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Multi-Flow map stimulating cause and effect reasoning about why people explore and the possible consequences can bridge these thoughts from self (what is known) to historical content (what is unknown). The Bridge Map, used for analogous relationships, deepens the concept from that historical time period to other aspects of history, literature, and science, as demonstrated in Activity 5. The Bridge Map is the concrete visual tool that breathes life into Stephanie Harvey's comprehension strategy of making connections among self, other texts, and the world (Harvey & Goudivis, 2007). In these lessons, explicit interdisciplinary links are offered for students as comprehenders of any subject matter. By focusing on both the cognition and the concept, this process of using Thinking Maps Software not only meets, but exceeds the standards.

The Multi-Flow Map highlights some of the key outcomes related to instruction and assessment. From the teaching perspective, this process happens over multiple years in a school or school system as teachers begin to develop, pilot, and distribute the lessons to colleagues at their grade level and within their content area, providing teachers with multiple examples of Thinking Maps embedded into curriculum in meaningful ways, supporting the implementation of both Thinking Maps and standards at a site for teachers at different points in their careers (as new hires, transfers, and veterans). The more comfortable practitioners are with the tool, the more fluent they will be with the language of thinking. The cognitive and conceptual focus provides a model for teaching any content and offers a method for thinking about lesson design. These key questions for uniting standards-based instruction with the language of thinking may serve as guides to streamline the teaching-learning cycle:

1. How are the students asked to think about the content now and over time?
2. What questions, content and cognitive patterns, or links emerge?
3. What concepts or themes are present?
4. How might these patterns, concepts, or themes connect across different disciplines and cultures?

The last question is particularly important as we strive to have students transfer their learning across content and contexts. Teaching for both thinking skills and concept transfer has been the subject of many educational books and articles. The potential for this process described here focuses explicitly on transfer of concepts across content areas and grade levels, but cognitive development over time for each student as well. As students move through school, the topics may change, but the ways in which students are asked to engage in the subject are remarkably similar. The Thinking Maps, as a highly flexible and rigorous language of interdependent visual tools, are easily applied in different content areas and contexts. The recurring use of fundamental cognitive skills as patterns also enables higher-order skill development. For example, the Multi-Flow Map for cause-effect in the Exploration unit, is the same type of thinking necessary for logic problem solving in math, problem solution in literature, and physical change in science. Therefore, this ongoing process of using Thinking Maps and software offers a way to view the standards not only by content or concept, but by cognition as well. It is this marriage that makes the potential for teaching for transfer possible.

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## FROM STUDENTS AND TEACHERS TO LEADERSHIP DEVELOPMENT AND WHOLE SCHOOL TRANSFORMATIONS

In the preceding two pieces by Stefanie Holzman and Sarah Curtis, the focus is primarily on shifting student performance and teachers' instructional approach. The focus, in both cases, is also on content learning, language development, and the transfer of Thinking Maps across disciplines and conceptual work required in each content area.

In the final section of this chapter, Larry Alper, a former principal and lead author of *Thinking Maps: A Language for Leadership*, shows how these tools are used across a whole school to create and sustain a learning community. Larry, like many principals who have ushered Thinking Maps into their schools and guided their use have done so with hope, belief, and anticipation that the maps would directly improve students' thinking and performance as well as elevate teacher performance to a higher order. What they don't often expect is what Stefanie Holzman describes:

Ironically, my intent as the instructional leader of Roosevelt School was initially isolated on these tools for a direct and immediate impact on student performance. What I didn't realize and could not foresee were the deeper effects upon 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 obvious in the quality of professional conversations that now rise to the surface.

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. (Holzman in Hyerle, Curtis, & Alper, 2004)

Let's turn to yet another level of the implementation rubric: administrator leadership and instructional leadership across whole schools. Larry Alper, lead author of *Thinking Maps: Language for Leadership* (Alper & Hyerle, 2006), guides us through an example of multiple maps used to engage in improving parental involvement.

### **The Role of Thinking Maps in the Process of Becoming a Professional Learning Community by Larry Alper, MS**

The community aspect of learning is a critical dimension of the conceptualization of schools as learning communities. It recognizes that knowledge is as much a social construct as it is an individual one, mediated through the interaction of ideas and experiences shared by people within the community. A unifying feature of communities is the language it speaks. As a common, visual language for thinking, Thinking Maps offers all members of a school community a shared way to elicit, discuss, and examine the individual and collective wisdom within the organization. It provides the community with a common tool for lessening the impulse to arrive too quickly and superficially at a solution before fully surfacing the range of possibilities beyond those immediately evident.

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The phrase professional learning community has become common in describing our aspirations as educators for working most effectively on behalf of students. It feels quite natural to apply the act of learning to the work adults within a school environment engage in to address the complex challenges of educating children. However natural the association of this term is to the practices of teaching and leading, too much of what transpires in the professional realm of the school community fails to reflect the qualities of learning. Whether it is because of the pressures of time, or the weight of expectations, or the habits developed from many years of working in hierarchical organizational settings, identifying schools as professional learning communities does not necessarily make them so.

Learning is propelled by curiosity, the confidence to embrace and enter the unknown and accept ambiguity, and by the willingness to or even the delight in loosening the conventions of ones knowledge and experience in order to entertain the possibility that there is something new to discover. Frequently, understanding is more about compartmentalizing—associating something new with the familiar and pulling it back toward the established constructs of our thinking or schema, rather than relaxing the boundaries of our ideas to enlarge our field of vision and allow new possibilities to emerge. In professional learning communities, Thinking Maps can provide visual pathways to enter a lush landscape of ideas previously unimagined.

Consider the following selected examples in which a leadership team used multiple Thinking Maps to create an engaging and productive process of inquiry and decision making for improving the involvement of parents in the education of their children and with the larger school community. These examples are excerpted from a new seminar guide for school leadership, *Thinking Maps: A Language for Leadership* (Alper & Hyerle, 2006). Notice how questions were used to guide the process and direct the selection of the particular Thinking Map in response to the thought process reflected in the question. Notice, too, how multiple frames of reference were surfaced to ensure that the fullest possible representation of the topic is presented for consideration.

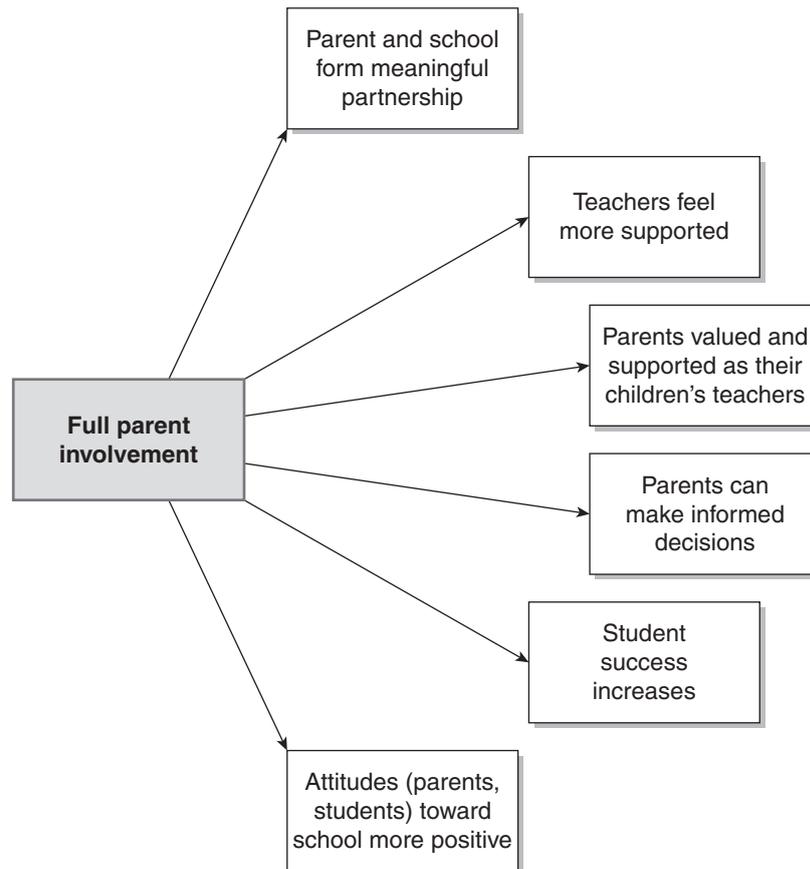
In the first example (Figure 7.7a), the leadership team began by responding with a partial Multi-Flow Map to the question, What would the outcomes (effects) be if parents were fully involved in their children's education? This question and the ensuing responses allowed the team to surface and clarify its purpose before moving to the next stage in the process (Figure 7.7b).

At a later point, recognizing that not all families are the same, the team used a Double Bubble Map (Figure 7.7c) to examine how some of these family types might be similar and different, in order to identify the prevailing needs of the various families represented in their school community. The question, "In what ways are the needs of grandparents raising grandchildren the same as and different from a single parent?" helped to inform the team's thinking as they prepared to identify meaningful topics and structures for meeting the different needs within the school community (Figure 7.7d).

Recognizing the need to retrieve information directly from the people they wanted to reach, the team chose to use a Circle Map (Figure 7.7e) to generate the questions to be used in a survey and interviews. The Frame of Reference was used by the team to identify the "parents" in the school community and to stimulate more questions with the needs of those people in mind (Figure 7.7f).

Having gathered information from the parents within the school community, the leadership team used a Tree Map (Figure 7.7g) to organize the data and looked for patterns and connections from which to begin to formulate effective action steps. The use of the Tree Map allowed the team to also identify what was missing and to consider the reasons for the absence of these topics.

As shown, Thinking Maps allow for a fundamental shift in the nature of discourse within a community of learners. Rather than expecting people to establish

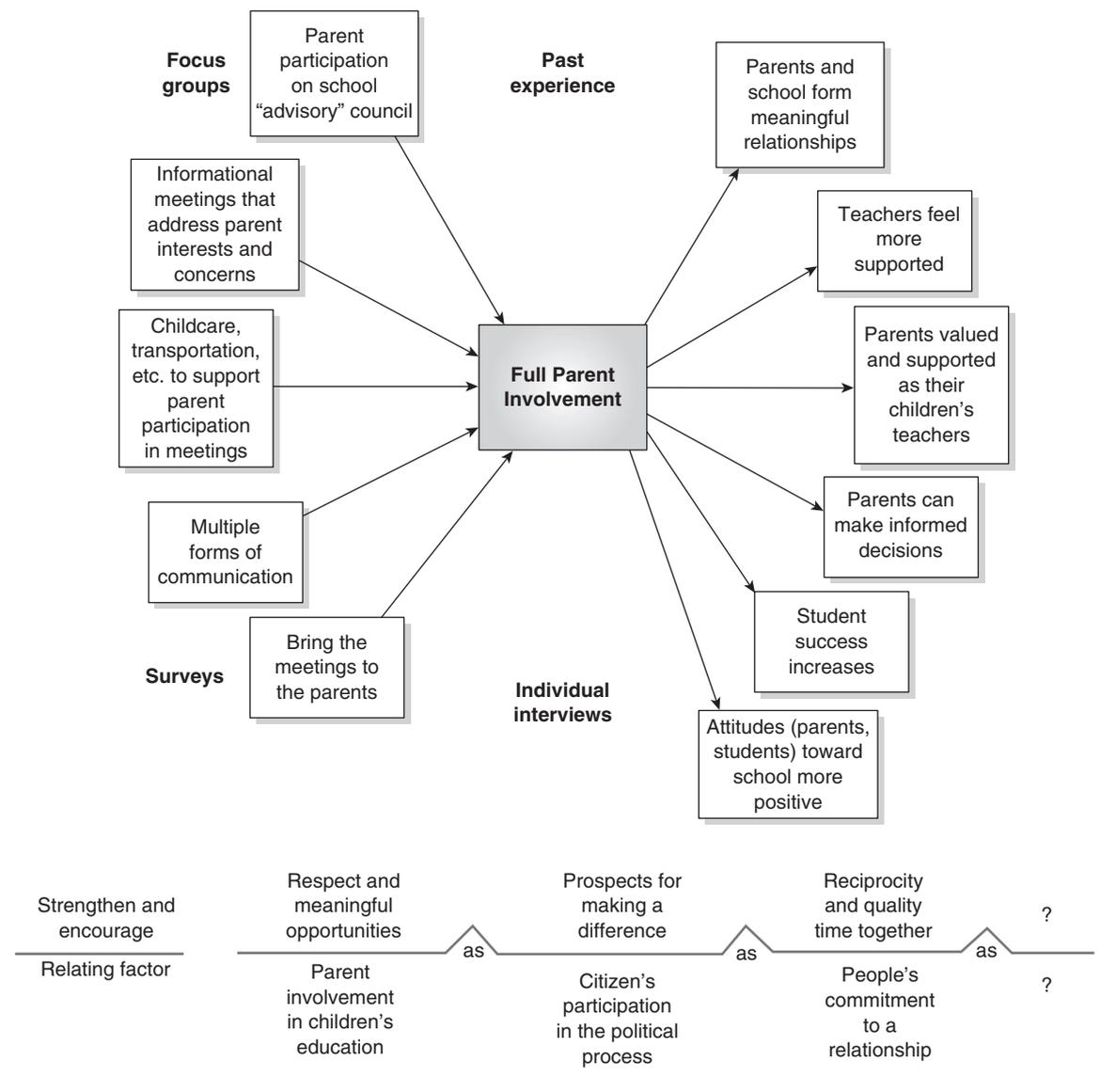
**Figure 7.7a** The Effects of Full Parent Involvement

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positions and defend or justify them, Thinking Maps invite the members of the organization to identify the multiple ways a topic can be approached to fully understand it, to sift through its complexity, or to simply allow it to reveal itself to us through the nature of its patterns. Thinking Maps inherently place trust in the ability of members of the professional learning community to think deeply about a topic and to arrive at a collective knowing and decision through a process of inquiry. This shift affirms learning as a core value of the school community. It demonstrates and places confidence in the members of the organization to arrive at meaningful and effective solutions through a genuine process of learning. And it does so by establishing a schoolwide language for thinking, uniting all members, children and adults, in this common pursuit.

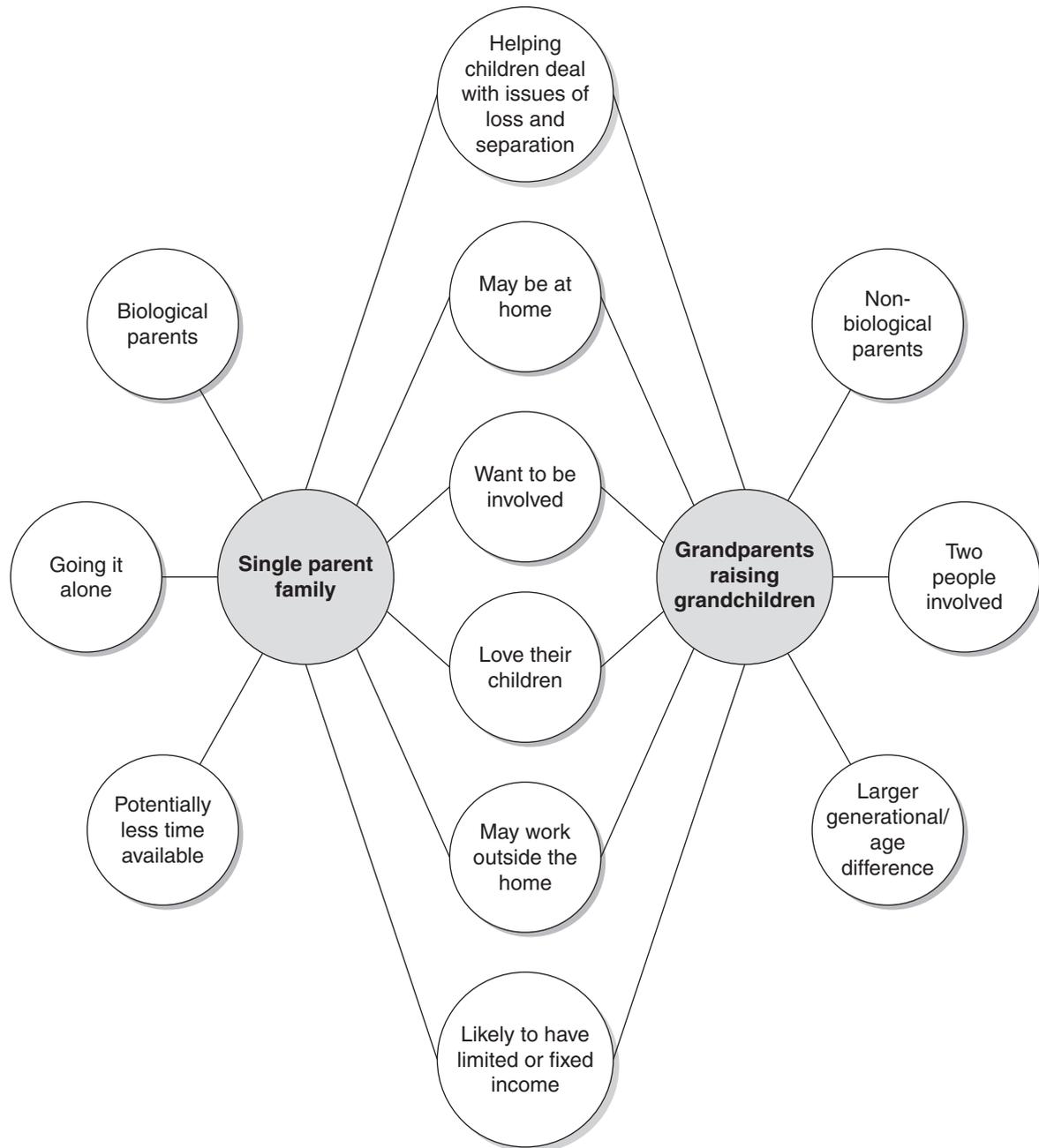
Successful schools not only have the ability to adapt to circumstances, they are able to generate new directions and design novel solutions to complex and changing situations. They not only respond effectively to current realities, they help shape and influence the very circumstances within which they exist in line with their values and beliefs. Thinking Maps help capture and communicate the texture of experiences as

Figure 7.7b How to Create Parent Involvement and the Effects



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they unfold. How we think about a topic, problem, or event shifts as we become fully engaged with constructing meaning and guiding others in a similar process. As tools for learning, Thinking Maps used in combination with each other enable us to enter the varied and shifting landscape of any situation with confidence and the anticipation of discovery. And with adults and children sharing a common language for thinking across an entire school, we create a powerful and compelling culture for learning.

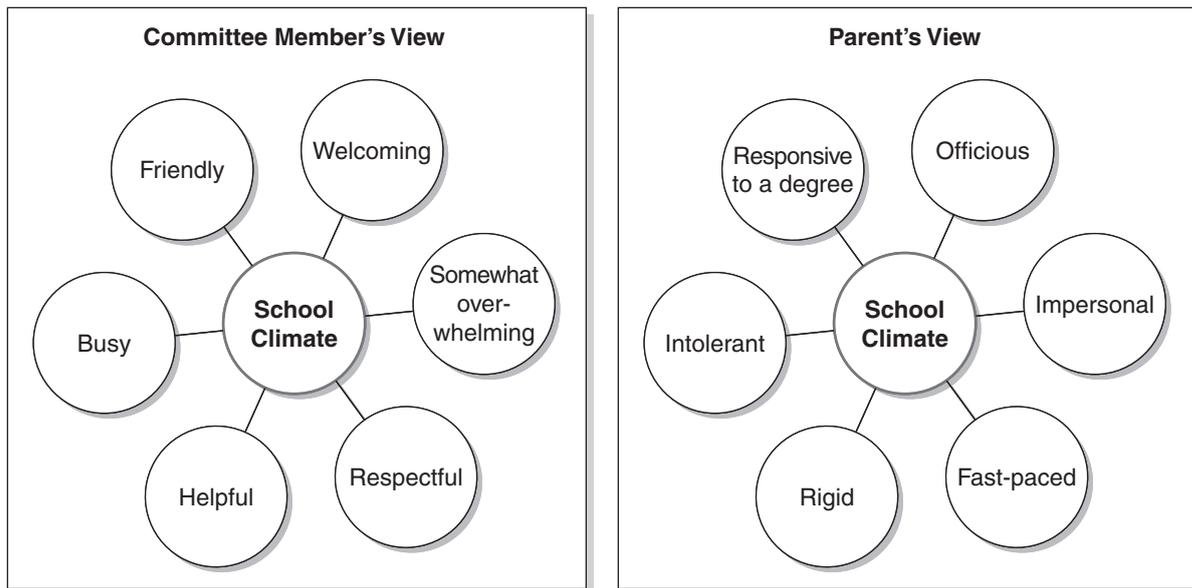
**Figure 7.7c** Comparing Single Parents and Grandparents Raising Children

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## WHOLE SYSTEM CHANGE

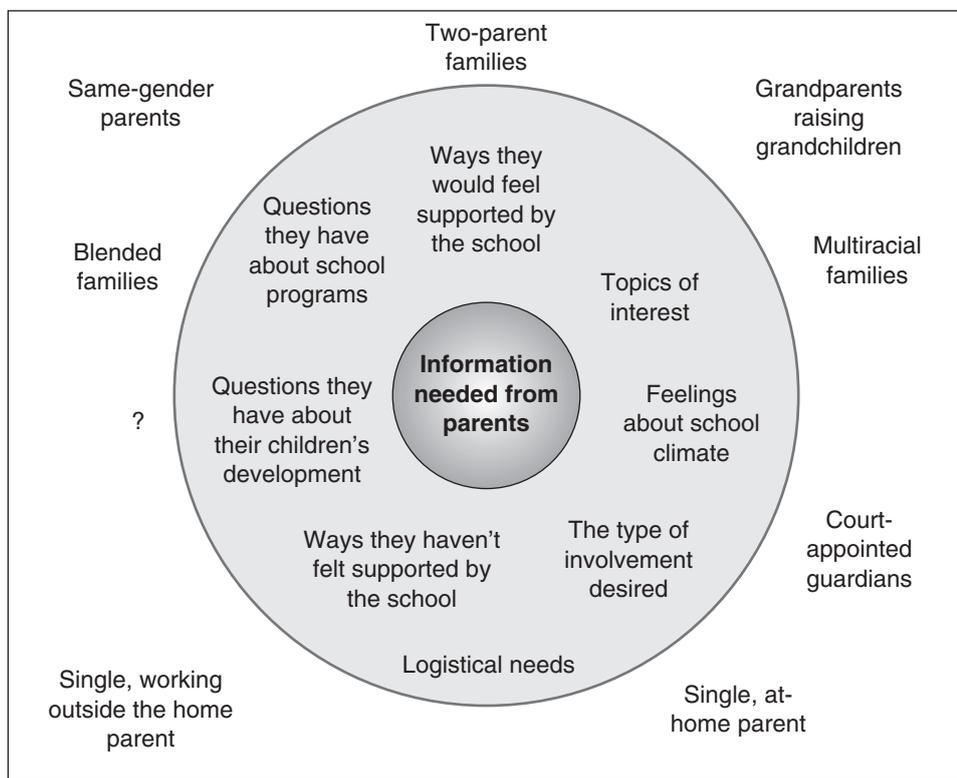
The visual tools and language of Thinking Maps presented in this chapter provide a new avenue for student, teachers, administrators, and the whole community of learners

**Figure 7.7d** An Analogy About Parent Involvement

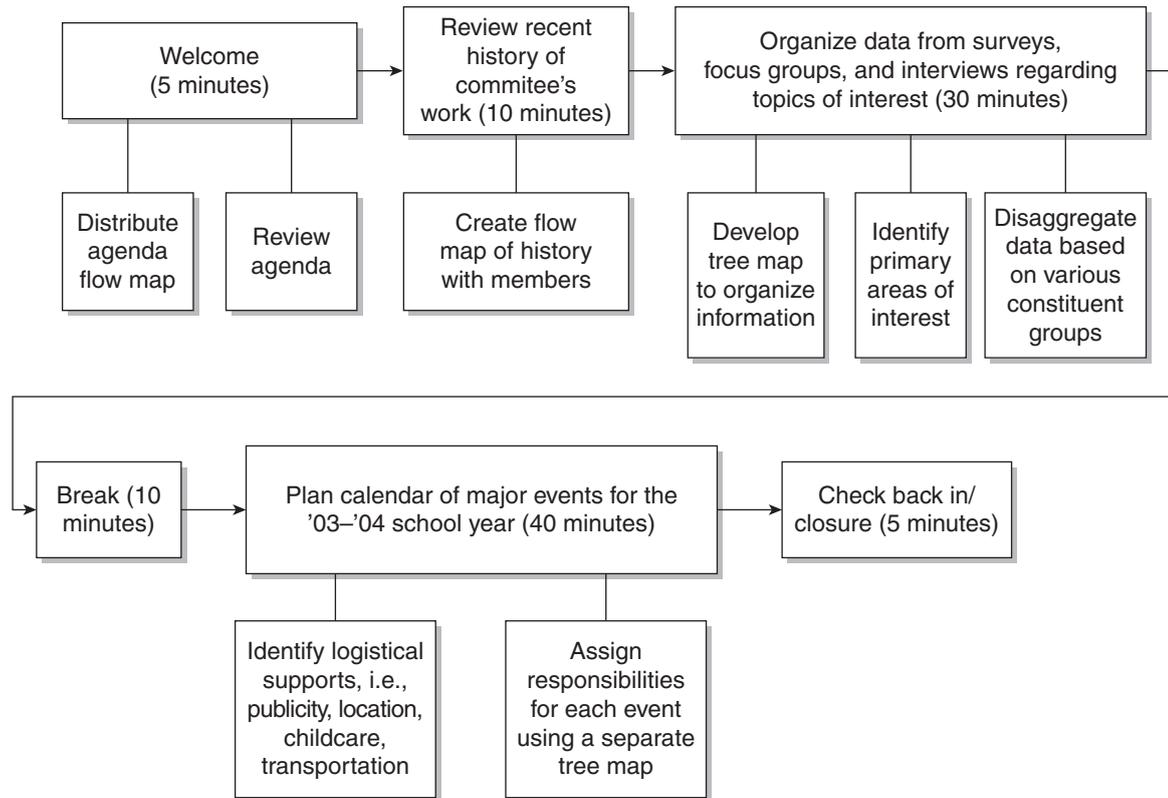


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**Figure 7.7e** Generating Information Needed From Parents



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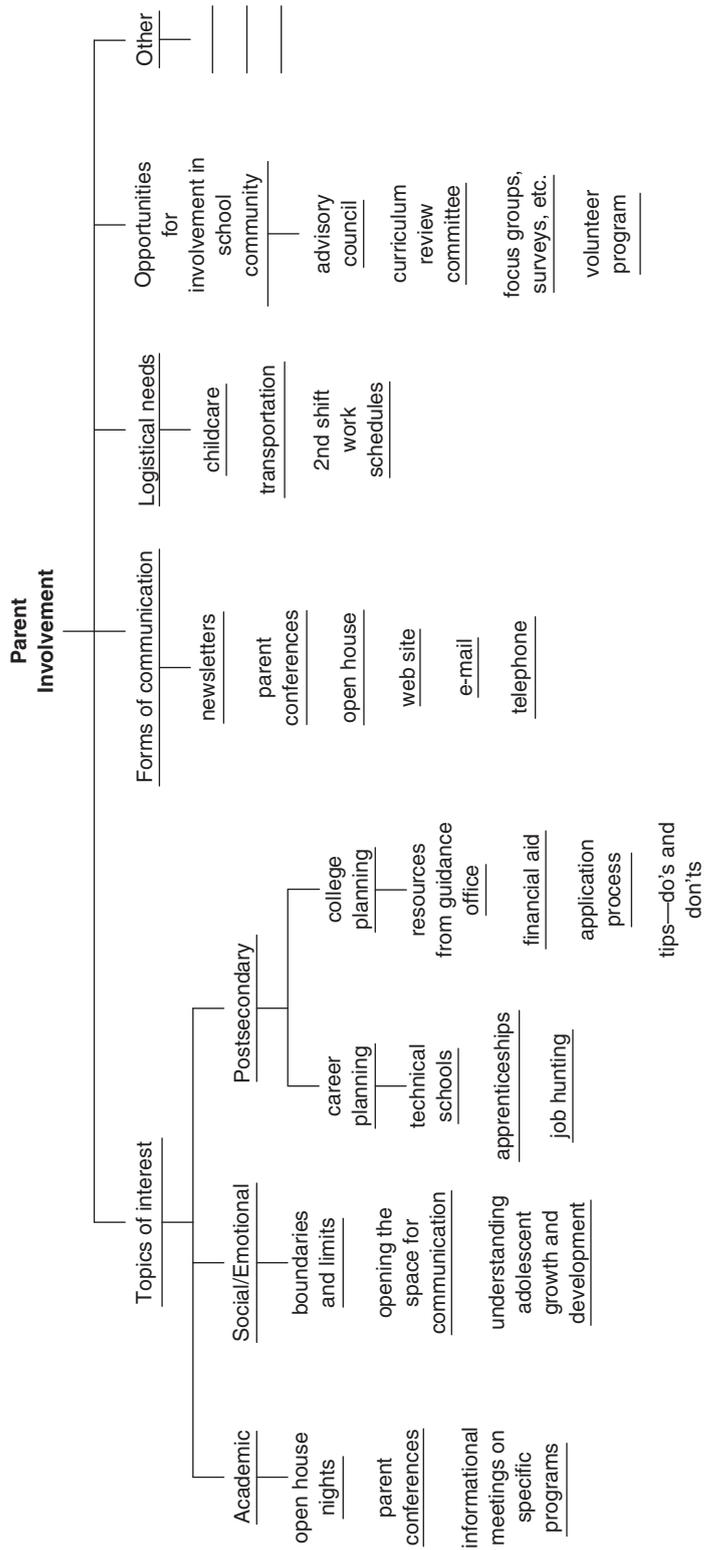
**Figure 7.7f** Describing School Climate From two Different Frames of Reference

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in a school, including parents. In the examples described, we see that students can develop their capacities to be creative and flexible, to persevere and be systematic, and to be reflective and self-aware of cognitive patterns to the degree that they can readily apply these patterns to challenging performance. Yet, we also now know that, like the inner working of our brain, our students must continue to grow and adapt over their lifespans. In this chapter we presented evidence of significant changes in performance for students, in the one case by students, most of whom come from a low socioeconomic area. On entering the school, they also had low levels of English language usage. But they did not have low cognitive abilities. When we return to the research, we find that the explicit and dynamic blending of nonlinguistic representations and cognition is a vital intersection for students of poverty, in first- and second-language discourses and the capacities to decode text structures, write in meaningful response to prompts, and problem solve in math and science.

When we look forward to the decades of the 21st century, we realize that explicitly supporting students in their capacities to think and problem solve independently and collaboratively across content areas, languages, and cultures may be the linchpin to an evolution in how they transform information into meaningful knowledge.

**Figure 7.7g** Categorizing Parent Involvement Topics and Details



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