1 Unit Visual Framework

Making Ongoing Sense of a Unit of Study

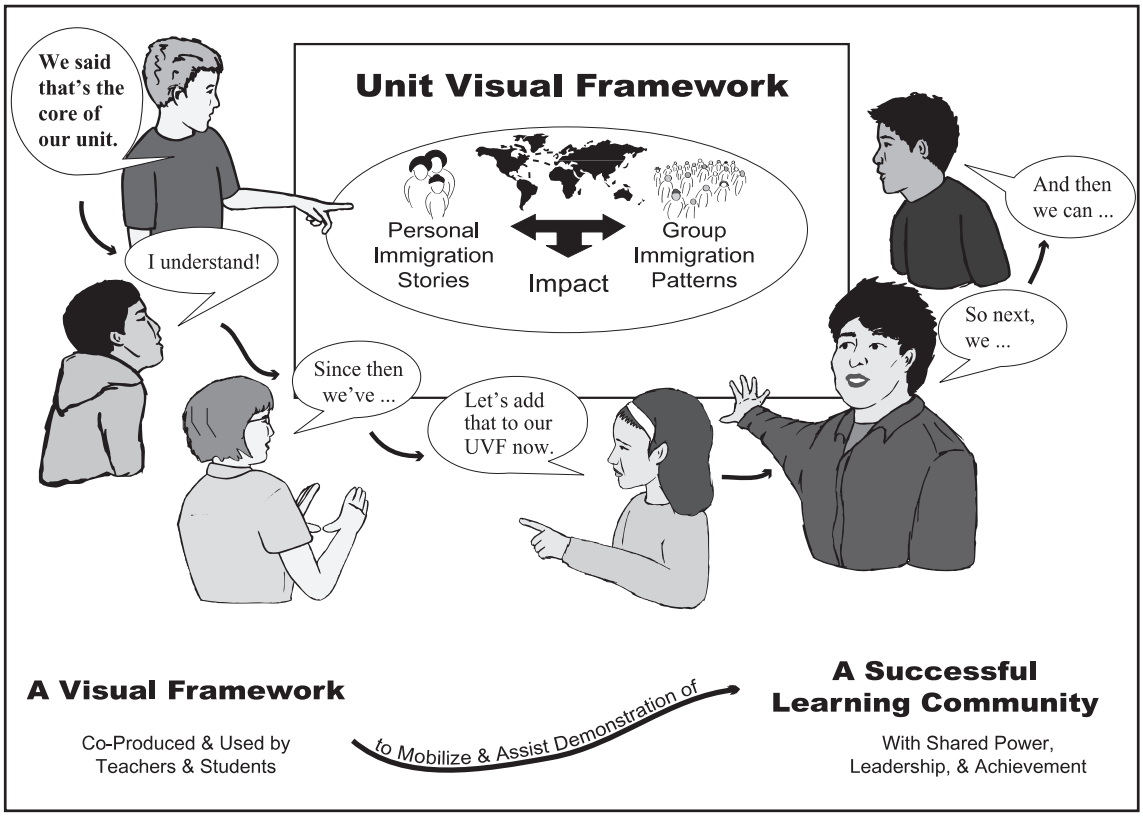
At dinner one night, a colleague asked me what I was writing. Trying to be brief, I said it was a book about a specific kind of graphic organizer. As the words left my mouth and I saw her response, I knew that with brevity I had sacrificed clarity. In borrowing a term whose literal meaning works in my mind, I had used a term that has other associations for each person who uses it.

As a result, my colleague was thinking about visuals, but not quite the kind that fill this book. I had not communicated the organizer's essential function of creating coherent and cohesive learning for a whole unit of study. Nor had I mentioned the fact that students and teacher co-create the evolving visual, and, in so doing, are actively engaged in making ongoing sense of the unit and its teaching and learning events. Therefore, my colleague had no way of knowing that this collaborative interaction and cumulative understanding are as important as the visuals themselves. Our brief dinner conversation was not the right context in which to communicate these details or to share my mental picture of the visual organizer's use (see Figure 1.1) and its broad applicability, which can only be seen through multiple examples.

In trying to give my colleague a quick sense of what I was doing, I omitted the visual organizer's name, *Unit Visual Framework.* The name fits for me, because each word describes its function. Unfortunately, however, it's hard to say quickly. That's why I actually refer to it as a UVF, just as I've learned to say IEP instead of "individual education plan" or KWL for "know, want to know, and learn." Back to why I chose this particular name:

Unit. A UVF organizes a whole unit of study from its beginning to end. A unit is defined as a progression of learning experiences that work together to ensure deep learning of clear targets.

Figure 1.1. Teaching and Learning With Visual Frameworks: My Mental Picture



Visual. Students and teacher co-develop an ongoing class wall display (or other format where wall space is scarce) including a core visual with illustrations and text. They also make portable versions of the core visual for individual use.

Framework. The UVF provides and maintains a clear focus on instructional targets, so that students and teachers have ongoing awareness of what they are learning, relative to what they will be held accountable for, as they pursue multiple teaching and learning experiences.

Of course, one reason I was writing the book was to show what UVFs are. Another was to illustrate why principals and teachers in my workshops, teachers who've tried them in their classrooms, and I all think UVFs make a difference. Moreover, because people have requested additional information about them, I wrote the book so UVFs can be used more widely. The book begins with answers to very direct questions using the voices, classroom samples, and viewpoints of others as well as my own.

WHAT ARE UNIT VISUAL FRAMEWORKS?

A UVF is an organic, class display that focuses, supports, and documents a unit of study from its beginning to end. Students and teachers collaboratively create and expand the display.

The UVF begins as a **core visual**, with pictures and key text representing the essentials of what is studied and assessed, and it overtly establishes the focus. After co-developing it as a class, a copy of this portion of the UVF is made for, or by, each student to use as a **portable UVF**.

The core visual grows into an **expanded display,** organized by the core visual to show learning paths and evolving, cumulative understanding of the unit.

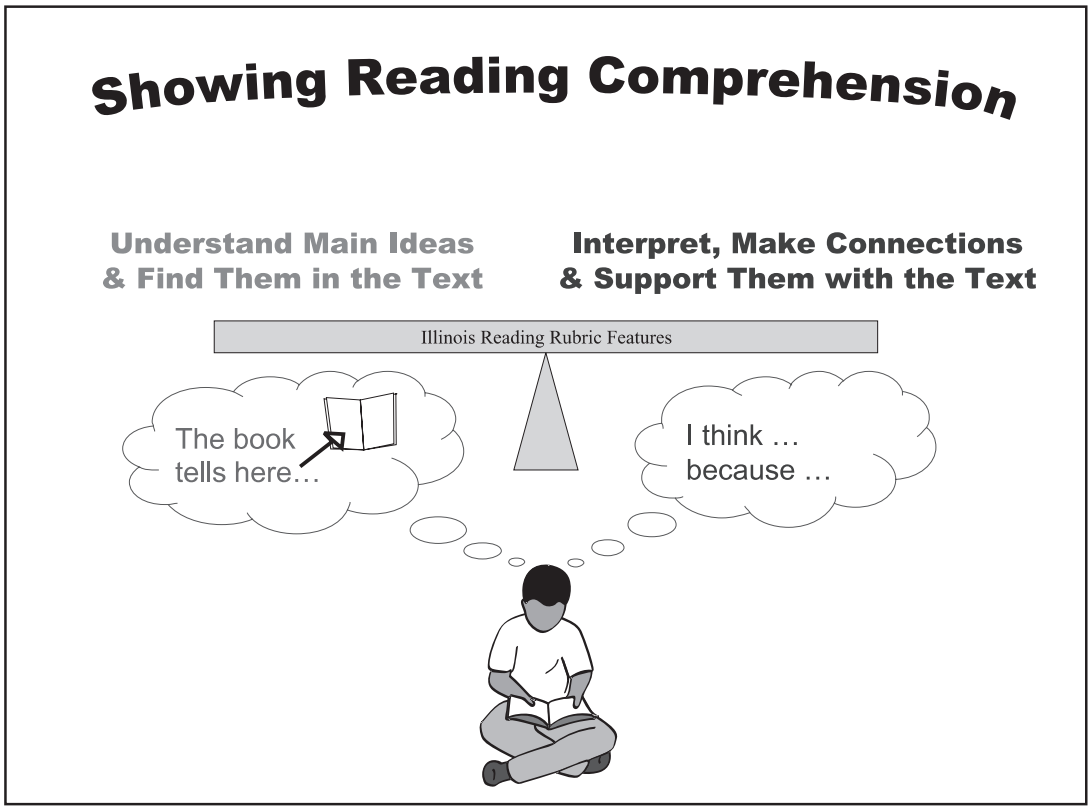
As I watched my colleague's face at dinner that night, and listened to her tone and words, I could almost hear her thinking, "There are lots of graphic organizers already. Why would you design more?"

Had she known what I've now shared with you, she may have realized that I am not creating more graphic organizers, but instead am writing about a kind of central graphic representation that teachers and students co-create to help them get the results they want from the work they do. This kind of graphic display helps make their desired results—the "what's important" to teachers and students in a given unit of study—clear from the beginning through the end of the teaching-learning cycle, while honoring the spontaneity and freedom we treasure in the learning process.

The display begins with the co-development of a core visual that depicts the unit's overall focus. Prepared with knowledge of the students, curriculum, materials, and instructional targets, the teacher elicits student prior knowledge or responses to initial concrete experiences. During this process, the teacher helps establish a mental picture of the unit focus that students and teacher share. That mental picture is transferred using pictures and words onto chart paper or another format to form a tangible display, the beginning of a UVF. This display of the unit focus—and the class's understanding of that focus—is the core visual that will be expanded upon over the course of the unit, again by eliciting students' ideas, language, and experiences. If, in the unit's performance or product, a student can demonstrate understanding of the concepts anchored by the UVF, instructional targets should be achieved.

The core UVF may be a relatively simple one, such as the draft UVF for reading comprehension in Figure 1.2. On the other hand, it may be a more complex graphic, such as Figure 1.3, which is a draft core UVF that a teacher uses in planning the unit outlined in *Conflict and Resolution: Interpersonal and Political* (Ewy et al., 1998a). In all cases, the UVFs designed by teachers are drafts until

Figure 1.2. Example of a Simple Core UVF



they are co-developed with the students who will use them, because UVFs must be shaped by student prior knowledge and reflect the concrete learning experiences that precede or help elicit the unit targets.

Figures 1.2 and 1.3 are only two of the many forms that a UVF can take. Additional examples from varied disciplines and grade levels fill this book. Please note that UVF examples in this book were chosen for their value in helping readers understand UVFs and their use in the classroom. If readers use them as drafts to adapt with their classes, it would be important for the content-area specialist to review them for content validity to ensure that accurate representation of concepts and principles occur when co-developing them with the class.

Because the UVF is a framework, it grows with the unit. Indeed, over time there may be multiple graphic organizers and/or visuals connected to the core UVF in such a way that they create a metagraphic of the unit's work, learning, and accountability. The result, like the one in Figure 1.4, may be confusing or overwhelming to an observer who hasn't been part of the unit's experiences, contributing along the way. However, an effective expanded UVF is organized and visually represented in ways that each participating student and the teacher can trace learning paths, and witness and express cumulative

Figure 1.3. Complex Core UVF

Unit Visual Framework — Illinois State Board of Education Content-Based Assessment Exemplars

Conflict and Resolution		Interpersonal		& Political			
Social Sciences Scoring Rubric	**Model for Conflict Resolution**	**Drama Example**	**Personally Important Current Conflict** Task One 	 **American Revolution**			
				Task Two-A	Task Two-B	Task Two-C	Task Three
				Prewar through Boston Tea Party, 1773	Boston Tea Party to Close of First Continental Congress, 1774	First Continental Congress to Lexington & Concord 1775	Lexington & Concord to Yorktown & Treaty
Knowledge	**Get the FACTS** Actions & Reactions						
	Get the VIEWPOINTS						
	List What Each WANTS						
Reasoning	**Brainstorm POSSIBLE ACTIONS** All Types of Resolutions						
	Consider Best, Worst, Short-term & Long-term OUTCOMES of Each Action						
	Choose/Decide & ACT						
Communication	**Examine Short-term & Long-term Impacts & Use Criteria to EVALUATE Effectiveness**			Use primary and secondary sources to ensure accuracy of information.			Impacts on USA Impacts on Lives

From *Conflict and Resolution: Interpersonal and Political* (Ewy et al., 1998a). Reprinted with permission of the Illinois State Board of Education.

understanding. The UVF guides teaching and learning events by supporting the pursuit of student, teacher, and curricular goals. In fact, something dear to my heart is that these UVFs give students and teachers a concrete tool to manage the unit together with wide open eyes.

WHAT TEACHING/LEARNING SITUATIONS DO UVFs SERVE?

A UVF, like any tool, is useful for a particular purpose. The last sentence in the previous section said that the UVF is a tool to manage a unit together. There are two important parts to that statement: *unit* and *together.*

As the definition that opened this chapter indicated, UVFs serve complete units of study that allow time for a progression of experiences, which cumulatively lead to deep learning of clear targets. A UVF would be unnecessary for a brief mini-lesson or spontaneous short study. Similarly, certain types of academic work do and do not lend themselves to using a UVF, depending on

Figure 1.4. Expanded UVF of Unit's Work

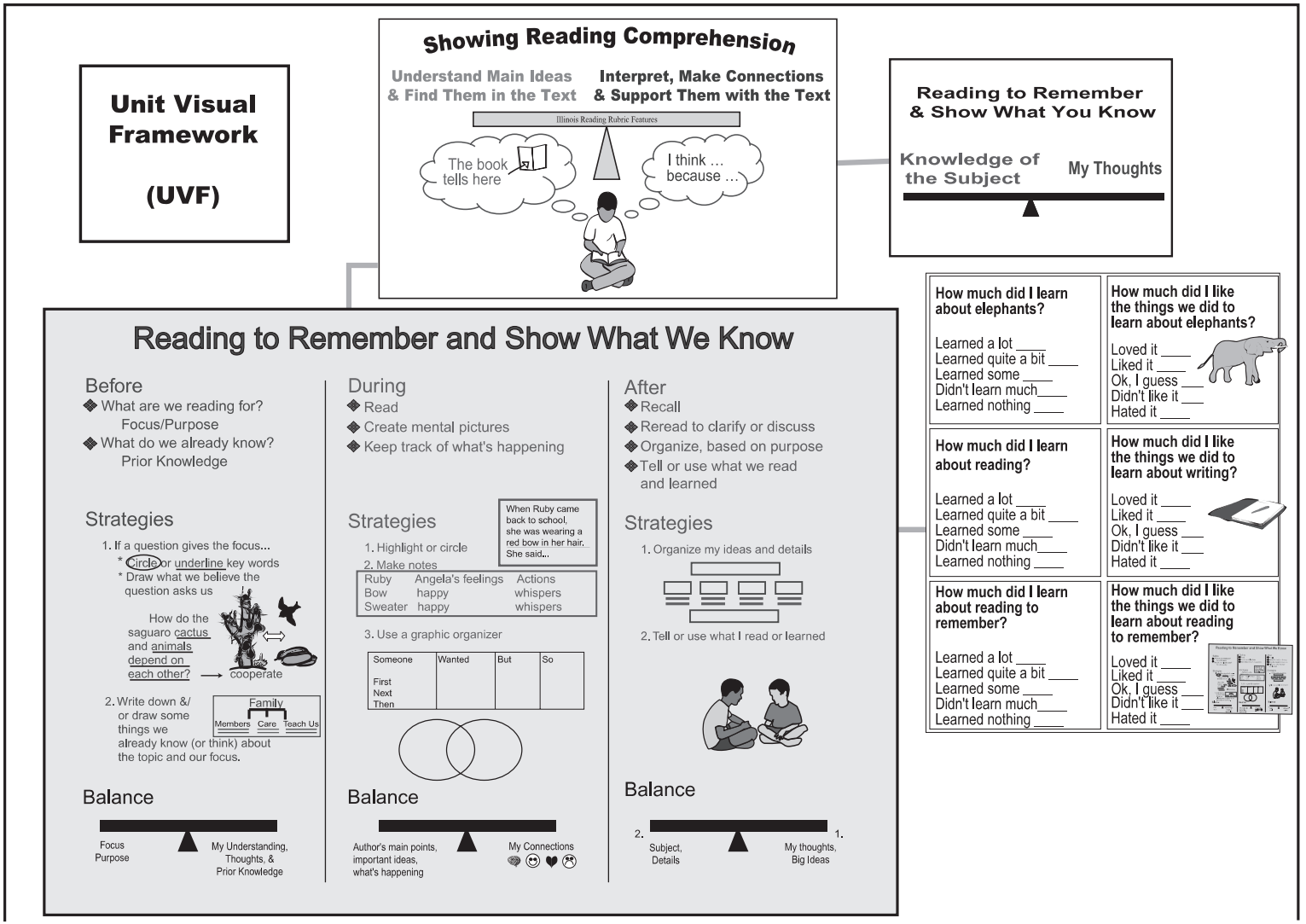


Figure 1.4. (Continued)

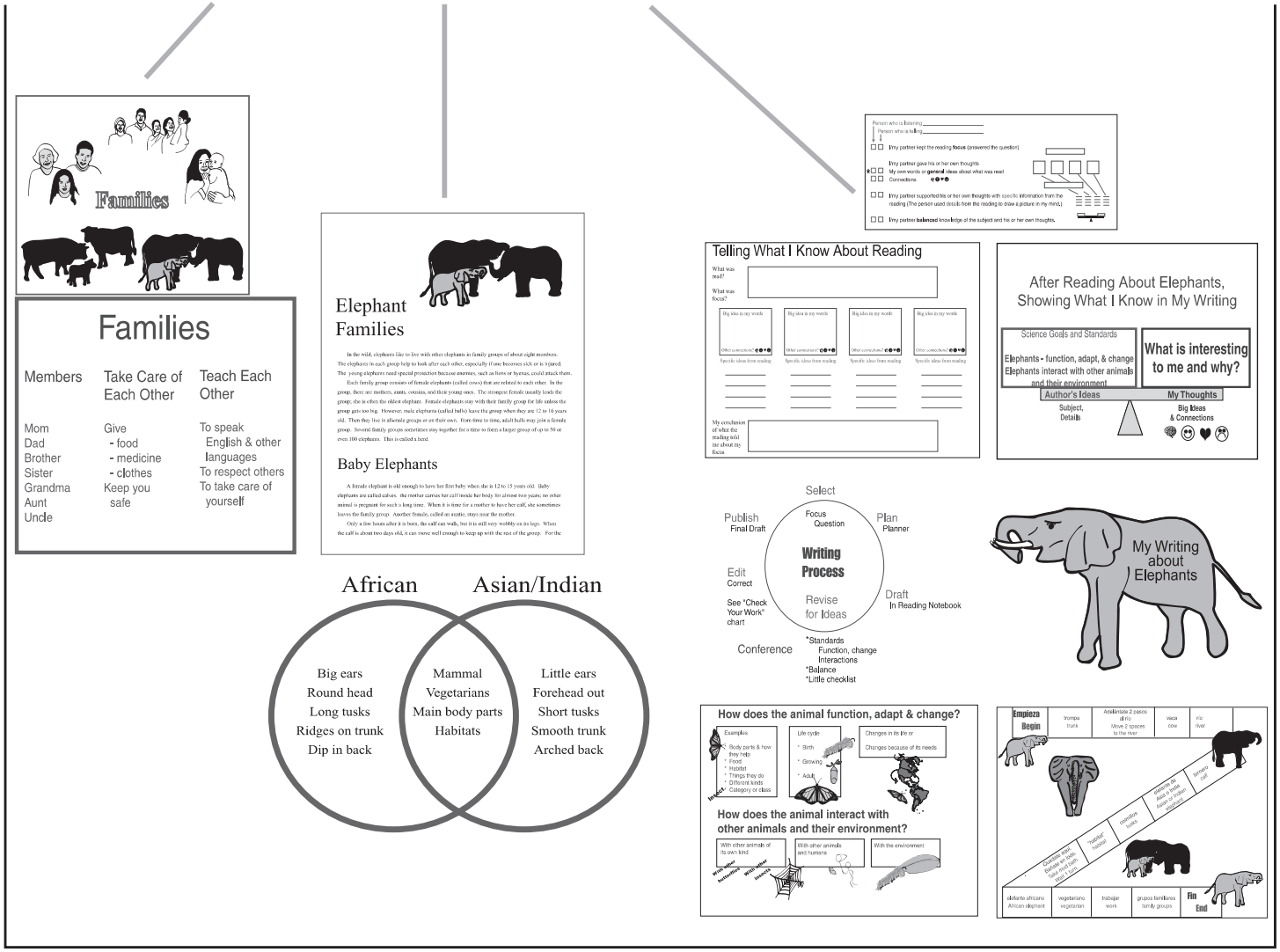
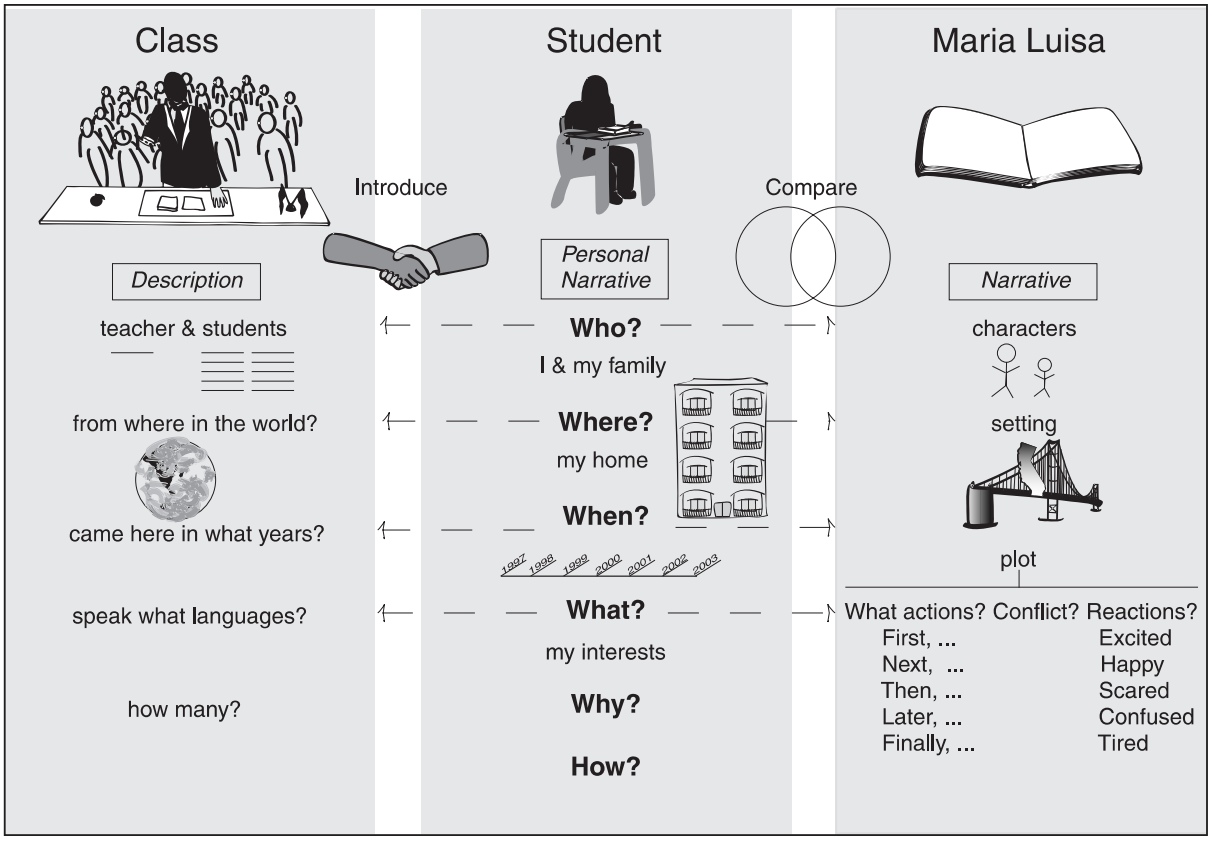


Figure 1.5. High School ESL Unit: Beginnings—New Classes, People, and Experiences



whether the work is focusing on the whole or on a part. A unit built to hone skills whose concepts have already been understood, such as increasing computation or writing skills, might best be served by support visuals, such as a graphic organizer. However, a UVF might have been used when the concepts underlying the skills were taught, in which case students would continue to reference, and possibly expand on, that UVF. An example of this can be found in Chapter 5, where an integrated science, reading, and writing unit began with understanding the features of a reading comprehension rubric used with written response. Because it was the first time students learned the comprehension features, the core UVF illustrated and developed the application of them.

UVFs are not for "units" that are loose collections of separate concepts or instructional components either. Consider the following two language units: If, after a dialogue or short reading about "a family birthday," a high school French class completes segmented grammar exercises—plurals, possessive adjectives/pronouns, and verbs in the present tense—that neither build on each other nor are cumulatively applied to discussing the topic, the "unit" is primarily defined by time and some common vocabulary encountered, but not

necessarily learned, from exercise to exercise. This kind of unit, common in some language textbooks, is different from the progression of experiences that cumulatively lead to deep learning of clear targets that I described above.

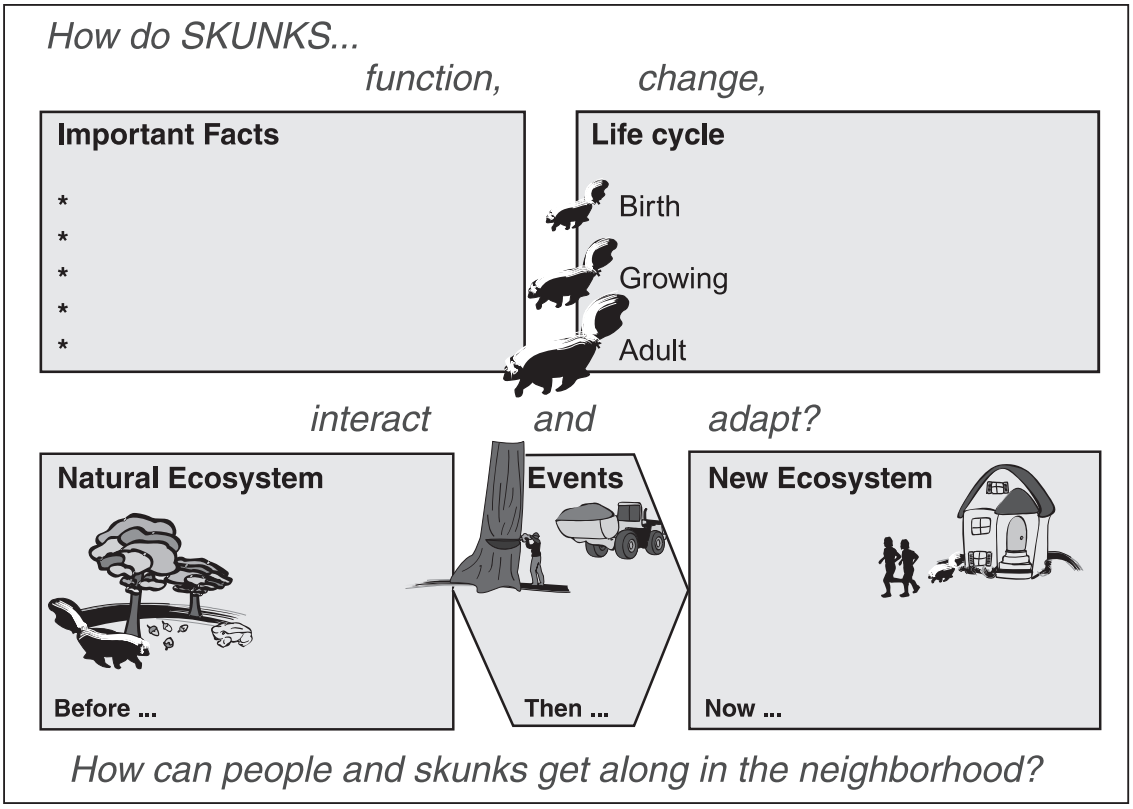
Figure 1.5, in contrast to such loosely organized units, is a teacher draft of a UVF for a high school English as a Second Language (ESL) unit for beginning speakers starting their school year. In this unit, the students move from listening and responding with movement, to completing group, paired, and individual oral, reading, and incremental written work with the assistance of graphic organizers. The students developmentally use core vocabulary, simple sentences, compound sentences with "and" and "because," and basic question words in three different situations: (a) to describe their class, (b) to build a personal narrative about themselves and their beginning experiences in the school, and (c) to discuss literary elements of the novel *Maria Luisa* (Madison, 1971). They begin to get to know their classmates by introducing themselves and acting as peer support when writing and editing. They deepen their thinking and expand their ability to discuss their experiences by comparing their own experiences with those of the characters in the novel. Something like the UVF in Figure 1.5 is built with the students a little at a time, as they have the concrete experiences of the unit.

Now to the second part of the statement, "A UVF is a tool to manage a unit *together.*" UVFs are used when a unit of study is pursued as a shared learning experience by a whole class. That is, a class may have whole-group, small-group, and/or individual learning, but if the students' focus is the same, they can use the UVF to establish the focus and regularly expand their understanding of it by coming together for planning, review, debriefing of experiences that were done separately, and so on.

Examples of this are project-based and problem-based learning where the class has common instructional targets embedded in a common context they will pursue—either a problem to solve or a class project to complete. They create a plan together to complete the project or solve the problem and, thereby, meet the instructional targets. Work is often done individually or in teams; however, the class comes together frequently to monitor progress and ensure individual and class success. A UVF keeps the instructional targets and progress toward them visible. Figure 1.6 shows the draft core UVF for a science and language arts inquiry-based unit, where students help their community understand why there are so many skunks in the neighborhood and how they might coexist in ways that work for the people and the animals. Whether the inquiry for this unit is divided up or done as a whole class, the UVF can help the class stay focused and monitor their progress.

On the other hand, a UVF would not be used for individualized instruction where each student has different instructional targets and content. With some types of individualized sustained studies, the student and teacher might co-develop individual UVFs, if desired. Doing so, however, would be more realistic after students and teachers have had experience with class UVFs and were assisted by such software as Inspiration® (2000) or Kidspiration™ (2000). Because the teacher remains the more experienced learner who is

Figure 1.6. Teacher Draft UVF for Skunks Inquiry Unit



knowledgeable about curricular requirements, such individualized use of UVFs would require the same student and teacher co-development, or student-student collaboration with teacher monitoring, to help students meet the curricular requirements they choose to pursue through their interests.

The use of UVFs does not dictate the teaching; it does, however, require a willingness on the part of teachers and students to work the unit together, and an intent to unify separate learning endeavors toward cumulative understanding of clear targets, be the targets predefined or discovered as patterns highlighted throughout the unit.

WHO ARE UVFS FOR?

My use of UVFs in my own teaching, as well as the observations and reports from other teachers who have used them, indicate that UVFs work equally well for ESL and bilingual students as they do for native English-speaking students, for gifted students as well as learning disabled students, and with second-grade students as well as with graduate students. Moreover, these visual guides help

diverse students work side by side or in flexible groups toward the same end goals. Even when groups of students have some different materials and some different experiences, their UVF helps them synthesize those into common experiences focused on common goals. Carol Ann Tomlinson, in *The Differentiated Classroom* (1999), explains:

> In a differentiated classroom, the teacher carefully fashions instruction around the essential concepts, principles, and skills of each subject.... Clarity ensures that teacher, learners, assessment, curriculum, and instruction are linked tightly in a journey likely to culminate in personal growth and individual success for each child. (Pp. 9–10)

Reports from students and teachers I've worked with have confirmed my awareness that UVFs overcome some of the challenges of auditory or language-intense methods, such as lecture and whole-group discussions, which otherwise force many students to be isolated or lost. Here is how some students put it, when evaluating the usefulness of UVFs to them:

- The picture and things gave me an idea of what we were talking about.
- It showed me the things I need to learn instead of making me read so much.
- If we just talked about it, I wouldn't understand it.

One teacher noted that the UVFs helped her deaf student connect the various learning events that were occurring in the classroom. She noted the same benefits for her English language learners and her special education students. She saw each of these populations following the lesson along with other students in the class. This may be because, as John Clarke (1991) puts it, "Visual organizers temporarily simplify complexities. Visual organizers simplify the thinking process, allowing access and understanding on the part of different students with different attitudes and abilities" (p. 534). Once new information is thus simplified, students and teachers can rebuild conceptual complexity together.

The need to keep students with the lesson and the lesson with the students is a basic component of any teaching/learning situation. Only by maintaining this alignment among clear learning targets, evolving student readiness and interests, and instruction and assessment will goals be met. Therefore, it has not surprised me to see the benefits of co-developing and using UVFs with K–12 learners as well as adults. Here are some examples:

- After a year and a half of using UVFs, a group of first-grade teachers reported that UVFs helped their students comprehend subject matter, demonstrate their knowledge, and write about what they had studied.

- Another teacher described the pride and wonder in an adolescent student's voice when, looking at her evolving UVF in her own notebook, the student exclaimed, "Look at this! Look at all we have going!" This student had obviously experienced "having all this going" before that moment. The difference this time was that the student apparently was more aware of the learning that was occurring and how it all connected and moved her forward to specific understandings.

In addition to using UVFs in K–12 teaching, I have used them to guide my workshops and graduate courses. This use has repeatedly shown up as a positive impact when participants submit evaluations. Graduate students have commented on how the recurring connection of the class experiences to the course UVF kept the material clear, deepened the learning, made accountability easier, and helped them demonstrate their learning.

HOW DID UVFS EVOLVE?

The answer to how UVFs evolved is rooted in my own teaching experiences. One of my earliest memories related to UVFs is of my second-grade classroom in Johnstown, Colorado. At the time, my class was made up of an even mix of students who spoke English as their first language and students whose first language was Spanish. I was teaching in what today is called a dual-language bilingual program. Because one objective of the class was academic achievement in two languages, some days I taught content-area material to all of the students in English and other days in Spanish, alternating the language of instruction, if not every other day, then with a regularity that made sense for what was being taught.

"What does this have to do with UVFs?" you may wonder. Well, it was extremely important that all students successfully participated in each lesson and that the lesson was responsive to the students' needs and strengths, no matter what language we spoke. Therefore, I wanted to document our learning path visually each day in ways that highlighted important concepts and relationships among them, making evident what we were holding ourselves accountable for in the unit.

I can still see the chart papers assembled across the room. For example, when we did a science unit on the water cycle, I elicited students' ideas in whatever language we were using that day, and added illustrations that made sense to us all. To make sure that the threads of important concepts and relationships were clear whether students were learning in their dominant or second language, I organized the text, illustrations, and use of color to build coherence and cohesion from day to day. The charts couldn't be random bits of information or activities; they had to build upon previous learning in a way that students could follow and reference when they were learning in their newer language. Each time we switched languages, we reviewed all charts (those written in English or Spanish) speaking the language of the day, but

examining the developing academic content across the charts. Each review reinforced the visuals' ability to assist recall of the preceding learning experiences and paths. Little by little, we could discuss and use the science concepts in either language. The visuals and key text helped students acquire, expand, and demonstrate their content knowledge regardless of instructional language.

The bilingual unit charts were my early constructions of UVFs, co-developed with my students, growing organically as the unit progressed, and used in many ways throughout the unit. Those experiences introduced me to the value of a UVF to rivet attention in the midst of exploration and learning that span a period of time and that, in some cases, occur in more than one language. Bilingual teaching also taught me the requirements of consistent key text and illustrations to ensure cumulative and cohesive learning.

My thirty years in education have reinforced those UVF beginnings. This same need to help students and teachers stay focused on the central learning that will be assessed in a unit—whether the targets have been chosen by teachers, students, or both—motivated me to continue to develop UVFs. Influenced by such authors as Anne Shea Bayer (1990), I noticed that, regardless of the age of the learner, if I began a unit of study by eliciting students' own language and experiences, and captured these on chart paper in ways that organized the information to reveal and ready the class for new insights, two things happened. First, with the focus clear and centered, we stayed on target and together even as ideas multiplied. Second, over time students had stepping stones on which they could travel forward or backward to understand the development of ideas and increased levels of abstraction and formal language as they worked through a unit of study.

My staff development and consulting work continue to provide opportunities to test and refine the use of UVFs, as well as to verify their role in serving educators and students to achieve their targeted results. For instance, K–5 teachers in one district constructed draft UVFs when they developed new science, social studies, math, or language arts units. They found that designing a UVF forced them to be clear about their unit targets. After adapting and using these UVFs with their students, they were enthusiastic about the variety of ways students used them.

The significance of the role of UVFs was also reinforced for me after I had made thirty classroom observations. These observations indicated that when a UVF was used, the teacher more explicitly stated the focus and larger purpose of tasks and instruction. Furthermore, work with teachers and students in their classrooms indicated that UVFs not only facilitate the end learning result, but also can assist students and teachers to share power and leadership in teaching and learning. This shared power and leadership proved true both in classrooms that started with student interests or expressed needs and in those that began with curricular or teacher-chosen priorities.

Another precursor of this book was a set of prototype units illustrating instruction and assessment of state social science and language arts standards, *The Illinois Content-Based Assessment Exemplars* (Ewy et al., 1998a,

1998b, 1998c). The UVFs and related practices are some of the reasons why the units may be used with the general student population in ways that permit second-language learners to succeed with their peers. These cohesive visuals have also appealed to educators in the field of special education, as they have tried to help their students achieve state standards. A special education coordinator noted that, because of the visuals in the units, "you can see where you are, where you've been, and where you're going" in a unit of study at any given time.

WHY UVFS NOW?

In his book *Visual Tools for Constructing Knowledge,* David Hyerle (1996, pp. 18, 124) speaks of a merging of forces that partially account for our readiness for UVFs:

- The constructivist-cognitive revolution, which responds to students' needs to seek out and make connections and interconnections on their own
- The new visual technologies for accessing and displaying information
- Schools' much broader movement toward student-centered interaction, cooperative learning, and interactivity

We can add three more factors to Hyerle's list:

- The current compelling need for effectiveness and accountability
- The greater awareness of the diversity of our learners
- The increase, caused by the standards "movement," of impetus, training, and skill in teachers being able to decide instructional targets based on knowledge of students' readiness, interests, needs, and curriculum

The rest of this book will show how UVFs respond to all of the above.

WHY DO UVFS WORK?

> *I believe that using UVFs has tightened up my teaching and made what I teach more substantial, visible, and accessible. I feel that I am teaching so much more holistically with more meaningful results. It just feels like I am much more together this year, but I haven't sacrificed the creativity and ingenuity that I thought I'd have to. I'm able to stay with the big picture, but still have lots of spontaneity and open spaces.*

> *I have the energy to look at things in terms of growing, getting better, trying more and more things that may be a little risky. At the same time, the UVF pins me to my underlying values and practices. It is a wonderful mix of comfort and risk.*
>
> —Teacher

This teacher's reasons for why UVFs work for teachers overlap why they help students. A UVF and its related practices improve the accessibility, ownership, alignment, documentation, and effectiveness of a whole unit of study in ways that students, teachers, and classroom observers can see and understand. Why?

One reason is its visual nature. Hyerle (1996, p. 20) says that visual tools promote definitions that are relational, patterned, and context driven. Teachers who have been using visuals and generating charts in their classroom know this to be true. Furthermore, "visual" in a UVF encompasses pictures, text, and sometimes artifacts that are designed to evoke memory of concrete experiences, activating the multiple intelligences of which Howard Gardner (1992, 1993) has made us all aware.

Though these reasons are valid, we must think about more than UVFs' visual nature to understand why they work. When viewing the draft UVF in Figure 1.2, one teacher wondered aloud, "How can such a simple visual make a difference?" The answer, of course, is that it doesn't: It is the *process* of co-developing, expanding, and using the UVF individually and as a class that makes the difference. These processes have cognitive benefits:

1. Students and teacher have defined what's important using terms and pictures that they understand from their own experiences and knowledge base.
2. They have a common understanding to the degree that the concepts and principles have thus far been developed.
3. They have a readiness and basis for integrating new learning.

In addition, the class has formed a working team with each other and the teacher to apply their learning and monitor their progress toward their goals. This purposeful teamwork will continue for the duration of the unit. The following are merely a few testimonies to why these are important:

> Coherence in the curriculum involves creating and maintaining visible connections between purposes and everyday learning experiences. (Beane, 1995, p. 7)

> We cannot make real progress until we recognize that cognitive and social processes are neither separate nor separable—that learning is inherently social. (Institute for Research on Learning, 1993, p. 3)

> We all want to go deeper into subjects that mean something to us, but we find it hard to do alone. We are social creatures; we need the support and interest of others. (Glasser, 1986, p. 77)

In summary, UVFs work for students because they begin with constructivist uses of advance organizers and utilize the strengths of graphic organizers and learning as a social endeavor to make and keep public the central focus of a unit and the evolving learning schema of a whole class. The previous sentence is as technical as I want to be in this book. The following section will strengthen its meaning, address some of the research supporting the use of UVFs, and reference other authors who have done masterful jobs of documenting related research.

HOW DO UVFS COMPARE WITH OTHER VISUALS?

Some readers may have found the previous information in this chapter sufficient to see both the similarities and differences of UVFs relative to other visuals. If so, I look forward to our continued interaction in the chapter summary, or whatever part of the book you choose to read next. Other readers may welcome the additional practical, theoretical, and research information that the following comparisons offer.

Advance Organizer

> *So why not provide the scaffold (of ideas) at the beginning (of the course)? Let the students in on the secret of the structure, including an understanding of how it continually emerges through further inquiry, so that the mind can be active as the course progresses.*
>
> —David Ausubel (1968; quoted in Joyce & Weil, 1996)

An *advance organizer,* as the term implies, helps students organize their thinking about something that is to come. It offers students a mindset or thinking structure they can use with the coming new material. That is one function of a UVF. Some UVFs use comparisons or metaphors, as Ausubel's works often contain. The UVF in Figure 3.5 evokes students' previous understanding of how a teeter-totter works to help them understand that a community works when it balances response to individual needs and the needs of the group. Other UVFs act as an advance organizer by previewing in a concise visual manner the work of the unit, the way the UVF in Figure 1.5 helps students see a structure from separate activities by placing them in the three contexts that they serve and link.

Advance organizers, therefore, help students more readily understand, integrate, interrelate, and distinguish old and new information and experiences. The *Handbook of Research on Improving Student Achievement* (Cawelti,

1995) references more than a dozen studies that support the benefits of relating past learning to present learning and alerting students to key points to be learned.

A UVF helps students anticipate and benefit from a whole chunk of learning—a unit of study or a series of units with the same underlying base—by creating an advance organizer for the unit or units. Because it organizes such complex learning, however, the UVF may be co-developed with students little by little, until the structure of all essential learning of a unit is previewed and organized, at which point the class has a "core UVF." The UVF serves as a cumulative advance organizer for the learning it precedes, connecting new learning to that which has already occurred.

According to Ausubel, whether or not material is meaningful depends more on the preparation of the learner and on the organization of the material than it does on the method of presentation. If the learner begins with the right "set" and if the material is solidly organized, then meaningful learning can occur (Joyce & Weil, 1996, p. 268). Thinking about that organization—of the material and how its structure might be made meaningful to the students—is part of planning UVF co-development, as Chapter 3 explains. Although Ausubel considered advance organizers appropriate for presentation forms of teaching (lectures and reading), they can serve diverse approaches, as the UVF examples already seen in this chapter and those to come will prove.

The most effective advance organizers are those that use concepts, terms, and propositions that are already familiar to the learners, as well as appropriate illustrations and analogies (Joyce & Weil, 1996, p. 271). In fact, Marzano, Pickering, and Pollock (2001) even attach an effect size to the use of nonlinguistic, or imagery, representation, which is reported and discussed in *Classroom Instruction That Works.* Suffice it here to say that when teachers help students generate nonlinguistic representations, the effects on achievement are strong. Marzano and colleagues emphasize that the goal is to produce nonlinguistic representations of knowledge *in the minds of the students.* Their research explains why UVFs are not predesigned posters, but dynamic representations co-developed with students to anchor prior knowledge, concrete experiences, and new knowledge and experiences as the unit progresses. The comparison chart in Figure 1.7 summarizes the similarities and nuances of difference between advance organizers and UVFs.

Graphic Organizer

> *I found out that a UVF is more than a graphic organizer, or you might say it's a complete graphic organizer that connects teachers and students, learning, content areas, and goals.*
>
> —Primary Teacher

This teacher acknowledges the fact that a UVF is literally a type of graphic organizer. *Graphic organizer* is a term for graphic representations that combine

Figure 1.7. Comparison Between Advance Organizer and UVF

Advance Organizer	Unit Visual Framework
1. Built around the major concepts and/or propositions of a discipline or area of study 2. May be in oral and/or visual form 3. Presented to students 4. Taught in its totality in the beginning of a study 5. Designed for presentation forms of instruction: lectures, discussions, films, experiments, or reading 6. Depends on knowledge of the students, of the discipline/area of study, and on well organized materials	1. Structures essential learning that will be taught/learned and assessed 2. Always multiple modalities: oral and visual evoking experiences and memories 3. Co-developed with students 4. May be built cumulatively a little at a time, until the structure of all essential learning of a unit is previewed and organized 5. Serves teaching/learning that has common learning targets for the class no matter the means to achieving them — presentation, inquiry, simulation, etc. 6. Depends on knowledge of the students, clear instructional and assessment targets, and a clear conceptualization of the unit(s) of study that will be pursued
Both: ➢ Create a structure to organize thinking about material to come ➢ Make organization explicit ➢ Relate prior knowledge to organizing structure ➢ Continually relate new material to organizing structure ➢ Promote active, critical approach to subject matter	

linguistic means (words and phrases) and nonlinguistic (symbols and arrows) to represent relationships. Webs and Venn diagrams are examples of graphic organizers that have been seen on classroom walls and in educational materials for some time. Figure 1.8 compares UVFs with other graphic organizers.

David Hyerle, in *Visual Tools for Constructing Knowledge* (1996) and the subsequent *Field Guide to Using Visual Tools* (2000), provides a clear and comprehensive theoretical basis for the use of graphic organizers. He references works from very diverse fields, such as Fritjof Capra's linking of quantum physics, information theory, and systems thinking in *The Web of Life* (Capra, 1996, cited in Hyerle, 2000, p. 28). Hyerle describes Capra's resulting

Figure 1.8. Comparison Between Graphic Organizer and UVF

Graphic Organizer	Unit Visual Framework
Format 1. Uses words/phrases and symbols, such as a web and Venn diagram; may use lines or arrows to link symbols, such as a concept map; may use illustrations and/or color cues, such as a mind map 2. May have prescribed structures: concept map has a hierarchical structure; mind map has labeled, linked lines radiating from a central idea, with infinite branches 3. May or may not visually anchor students' learning experiences and memories related to the content	Format 1. Always uses words/phrases, illustrations, and color cues; may use symbols, arrows, and artifacts 2. Built on negotiated structures that represent the learning in the minds of the students and teachers 3. Visually anchors and evokes students' learning experiences and memories related to the content, using illustrations chosen by the students
Ownership 4. Sometimes constructed for students, such as a commercially prepared or commonly used graphic organizer of the writing process, or a partially completed concept map used for assessment purposes, that has the main concept; at other times constructed by/or with students, such as a concept map or mind map that individual students construct to show their understanding; may be constructed and used by individual students and/or cooperatively by classes	Ownership 4. Always co-developed by teachers and students as a class to reach common visions and understandings; individual students also use and expand their portable UVFs
Use 5. May be a support visual as one tool of a unit or task 6. May be used for only a portion of a unit of study, or at one time period during the unit — such as at the end of the unit	Use 5. Designed to be the core visual that focuses and maintains the integrity of a whole unit of study, or a common focus across units 6. Always used from the beginning through the end of the unit

observations about systems having organizational patterns and how those patterns cannot be measured or weighed, but must be mapped as a configuration of relationships, then relates how theories linking the brain, mind, and cognition concur with Capra's work. He notes that, because we learn in patterns, graphic organizers provide a way for students to think holistically rather

than in the linear fashion that discourse often forces upon us (Hyerle, 2000, pp. 29–33). Discussing Howard Gardner's work with multiple intelligences, Hyerle further asserts that visual tools are foundational for sensing, thinking, and feeling across all of these intelligences (Hyerle, 2000, p. 35).

John Clarke, in *Patterns of Thinking: Integrating Learning Skills in Content Teaching* (1990), also cites studies from varied disciplines that support the diverse use of graphic organizers. He notes their benefits for giving an outline of the content and an expression of the kind of thinking that can be applied to the content.

The theories and research just mentioned attest to the fact that graphic organizers do more than organize information. In fact, one need only thumb through *Future Force* (McClanahan & Wicks, 1993) to see that graphic organizers can be used as potent tools for students and teachers to apply Deming's principles of quality to their classrooms, in ways similar to what businesses have done before them. To emphasize the diverse use of graphic organizers, Hyerle (1996, 2000) uses the term *visual tool.* This term reminds us to attend to both form (the way the visual looks) and function (its purpose and use) as we compare UVFs to some specific kinds of graphic organizers.

Concept Maps

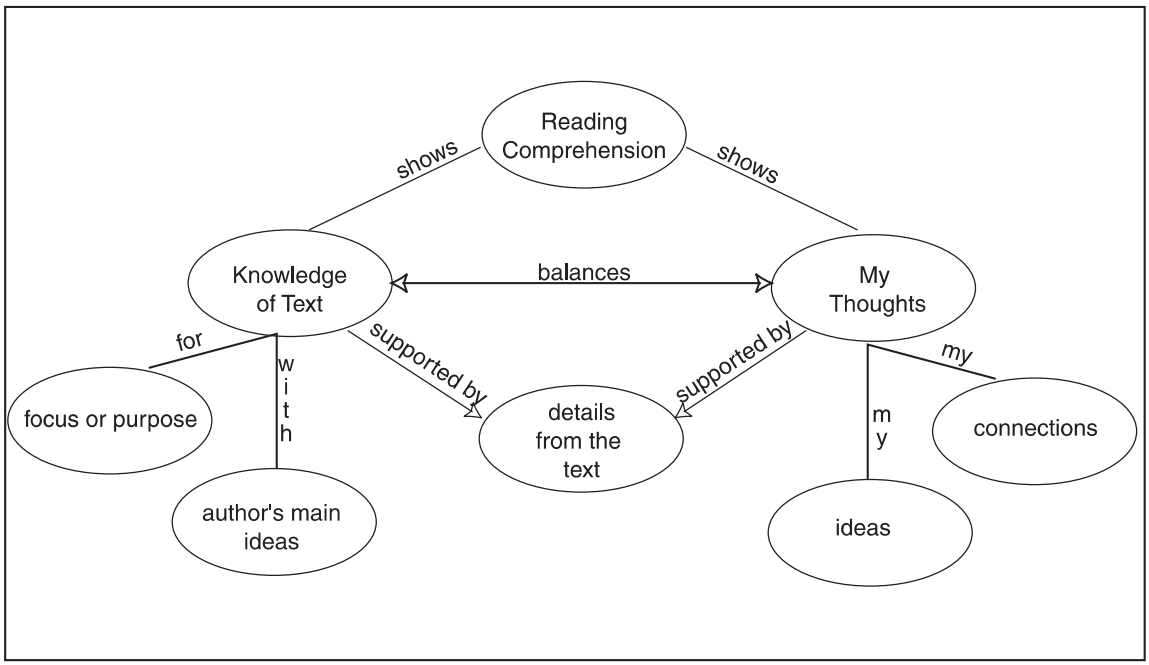
Concept maps are attributed to Dr. Joseph Novak of Cornell University, and to Robert Gowin, who collaborated with him on some works (Novak & Gowin, 1984). The maps organize a web diagram hierarchically to show one's understanding of a concept or set of concepts.

Figure 1.9 is a concept map of reading comprehension that could be one tool in the sample unit Reading to Remember and Show What You Know, which will be discussed in Chapter 5. This concept map happens to be rather symmetrical. As with any conceptual tool, it could be redrawn differently by another person or by the same person at another time. In fact, like Ausubel's advance organizer (Joyce & Weil, 1996), it is meant to serve as a conceptual snapshot that will continually be revisited to see how new learning relates to or alters it.

A concept map arranges labeled geometric shapes, such as circles or ovals, into a hierarchy that is linked by lines to show relationships. The hierarchy begins at the top with the concept or concepts to be explained and proceeds down the page with progressively more specific information about the concept. Although the primary relationship shown in a concept map is the hierarchy of ideas about a concept, other relationships can be shown by links, as the arrowed links in the center of Figure 1.9 indicate.

Though concept maps are often used for single concepts or parts of a unit of study, the Content Enhancement Series (Lenz, Bulgren et al., 1994; Lenz, Marrs et al., 1993) uses a hierarchical map to organize large studies, such as courses and units. This series does an excellent job of showing how graphic organizers can help a unit of study be coherent and cohesive. In fact, when I discovered the series, I almost stopped writing this book because of the

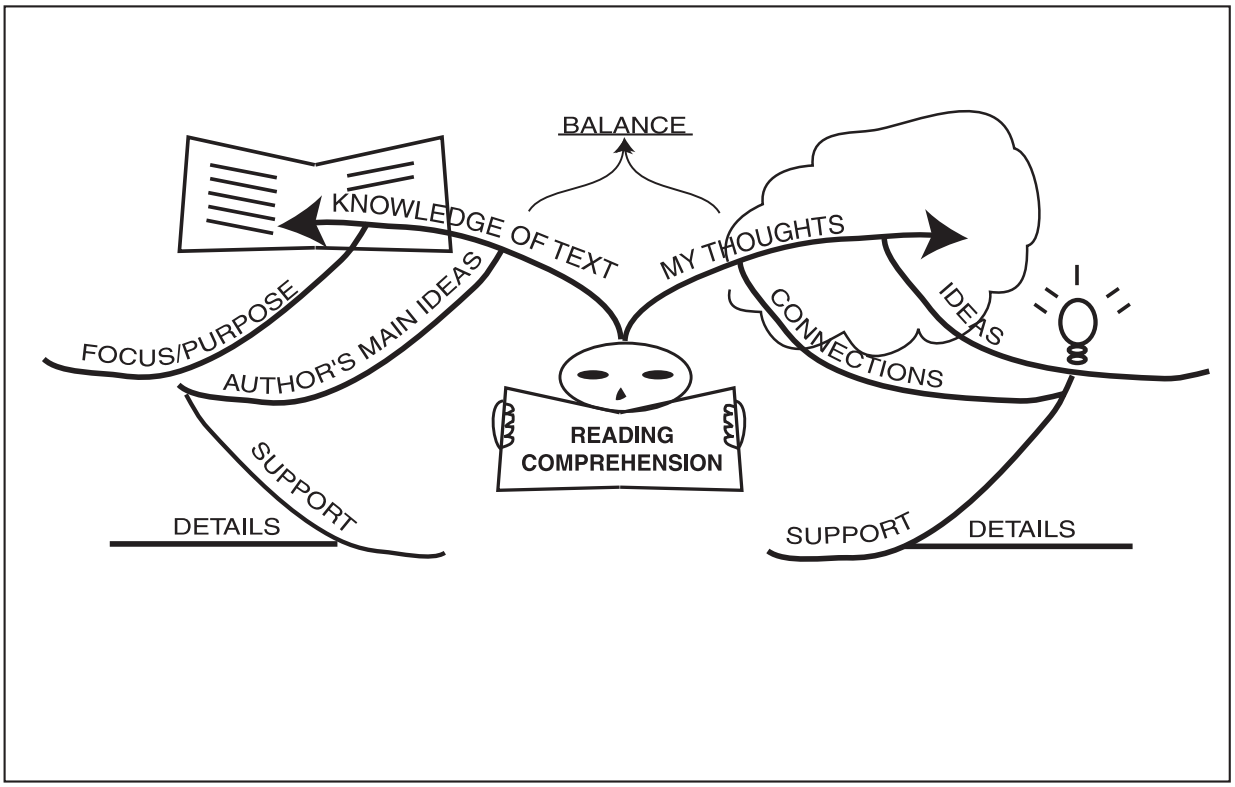
Figure 1.9. Reading Comprehension Concept Map



similarities and extensive explanations for using lesson, unit, and course organizers. The authors not only provide examples of their hierarchical graphic organizers, but also have developed clear routines that assist success. I highly recommend these materials in both their own right and as companion information to what is in this book. I wrote the book, however, because of the differences in the kind of visuals I present here, and I wanted to include examples of UVFs that support the achievement of state and national standards. Furthermore, I wanted to elaborate on how UVFs facilitate shared power by students and teachers, and enhance success by students of varied readiness, linguistic, and cultural backgrounds.

When a whole class constructs a concept map and revisits it for deeper meaning over time, similar to the way UVFs are used, the concept map's visual dependence on words and geometric shapes creates problems for some learners. Even if all students are total participants in designing a concept map, some students may have difficulty reconstructing the thinking when they return to it because the words and hierarchy may not elicit enough memory of the thought processes or learning experiences that produced it. This is apt to happen when the map has predominantly concept-specific vocabulary. Even with some more expressive vocabulary, second-language students may have difficulty recalling the meaning of the words that the class used as labels. With no illustrations, delayed or new readers may be unable to decode the words that

Figure 1.10. Mind Map About Reading Comprehension



hold the meaning within the circles or on the links carrying important relationship insights.

Mind Maps

Tony Buzan developed mind mapping in the early 1970s as a form of nonlinear note taking (Wycoff, 1991). However, like most visual tools, they have also been used for generating ideas, developing concepts, and improving memory.

Figure 1.10 is a mind map version of the same content contained in Figure 1.9's concept map. Because mind maps are nonlinear, there is wide variation in their appearance. Nonlinear does not mean random, however. Notice that, as in the concept map, words and lines still link ideas, but the structure and visual aids are different. A mind map radiates out from a central image or idea. All words are printed in capitals, and single words are suggested for each line.

Mind maps and UVFs both use color to highlight and emphasize. Mind maps also often include some illustrations. Visual differences between mind

maps and UVFs can be seen by leafing through this chapter. Additional differences in format, ownership, and use that exist between UVFs and other graphic organizers also hold true for mind maps. (See, for example, Figure 1.8.)

Joyce Wycoff (1991, p. 44) explains that each mind map is a unique product of the person who produces it. Similarly, each class's UVF will be unique, which is why a secondary teacher, who has more than one section of a particular subject, develops different UVFs for the same unit with each class. The resulting UVFs will have the same essential ideas and reflect the key structures and organization of the unit, so one class viewing another's will recognize the content; however, each UVF will reflect the students who co-develop it and their specific blend of prior knowledge and response to new knowledge and experiences. Furthermore, on their portable version of the class core UVF, individual students capture their own flow of ideas and experiences in ways that make sense to them, including using mind-mapping or concept-mapping techniques.

Concluding Statements About Graphic Organizers

Hyerle (1996) advocates using a set of consistent graphic organizers that can be used across learning contexts. He has chosen eight that he calls *thinking maps,* because they represent eight types of thinking processes: (a) a circle map for showing context/frame of reference, (b) a bubble map for describing qualities, (c) a double bubble for comparing and contrasting, (d) a tree diagram for classification, (e) a brace map for looking at whole/part relationships, (f) a flow chart for sequencing, (g) a multi-flow for cause and effect, and (h) a bridge diagram for representing analogies. Hyerle recommends this consistency for the same reason that assessment experts extol the virtues of generic or global rubrics that can be used in multiple situations: With consistent use comes less confusion, deeper understanding, and more automatic use by students. Chapter 2 of this book discusses global UVFs in the same vein.

Hyerle (1996, 2000) cautions that the use of a different graphic organizer for each situation may overwhelm students. The very reason a UVF is used as the core visual for a whole unit of study is to decrease the possibility of being overwhelmed, helping students to separate out essential elements and organize for meaningful use an abundance of information and experiences. Additionally, Hyerle suggests that when presented with multiple graphic organizers, valuable time must be spent teaching each graphic organizer as well as the related content. Because UVFs are not presented *to* students, time is spent building the visual display experientially *with* them, and using it as an ongoing, collaborative tool for deep learning and the demonstration of content. The examples, comparisons of UVFs with other visuals, and descriptive information in this chapter have set UVFs apart from the kinds of graphic organizers Hyerle cautions against.

Chapter One Visual Summary

Making Ongoing Sense of a Unit of Study

A Unit Visual Framework (UVF)

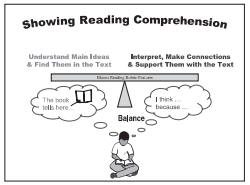
is an organic, collaboratively created, class display (on the wall, if possible) that focuses, supports, & documents a unit of study from its beginning to end.

The UVF begins as

a core visual, with pictures and key text representing the essentials of what is studied and assessed, overtly establishing focus.

Each student has a **portable core visual.**

Core Visual Example



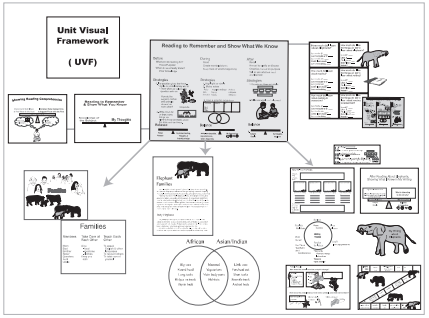
Test

If student performance or products that demonstrate understanding of the UVF **also** result in achievement of the instructional targets, **then** the UVF design is effective.

The core visual grows into

an expanded display, organized by the core visual to show learning paths and evolving, cumulative understanding of the unit.

Expanded Display Example



Test

If, throughout the unit, each student and teacher can ...

1. Successfully access & participate in unit learning
2. Establish, review, and trace learning paths
3. Observe & express cumulative understanding

Then the expanded UVF has been effectively co-developed, organized, visually depicted, & used

What Teaching/Learning Situations Do UVFs Serve?

Unit(s) of study

that allow time for a progression of experiences, which cumulatively lead to deep learning of clear targets

Pursued Together

- Common learning targets for the class regardless of means to achieving them (presentation, inquiry, etc.)
- students and teachers work the unit together, and unify any separate learning endeavors toward cumulative understanding of targets.