracuse, Thinking Maps were tools that linked together student and teacher success: "I was teaching a lesson in social studies, and I must have asked a question every conceivable way I could think of. Nobody participated. So I drew a Multi-Flow Map on the board and got where I wanted to go! Thinking Maps not only seized the teachable moment; they *created* the teachable moment." Ultimately, I came to see that these deeper levels of reflection and performance changes developed because the Thinking Maps invite explicit thinking and thus reflection, bringing a clarity that inspires confidence and competence.
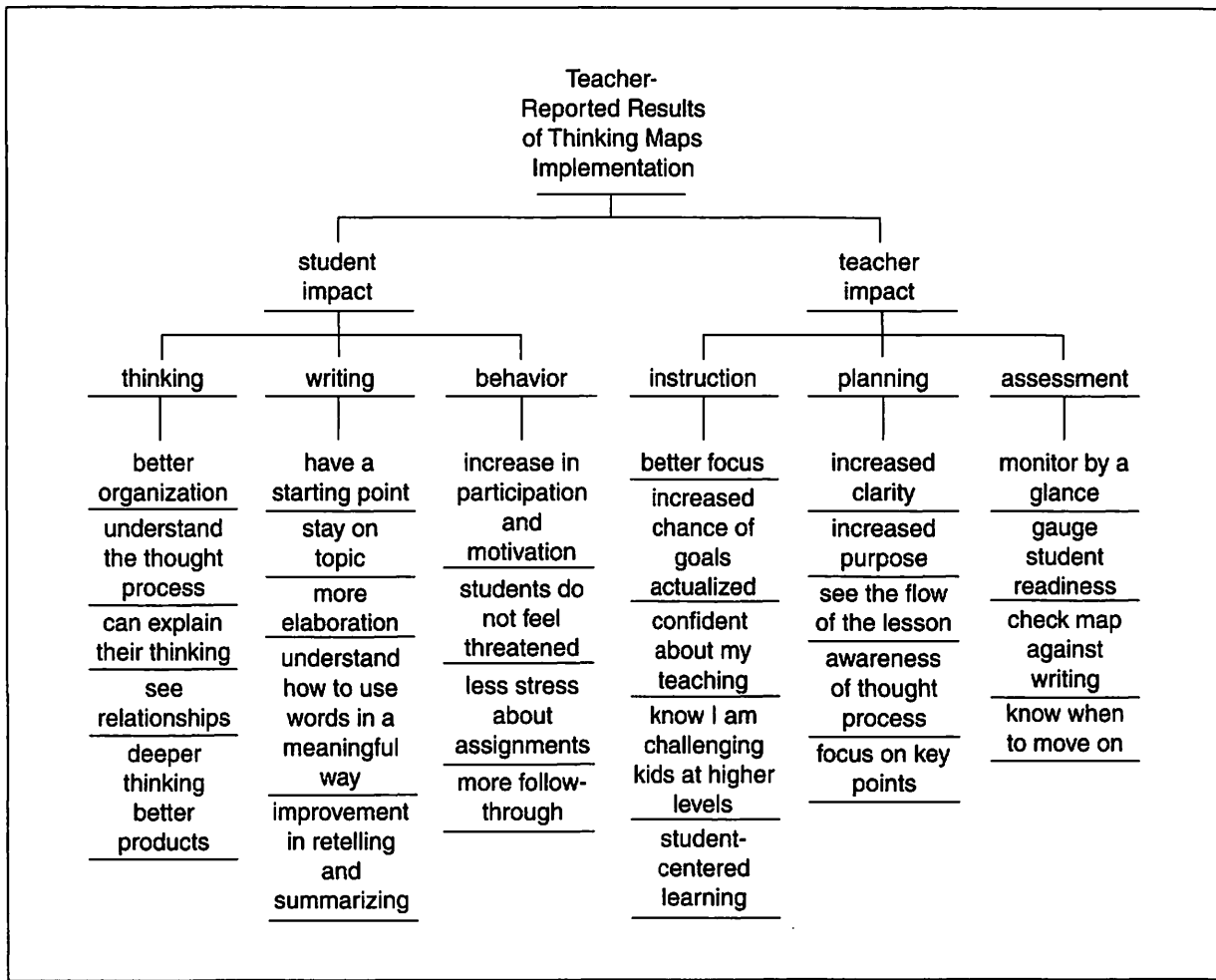
RESULTS OF TEACHER-REPORTED REFLECTIONS

My study focused on those teachers who participated in the Thinking Maps Training of Trainers professional development sessions. Although I was primarily interested in how teachers created Thinking Maps for the purpose of engaging in reflection about learning and instruction aside from their daily classroom interactions with students, I also found that teachers used students' Thinking Maps examples and teacher-generated Thinking Maps lesson plans as visual references that generated reflection about student learning, instruction, and planning. Teacher-reported data revealed positive changes in both student behavior and performance and teacher curriculum and instruction as a result of Thinking Maps implementation.

Figure 16.1 shows the categories of what teachers most frequently identified as having improved as a result of Thinking Maps implementation. Data collected about student performance focused on themes regarding improvement in students' thinking, particularly relating to task persistence and organization in writing; improvement in student behaviors including attention, motivation, and participation; and an increase in student-directed learning. Teachers reported greater clarity in instruction, increased awareness of purpose in lessons, and a greater degree of effectiveness in teaching. These student and teacher findings, separately and collectively, demonstrated how all learners in the classroom used the same set of tools, Thinking Maps, to visually represent their thinking, which led to a greater level of understanding and efficacy.

The qualitative findings offer valuable information about the climate and creation of classroom environments in which teachers design and present clear and meaningful instruction and students can understand, attend to, and participate in learning tasks in challenging urban settings. It was through teacher reflection about Thinking Maps experiences that these urban educators gained insight into student learning, teacher instruction, and curriculum planning.

REFLECTIONS ON STUDENT LEARNING AND BEHAVIOR

Being able to see their own and others' thinking afforded students and teachers new understandings about themselves and each other as learners. Having a visual representation

Figure 16.1   Teacher Reflection Results Tree Map

Teacher-
Reported Results
of Thinking Maps
Implementation

student impact			teacher impact		
thinking	writing	behavior	instruction	planning	assessment
better organization	have a starting point	increase in participation and motivation	better focus	increased clarity	monitor by a glance
understand the thought process	stay on topic	students do not feel threatened	increased chance of goals actualized	increased purpose	gauge student readiness
can explain their thinking	more elaboration	less stress about assignments	confident about my teaching	see the flow of the lesson	check map against writing
see relationships	understand how to use words in a meaningful way	more follow-through	know I am challenging kids at higher levels	awareness of thought process	know when to move on
deeper thinking	improvement in retelling and summarizing		student-centered learning	focus on key points	
better products					

system for knowledge created confidence and competence for the learner (see Chapter 5, "Closing the Gap by Connecting Culture, Language, and Cognition"), whether that person was a student or a teacher. A third-grade teacher from Syracuse shared a story involving a child who frequently misbehaved in class, didn't finish his assignments, and totally avoided writing. He loved Tuesdays because the school counselor visited with him during the writing period on that day. Every Tuesday, the child glanced at the door, eagerly anticipating the counselor's arrival and his free ticket out of the writing assignment. However, one particular Tuesday, following a Thinking Maps training session, his teacher used a Circle and Flow Map to explain the assignment to the class and to demonstrate how to organize ideas on the way to a piece of writing. Focusing intently on the lesson and adding his ideas to the class map, the boy hadn't noticed the counselor entering the room. The student explained that he was busy working on something and couldn't leave right then.

Observing the student's level of engagement encouraged the teacher to examine why this lesson was effective and what caused inattention with this student and others in the classroom. The teacher thought the lesson was successful because using the maps in her lesson gave students a cognitive and visual cue to follow the process of writing. As the teacher used the Flow Map to organize and sequence the ideas in the story, her verbal explanations of processes were

supported by the visual representation of the map, thus making the thinking processes explicit to the students. Students could follow not only the steps but also the mental dynamics of idea formation. Teacher clarity and a concrete model of the abstract thinking processes invited this student's participation and understanding.

What does an improvement in motivation and the level of engagement tell us about learning? One Training of Trainers cohort group noted how often negative behavior is a defense mechanism for confusion or fear, or the result of frustration with traditional models of instruction and production of work. Perhaps, group members posited, this student wanted to participate in writing but couldn't organize his ideas or sequence his thoughts. These improvements in behavior might indicate that students have the ability but not the means to represent ideas clearly and proceed to writing.

During one training session, in the middle of a discussion of the success stories about students with behavioral issues and attention problems, one participant exclaimed, "Thinking Maps can replace Ritalin!" (see Chapter 3, "Leveling the Playing Field for All Students"). After the initial laughter died down, the teachers began to seriously explore the plausibility of this exclamation. One teacher stated that Thinking Maps would be a viable alternative therapy:

> Thinking Maps work for these kids because they are consistent when nothing else in their life is. They go home to a place without rules, responsibility, and consequences. Their home life is chaotic. No routine, no schedule. Sometimes Mom is home, sometimes not. No one is looking out for them. They can do whatever they want, whenever they want. Although they might like the freedom, they don't have a sense of order or control. They come to school wanting that power and sense of control. The consistency of Thinking Maps can give them a sense of ownership. "I can do this. I know how to do this." They feel like they are good at something.

In her reflections, this teacher considered from within her own cultural experiences and assumptions aspects of how the familial and socioeconomic context of the students might surface within this learning community: consistency, control, and ownership. She was sensitive to the underlying emotional currents in the classroom and understood how Thinking Maps could alleviate the tension. As she examined the effectiveness of Thinking Maps, she identified permeating, perhaps universal, needs.

Other teachers remarked how Thinking Maps had supported the emotional as well as the cognitive development of students by appealing to students' sense of safety. "They [students] feel comfortable, not confined to a certain number of responses . . . add to them as lessons progress . . . and use them on their own as well as in a group." Another teacher noted, "If I reflect for a minute, I think it [using the Thinking Maps] has widened our horizons because kids are empowered over their learning. They are more willing to take risks because with a map nothing is wrong. You can show your thinking how you want. It doesn't have to be the same as the next person's."

Listening to these observations, there was a common recognition that one's knowledge and its expression don't necessarily coexist. Just because students knew information didn't mean they would share it. In the complex climate of preadolescent, urban classrooms—where the culture of the students does not necessarily match the cultural background of the teacher—the expression of knowledge by students may be double-edged, as their ideas are subject to outside expectations and scrutiny. The Thinking Maps, a flexible, consistent, common visual language, supporting both the process and the product of thinking, were understood by these teachers as a safe venue for students to show what they know (see Chapter 5).

TEACHER INSTRUCTION AND PLANNING

Although a considerable amount of teacher-reported data focused on student learning, teachers discussed some of the same ideas of competency and confidence surrounding their own instruction and planning. Teachers' reflections about Thinking Maps integration identified that Thinking Maps helped them to become more flexible, responsive, clear, and purposeful in their instruction and planning.

In-the-Moment Instruction

At the third Training of Trainers session, a kindergarten teacher couldn't wait to share what she had learned with the group. In preparation for a lesson comparing and contrasting two books about George Washington, she had drawn a Double Bubble Map with four bubbles for the similarities and three bubbles on each side for the differences. During the lesson, she recorded the children's responses, but within moments, they had exhausted her template. "You need more bubbles!" they chorused. Their powers of observation and attention to detail astounded her. She learned how attentive her students were and planned to use those responses as a rubric by which to judge their future work. The map was an unexpected assessment tool. Moreover, her students reminded her not to predetermine their capacity for information. "My thinking could have limited their thinking!" she realized. Reflecting about this experience led her to question her expectations of her students and their proficiency with observation and comprehension skills.

Whereas the kindergarten teacher used the Double Bubble Map to facilitate comprehension after reading, a second-grade teacher applied the Thinking Maps to support students' thinking during math computation. Working at a low-performing elementary school, this teacher found herself in an anxiety-producing situation when an outside group of consultants selected her for observation. The school had purchased a very specific program aimed to improve mathematical computation skills and hopefully release the school from the state's probationary status. To guarantee results, the company structured quality checks at participating sites. This teacher was slated to teach a lesson on subtraction and feared the consultants' presence because the children were having a difficult time with subtracting two-digit whole numbers. "I was thinking what the kids had problems with," she says. "In the middle of the problem, they seemed to forget the next step."

She decided to use a Flow Map to show the sequence of steps in subtraction. The next day, the students accurately completed the problems using the Flow Maps at their desks. The observer thought the lesson was sensational and asked if she could keep a copy of the Flow Map. "The Thinking Map helped me get my ideas in order and really think about subtraction," the teacher says. The Flow Map clarified her own thinking as well as that of the students. Relating to the sharing of this example at the training session, another teacher later reported in the postsession survey nearly exactly the same sentiment: "They [Thinking Maps] help me organize, and lessons involving the use of Thinking Maps have a far greater chance of reaching their objective."

Planning

Reaching her objective, rather than repeating last year's abysmal performance, was exactly what a sixth-grade teacher was determined to do with her unit on fairy tales (see Figure 16.2). Unlike the previously mentioned situations, this teacher used the Circle Map during the initial planning stages as a reflective tool to help her analyze the unit and plan for success. First she

brainstormed all the tasks, materials, and understandings necessary for students to be able to write the final product, an original version of "Cinderella." Looking at the Circle Map while simultaneously recalling the problems from last year's narratives, she anticipated some obstacles and consequently selected the most important ideas, including defining elements of a fairy tale that would support students in the development of their final piece. She asked herself, "What do I want them to learn? Which Thinking Maps would help them notice the patterns in various versions of 'Cinderella'?" She selected the multitiered Bridge Map (see Figure 16.3) as the tool to isolate the elements of a fairy tale and help students see the pattern of elements across many versions.

She then used a Flow Map (see Figure 16.4) to sequence the progression of tasks to ensure that students actively processed the material. She decided to have students apply specific Thinking Maps at different times during the reading process to scaffold their comprehension. In her planning, she became very animated, discussing how she could incorporate cooperative learning and sharing among groups. Her work demonstrates her understanding of the learning process of her students and the need for students to first deconstruct fairy tales during reading and later reconstruct the elements in their own fashion while writing their own original Cinderella story. With the maps, she had a built-in, ongoing assessment of their comprehension and could adjust her instruction accordingly. As she decided about both the progression and the nature of instruction for this unit, she had to adopt the learner's perspective

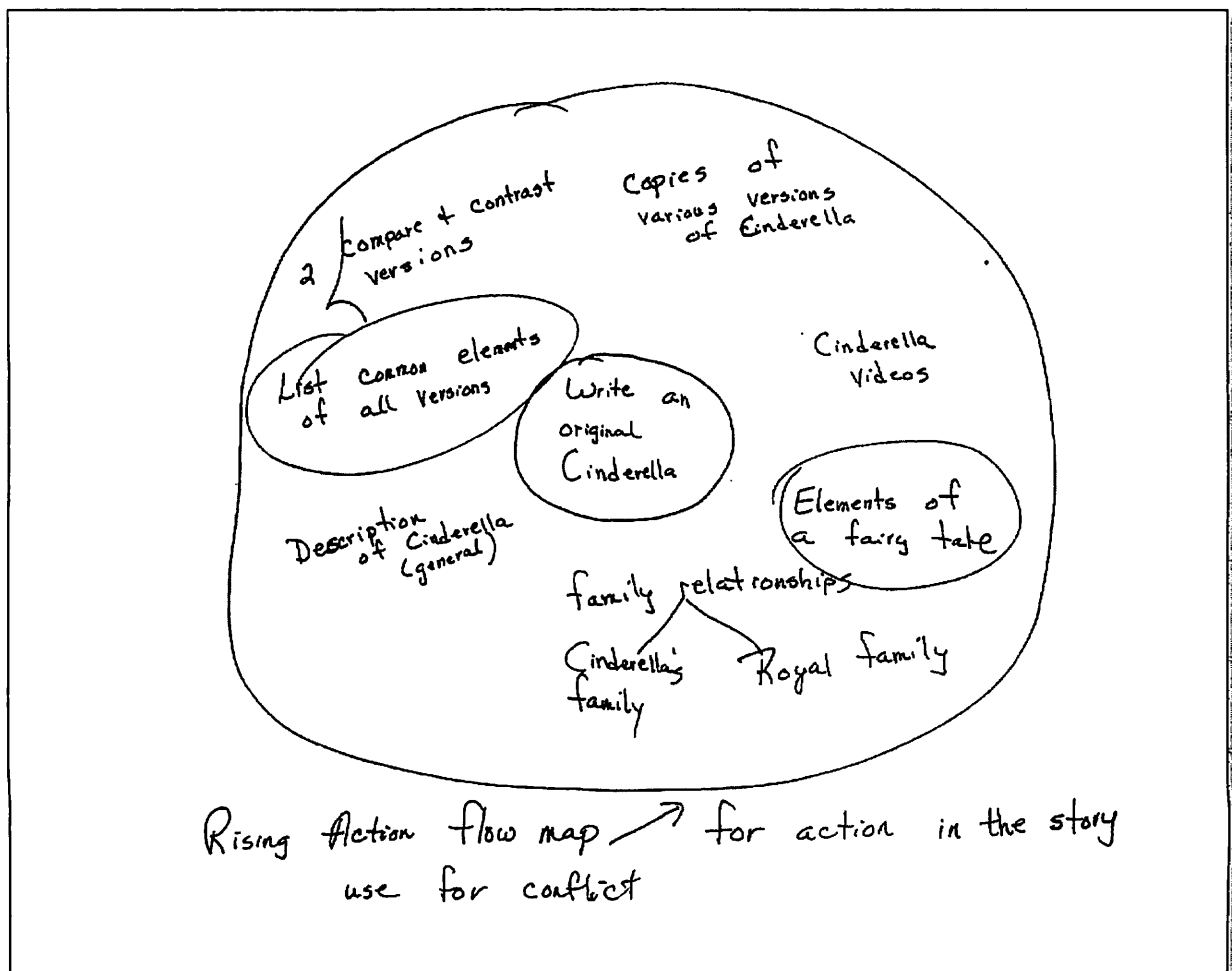**Figure 16.2**   Cinderella Lesson Planning Circle Map

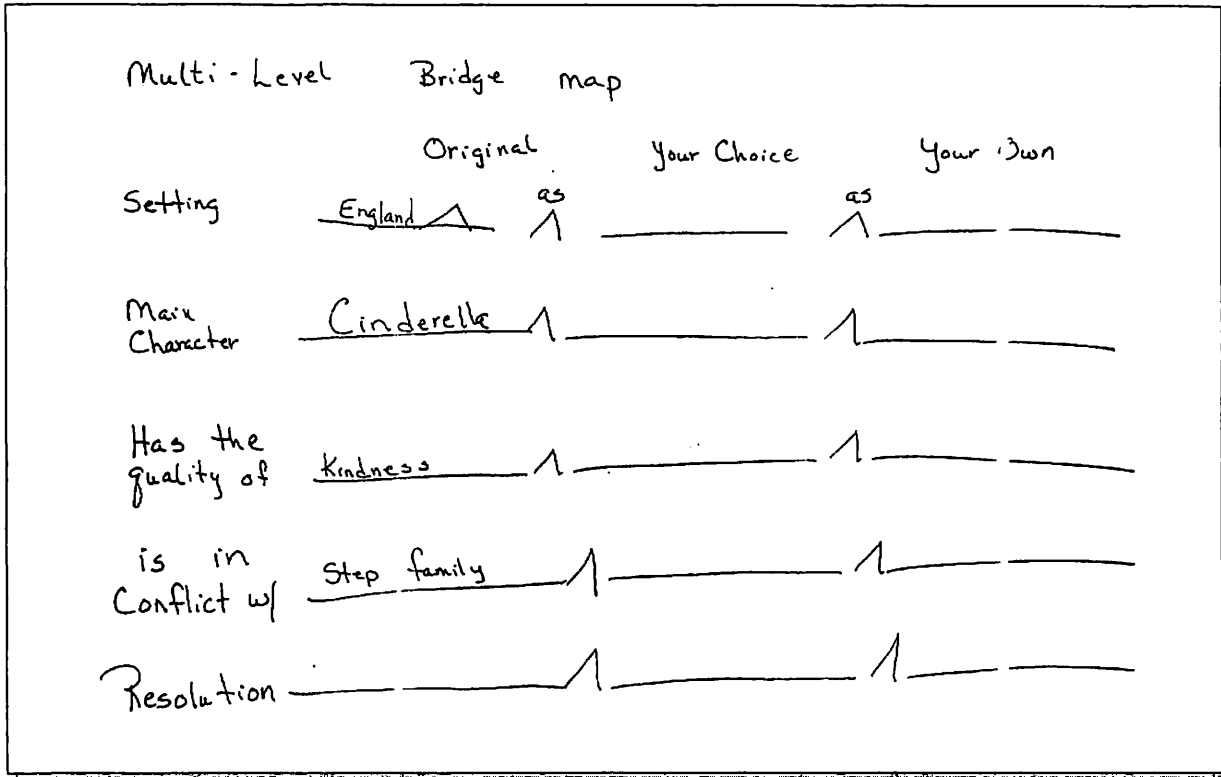**Figure 16.3** Elements of a Fairy Tale Bridge Map

Multi - Level   Bridge   map

Original   Your Choice   Your Own

Setting   England ⟋ as ⟋ _____ as ⟋ _____

Main Character   Cinderella ⟋ _____ ⟋ _____

Has the quality of   Kindness ⟋ _____ ⟋ _____

is in Conflict w/   Step family ⟋ _____ ⟋ _____
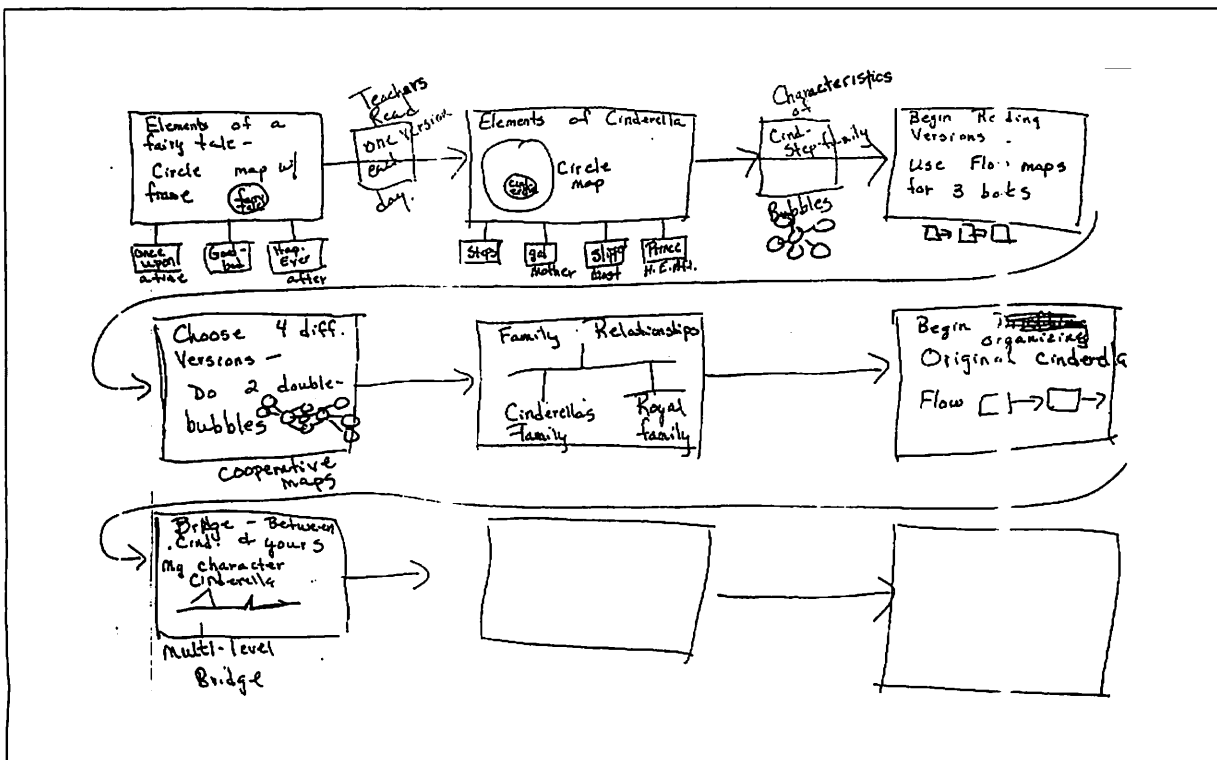
Resolution _____ ⟋ _____ ⟋ _____

Figure 16.4 Cinderella Unit Plan Sequence With Multiple Map Integration

and anticipate where her students might have difficulty. Applying the maps as both a lesson-design technique and a student tool, this teacher was deeply reflective, shifting her perspective from the end product to the processes required in her students' minds. As she left the training session that day, she felt very confident in her ability and in her students' abilities to find the essentials within a Cinderella story.

This teacher's mapping of her Cinderella unit exemplifies how Thinking Maps aid teachers' understandings of the topics they teach and how using the maps promotes reflection about instruction. To effectively plan a unit, teachers need to clearly articulate their outcome and decide on an effective course of instruction. For example, they need to anticipate how students would know what the elements of a fairy tale are and identify the variations in elements due to the geographical and cultural background of particular tales. Thinking Maps thus provide teachers with a means of questioning themselves to look for certain patterns of knowledge.

Beyond the Classroom

In addition to their teaching positions in the classroom, these Training of Trainers participants used Thinking Maps to help in their other roles within the school organization. As curriculum coordinators and teachers on special assignment, half of the educators were responsible for evaluating, presenting, or integrating new programs into current practice. Under the pressure of time, money, test results, and district demands, these educators had to present ideas to administrators and faculty members who were at times highly skeptical about new approaches. To understand and present the key points clearly, concisely, and convincingly, these educators used the same tools that fostered understanding and participation in the classroom to communicate their ideas. One teacher remarked, "Thinking Maps were most helpful in creating a clear and concise outline for staff of the requirements and concepts to be covered in the New York state core curriculum."

It is interesting to note that at the beginning of the sessions the participants were constantly asking how to integrate the Thinking Maps with the New York State English Language Arts assessment. They wanted to know how they could immediately use Thinking Maps to support the writing process and other comprehension skills tested on the assessment. If they didn't teach writing, they asked, "How does this help math problem solving?" or "How can we make this work with our reading framework?" or "What maps would you use with conflict or equality?" Initially, the stress wore a *V* in their brows as they worked hard to bring the Thinking Maps onto their overcrowded plates, because previous professional development experiences had brought another program to implement rather than tools for integrating what was already on their plates.

Over the course of the training, they learned how the Thinking Maps would actually help students learn the patterns of thinking embedded in reading and writing across all subject areas and existing in programs they were using. The discussions and feedback changed from knowledge questions about the maps to understandings about effective integration of the maps into existing programs and processes. "Now I am much more aware of the thought process I am working on with each assignment," said one teacher. "I know I am reaching higher levels of thinking." Another teacher remarked, "The *thinking* is the process, and the *maps* are the language." So by the end of the training process, the maps were an effective and efficient set of tools for integrating layers of instruction.

In the same way the participants' students had taken ownership of the maps and become fluent with the tools, the educators I followed had become more fluent and reflective thinkers. They seemed much more capable and confident about asking and answering questions about learning in the context of their complex, challenging, and often changing educational environment.

CREATING A CULTURE OF CHANGE
THROUGH INVITING EXPLICIT THINKING

When I consider the layers of pressures placed upon teachers in the classroom—and the shifts made by these educators I was able to observe and question during this study—I think about the intrinsic personal and professional rewards of working in a school in which faculty members are reflective practitioners. Imagine whole schools in which students, teachers, and administrators use tools to understand content, context, their colleagues, and themselves. As demonstrated in this study, Thinking Maps implementation and the Training of Trainers process provided both a language and a model for thinking deeply and reflectively about student learning, teacher instruction, and planning. "Thinking Maps," observed one of the participants, "ensure that thinking is the focus of teaching." This focus on inviting explicit thinking through Thinking Maps animates reflective practice—the process of thinking about the complex nature of teaching and learning—and ensures that responding, relating, and renewing are at the center of creating the unique culture of schools.

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