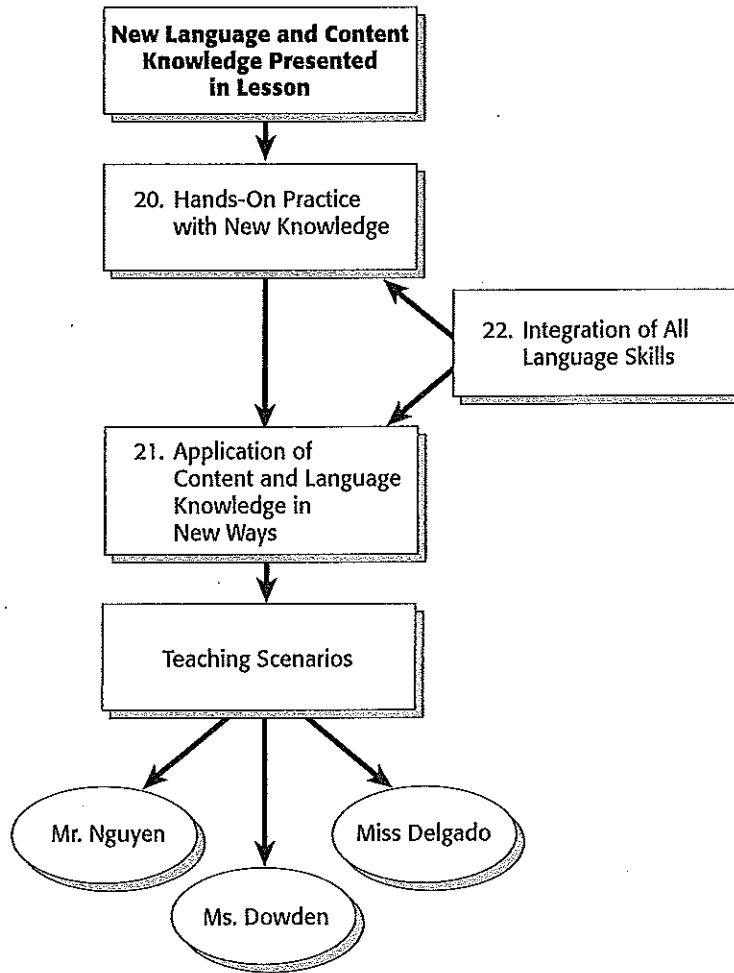


# Practice/Application



## Objectives

After reading, discussing, and engaging in activities related to this chapter, you will be able to meet the following content and language objectives.

### Content Objectives

Identify a variety of ways for students to enhance their learning through hands-on practice

Create application activities that extend the learning in new ways and relate to language or content objectives

### Language Objectives

Design activities that integrate different language skills as students practice new content knowledge

Discuss the importance of linking practice and application activities to specific lesson objectives

One common memory that most adults share is of learning to ride an adult bike. Even after riding smaller bicycles with training wheels, most of us were unprepared for the balancing act required for us not to fall down when riding a regular bike. If you had an older brother or sister who talked you through the process, showed you how to balance, and perhaps even held on to the bike while you were steadying yourself, your independent practice time with the big bike was probably enhanced. Talking about the experience, listening to someone else describe it, observing other riders, and then practicing for yourself all worked together to turn you into a bicycle rider. That feeling of accomplishment, of mastering something new through practice and applying it to a bigger bike, or perhaps a motorcycle in later years, is a special feeling that most of us have experienced as learners.

## Background

Up to this point in a SIOP® lesson, a teacher has introduced content and language objectives, built background or activated prior knowledge, introduced key vocabulary, selected a learning strategy and higher-order questions for students to focus on, developed a scaffolding approach for teaching the new information, and planned for student interaction. In the Practice/Application component, the teacher gives the students a chance to practice with the new material and with careful teacher oversight, demonstrate how well they are learning it. In the same lesson or a subsequent one, the teacher plans a task so students



need to apply this new knowledge in new ways. It is well established that practice helps one master a skill (Jensen, 2005; Marzano, Pickering, & Pollock, 2001). For SIOP® instruction, however, both the practice and application tasks should also aim for practice of all four language skills: reading, writing, listening, and speaking.

For English learners, this stage of a SIOP® lesson is very important, especially for academic language development. As Saville-Troike (1984) pointed out, both language and academic learning occur through language use in the classroom. Second language acquisition research has shown repeatedly that for an individual to develop a high level of proficiency in a new language, he or she must have opportunities not only for comprehensible input (Krashen, 1985) but also targeted output (Swain, 1985), namely oral and written practice. In the chapter on oral language development in the recent research synthesis conducted by CREDE researchers (discussed in Chapter 1), Saunders and O'Brien (2006) conclude "ELLs are most likely to use the language used to deliver instruction in their interactions with peers and teachers" (p. 41). They further explain:

. . . while use and exposure are necessary conditions, they may not be sufficient conditions, especially when it comes to achieving higher levels of proficiency involving more academic uses of language. The content and quality of L2 exposure and use are probably of equal, if not greater, importance than L2 exposure and use per se (p. 41).

What this says to us as SIOP® teachers is that we need to carefully choose the activities we include in our lessons. The activities must support the students' progress in meeting or mastering the content and language objectives. If a language objective calls for third-grade students to argue a point of view, for example, then an activity might have the students write a letter to the editor of a school or local newspaper on the content topic of lesson (or a related one for application), such as nutrition in school lunches for a health unit. If the class includes students with multiple proficiency levels, the Practice/Application component of the SIOP® Model is the ideal place to differentiate instruction. In the lesson we are developing here, the teacher might facilitate a whole-class brainstorming of pros and cons for the argument. Then some advanced-level students might write individual letters, intermediate-level students might write in pairs or triads, and beginners might work with the teacher to prepare a group letter.

Indeed, it is within this component that teachers can incorporate activities that explore multiple intelligences (Gardner, 1993), project-based learning, or other methods for meeting the different language needs of students (Vogt & Echevarria, 2008; Echevarria, Short, & Vogt, 2008). As teachers plan these practice and application activities, they should consider the structure of the task and degree of difficulty for the resulting product, the grouping configurations, the type of feedback that will be provided so it is geared to proficiency level, and the expectations for student achievement (Vogt, 2000).

In this chapter, we discuss how sheltered teachers provide English learners (ELs) with the types of hands-on experiences, guidance, and practice that can lead to mastery of content knowledge and higher levels of language proficiency. The teaching vignettes demonstrate how three high school general biology teachers, all of whom have large numbers of ELs in their classes, designed biology lessons on ecosystems.



To see an example of practical application of SIOP® features, please view the corresponding video clip (Chapter 7, Module 1) on the accompanying CD.

## SIOP® FEATURE 20:

## Hands-On Materials and/or Manipulatives Provided for Students to Practice Using New Content Knowledge

As previously mentioned, riding a bike is usually preceded by practicing with training wheels and working with a more experienced bike rider. Obviously, the more practice one has on the bike the more likely one is to become a good bike rider. Now think about learning to play a musical instrument.

Some years ago, an entrepreneur decided to market a piano-teaching course that included a cardboard sheet printed with piano keys. Students were supposed to practice the piano on the paper keyboard by following the directions printed in the course manual. The black-and-white keys on the keyboard were printed, and dotted lines represented where students were supposed to place their fingers during practice sessions. It was little surprise that the paper keyboards didn't catch on even though the course manual clearly described in incremental steps how to play the piano, because even with hours of practice on the paper keyboard, students were still unable to play the piano well. In this case, it wasn't just the *practice* that was important. Without hearing the sounds during practice, learning to play the piano was an artificial and nearly impossible task.

When learning to ride a bicycle, play the piano, or articulate how convex lenses differ from concave, students have a greater chance of mastering content concepts and skills when they are given multiple opportunities to practice in relevant, meaningful ways. When this practice includes "hands-on" experiences including manipulatives, practice sessions are enhanced. Madeline Hunter (1982), a renowned expert in teaching methods, coined the term "guided practice" to describe the process of the teacher leading the student through practice sessions prior to independent application. She suggested that we keep the following four questions (and their answers) in mind as we plan lessons involving hands-on practice for students (pp. 65–68):

1. How much material should be practiced at one time? *Answer:* A short meaningful amount. Always use meaning to divide your content into parts.
2. How long in time should a practice period be? *Answer:* A short time so the student exerts intense effort and has intent to learn.
3. How often should students practice? *Answer:* New learning, massed practice. Older learning, distributed practice. [Hunter explains that massed practice means several practice periods scheduled close together. Distributed practice means spacing practice periods farther and farther apart, such as when we review previously learned material.]
4. How will students know how well they have done? *Answer:* Give specific knowledge of results (i.e., specific feedback).

Although all students benefit from guided practice, English learners make more rapid progress in mastering content objectives when they are provided with multiple opportunities to practice with hands-on materials and/or manipulatives. These may be organized, created, counted, classified, stacked, experimented with, observed,

rearranged, dismantled, and so forth. Manipulating learning materials is important for ELs because it helps them connect abstract concepts with concrete experiences. Furthermore, manipulatives and other hands-on materials reduce the language load for students. Students with beginning proficiency in English, for instance, can still participate and demonstrate what they are learning.

Obviously, the type of manipulative employed for practice depends on the subject being taught. For example, in a tenth-grade geometry class in which students are learning how to solve proofs, content objectives might justify paper-and-pencil practice. However, if it is possible to incorporate hands-on practice with manipulatives, students' learning will probably be enhanced.



Most of our examples so far involved manipulatives. We would also include kinesthetic activities in a broad definition of this feature. For example, instead of having students fill out a worksheet on a timeline about Ancient China, they could form a physical timeline. Some students might have a card displaying a date; others one displaying an event. The students would organize themselves, first pairing the dates and events, and then forming the human timeline in the front of the room.

In *99 Ideas and Activities for Teaching English learners with the SIOP® Model* (Vogt & Echevarria, 2008), the “Bingo” (p. 130) and the “Piece O’ Pizza” (p. 148) activities offer other examples where students create the hands-on materials as part of their practice or application time. Students build a bingo chart with teacher guidance and then play the game. Individual students or small groups create a pizza slice with information that differs from their peers. They put their slices together to address the main points of a key topic.

Being told how to ride a bike or play the piano, reading about how to do so, or watching a video of someone else engaged in bike riding or piano playing is much different from riding down the sidewalk or listening to musical sounds you have produced yourself. Whenever possible and appropriate, use hands-on materials for practice.



## SIOP® FEATURE 21: Activities Provided for Students to Apply Content and Language Knowledge

Think again about the relationship between actually riding a bicycle and just watching someone else ride it, or about actually playing a piano and just reading step-by-step piano-playing instructions. As Hunter (1982) said:

The difference between knowing how something should be done and being able to do it is the quantum leap in learning . . . new learning is like wet cement, it can be easily damaged. A mistake at the beginning of learning can have long-lasting consequences that are hard to eradicate (p. 71).

We all recall our own learning experiences in elementary, middle, and high school, and the university. For many of us, the classes and courses we remember best are the ones

in which we applied our new knowledge in meaningful ways. These may have included activities such as writing a diary entry from the perspective of a character in a novel, creating a semantic map illustrating the relationships among complex concepts, or completing comprehensive case studies on children we assessed and taught. These concrete experiences forced us to apply new information and concepts in a personally relevant way. We remember the times when we “got it,” and we remember the times when we gave it our all but somehow still missed the point. Consider this as you do the activity below.

For students acquiring a new language, the need to apply new information is critically important because discussing and “doing” make abstract concepts concrete. Application can occur in a number of ways, such as clustering, using graphic organizers, solving problems in cooperative learning groups, writing a journal, engaging in discussion circles, or a variety of other meaningful activities (Peregoy & Boyle, 2005). Mainly we must remember that we learn best by involving ourselves in relevant, meaningful application of what we are learning.

For English learners, application must also include opportunities for them to practice language knowledge in the classroom. Opportunities for social interaction promote language development, and these include discussion, working with partners and small groups, and “reporting out” information orally and in writing. For example, it is appropriate, depending on students’ language proficiency, to ask them to explain a process to a peer using a newly learned sentence structure. Activities such as describing the results of an experiment, specifying why a character reacted in a particular way, and listing the steps in a process all help ELs produce and practice new language and vocabulary, as long as they are in a supportive environment.



Think about a college or graduate school course. What is one activity you remember well? What made it memorable? Did it involve different learning styles or senses? Now think about a recent lesson you taught or observed. Was there an activity that would be memorable for the students? If not, how could the activity have been more engaging and unforgettable?

Consider a middle school science class with mixed-proficiency ELs and native English speakers. To apply new vocabulary from the unit, the teacher might plan a scaffolded listening cloze dictation. The native English speakers might record what the teacher says as a regular dictation. The ELs might have two different dictation forms with more or fewer words already written down. (See Figure 7.1.) All the students listen to the paragraph the teacher reads on Gregor Mendel and the study of genetics, all participate in the listening task, but the task format is slightly adjusted to the students’ English abilities.

Teachers are sometimes unsure whether to correct ELs’ language errors during practice time or not (Peregoy & Boyle, 2005). In general, consider students’ stages of English language development when deciding. For beginning English speakers, errors may be developmental and reflect students’ native language use (e.g., not remembering to add past tense inflected endings to English verbs). Other errors may deal with placement of adjectives, sentence structure, plurals, and so forth. If errors impede communication, you can gently correct them by restating the sentence in correct form. Otherwise, leave the errors alone.

FIGURE 7.1 *Scaffolded Listening Cloze Dictation Forms*

More Proficient Students	Less Proficient Students
<p>Fill in the blanks with the missing words while the teacher reads a passage aloud. You will hear the passage twice.</p> <p>Gregor Mendel _____          _____ from parent to _____.          This _____ is called          _____. Mendel used          _____ in his _____          experiments. _____          always _____ with          the same form of a _____.          In one of his experiments, _____          _____. He          put the _____ of          tall pea plants on the _____          _____ of the short pea plants. He          discovered that _____          _____.</p>	<p>Fill in the blanks with the missing words while the teacher reads a passage aloud. You will hear the passage twice.</p> <p>Gregor Mendel studied how _____          are passed on from parent to _____.          This passing on of traits is called          _____. Mendel used          _____ pea plants in his heredity          experiments. _____ plants          always produce _____ with          the same form of a trait as the parent.          In one of his experiments, he _____          _____ pea plants. He          put the pollen from the _____ of          tall pea plants on the _____          of the flowers of the short pea plants. He          _____ that none of the _____          _____ were short.</p>

If you notice, however, that many students make the same error and it does not seem to be due to the language acquisition process, it is reasonable to plan a minilesson on the issue for a later day.

For example, Meeli, who recently emigrated from Estonia, told her teacher, "My parents sends congratulations to you." She meant that her parents sent their greetings. In reply, Meeli's teacher responded, "Thank you. I think you mean 'greetings.' Please tell your parents I send them my greetings, too." Note that the confusion over the nouns, "congratulation" and "greetings" was corrected, but the teacher did not correct the form of the verb *send* because acquisition of these verb endings occurs later in the second language development process. What is most important is that you be sensitive to errors that confuse communication; these usually can be corrected in a natural and nonthreatening way.



## SIOP® FEATURE 22: Activities Integrate All Language Skills

Reading, writing, listening, and speaking are complex, cognitive language processes that are interrelated and integrated. As we go about our daily lives, we move through the processes in a natural way, reading what we write, talking about what we've read, and listening to others talk about what they've read, written, and seen. Most young children become grammatically competent in their home language by age five, and their continuing language development relates primarily to vocabulary, more sophisticated grammar



usage (e.g., embedding subordinate clauses), and functional as well as sociocultural applications of language (e.g., using different language registers according to their audience, and developing rhetorical styles) (Peregoy & Boyle, 2005; TESOL, 2006). Proficiency in reading and writing is achieved much later, and differences exist among individuals in levels of competence. Students in particular need to learn academic language for use in school settings (see Chapter 1 for a detailed discussion).

For English learners, students may achieve competence in written language earlier than oral language, and ELs do not need to be proficient speakers before they start to read and write (August & Shanahan, 2006a). In fact, the language processes—reading, writing, listening, and speaking—are mutually supportive. Although the relationships among the processes are complex, practice in any one promotes development in the others.

Effective sheltered teachers understand the need to create many opportunities for English learners to practice and use all four language processes in an integrated manner. Throughout the day, ELs benefit from varied experiences that incorporate reading, promote interactions with others, provide the chance to listen to peers' ideas, and encourage writing about what is being learned. Because students have different preferred learning styles, when teachers teach through different modalities and encourage students to practice and apply new knowledge through multiple language processes, they have a better chance of meeting students' needs and furthering both their language and content development.

We do want to clarify that although all identified language objectives in a lesson need to be practiced and applied as the lesson advances, not all language skills that are practiced need to be tied to an objective. In other words, a language objective represents a key skill, language structure, or strategy the teacher plans to teach and intends for students to learn. In a SIOP® lesson, the teacher teaches to this objective and assesses, formally or informally, how well students are meeting it. The objective may focus on one language domain, such as writing, but in the course of the lesson, students may have additional opportunities to read, speak, and listen. These should be carefully planned but need not be assessed in the same way an objective would be.

## The Lesson

### UNIT: Ecosystems (Eleventh Grade)

The three eleventh-grade general biology classrooms described in the teaching vignettes in this chapter are in a large urban high school. Approximately 65 percent of the students in the classes are English learners, and they are nearly all in the beginning and advanced-beginning stages of English language fluency. The other students in the classes are heterogeneously mixed.

The general biology standards for the eleventh grade require that teachers include the study of ecosystems, water and nutrient cycling, symbiosis,

life cycles, and decomposition. Scientific processing skills include making observations, recording data, forming hypotheses, making models, designing projects, and experimenting. For the scenarios described in this chapter, the teachers have designed an extended unit on *ecosystems* (ecological communities that, together with their environment, form a unit) and *symbiosis* (a close relationship between two or more species that may or may not benefit each other). The lessons extend over several days.



## Teaching Scenarios

### Mr. Nguyen

Mr. Nguyen approached the subject of ecosystems by asking students to read the textbook chapter with a partner. He then provided photographs, illustrations, and procedural steps for creating an ecosystem that was essentially a covered terrarium—a container for plants and small animals. The materials he used to build the ecosystem included a glass tank, a variety of small plants, some sand, small rocks, soil, a turtle, a horned toad, and meal-worms. He poured a small amount of water into the system and put the terrarium under a soft sunlamp. He presented a brief lecture on how the various species within the ecosystem might support each other within it.

Mr. Nguyen then showed a video on a variety of ecosystems that exist on earth. Students were given a study guide to use during the video that included two columns for structured note-taking. Over the next two weeks, each student was required to complete a standard lab observation report about the changes that occurred within the newly created ecosystem. Throughout, students were encouraged to work in groups on writing up their observations and findings, and the most vocal students were enthusiastic participants during the shared discussions.

On the SIOP® form in Figure 7.2, rate Mr. Nguyen's lesson on each of the Practice/Application features.

FIGURE 7.2 *Practice/Application Component of the SIOP® Model: Mr. Nguyen's Lesson*

	4	3	2	1	0	NA
20. Hands-on materials and/or manipulatives provided for students to practice using new content knowledge			Few hands-on materials and/or manipulatives provided for students to practice using new content knowledge		No hands-on materials and/or manipulatives provided for students to practice using new content knowledge	
21. Activities provided for students to apply content and language knowledge in the classroom			Activities provided for students to apply either content or language knowledge in the classroom		No activities provided for students to apply content and language knowledge in the classroom	
22. Activities integrate all language skills (i.e., reading, writing, listening, and speaking)			Activities integrate some language skills		Activities do not integrate language skills	

### Ms. Dowden

Ms. Dowden decided that the best way for her students to understand and apply newly learned content about ecosystems was to have them read, discuss, write detailed observations, and create their own models of ecosystems. After reading and explaining the content and language objectives, she began the first lesson by introducing content vocabulary. Then students read the section of the biology textbook on ecosystems in small groups. After that, Ms. Dowden reviewed the key concepts by writing them on the board.

Because Ms. Dowden realized that many of the content concepts and key vocabulary in this unit were new and complex, she believed she could best meet everyone's needs, including ELs and English proficient students, by dividing the class into two groups. As older adolescents, her students were able to work independently, and most had experience with computers and the Internet, even though the amount of experience they had varied. Ms. Dowden directed students with higher levels of academic English proficiency to some library references and Internet Web sites related to science and biology. These students were instructed to read and research the topic of ecosystems and symbiosis and design a method for creating an ecosystem using a variety of inexpensive and accessible materials they could find around their homes. Ms. Dowden pledged her assistance in helping them with the research and the project, but she arranged for them to work together as partners and in groups to create sustainable ecosystems. She explained how students were to write and submit their plans including materials, timeline, and so forth. Once they created their ecosystems, they were to monitor the changes that occurred within them, and eventually, they would include their findings on the districtwide general biology Web site.

While a third of the students were independently researching the library and the Internet, Ms. Dowden worked with the English learners and a few other students. She introduced them to a Web site on the classroom computer that included information about ecosystems. She had printed a few pages from the Web site and together students read these, comparing the information to what they learned in their textbooks. Ms. Dowden then introduced a project in which students were to create their own "ecocolumns"—stacked ecosystems made from plastic bottles (*Bottle Biology*, 1993). Simplified directions in the form of an illustrated sequence map provided steps for creating the ecocolumns along with a list of materials that were needed. The ELs volunteered to bring materials from home, including soil, water, plants, compost, spiders, fruit flies, snails, and two large plastic soda bottles for each ecocolumn.

The following day, while Ms. Dowden modeled the process, the ELs began creating their own ecocolumns from the soda bottles that were each cut into three sections. Chambers were created using the sections of the plastic bottles, and an aquarium with water and rocks was prepared for the bottom section of the ecocolumn. Above it was a soil or decomposition unit, and above that was a plant or animal habitat. The top of the system included air holes and a precipitation funnel. Ms. Dowden modeled the creation of the ecocolumns, demonstrating each step of the process.

The students then created their own ecosystems; as they were doing so, Ms. Dowden encouraged them to discuss what was working and what wasn't, and why. Over the next two weeks, all students were expected to observe their ecosystems, including root and

soil changes and the effects of light and water. Ms. Dowden provided models of data-recording sheets that showed what students might be observing and what they should record on the overhead. All students, including those who independently created their ecosystems, used the models as guides. The ELs used specially designed data sheets on which they recorded their data in a simplified format.

The students who designed their own ecosystems completed a “bioessay” to explain the effects of different substances on seed germination and plant development (*Bottle Biology*, 1993, p. 79). The ELs were encouraged to list the changes that occurred as a result of competition among the species in their ecosystems; that is, “Did one species do better than another, and if so, how do you know? Which appeared to be symbiotic? How do you know?” The ELs were also encouraged to contribute their findings to the general biology Web site.

Throughout this unit, Ms. Dowden emphasized to all students that there was no right or wrong way to build the ecosystem or the ecocolumn. Change was considered to be a natural part of the experience, and students were encouraged to work together to determine what happened with their own systems and why.

On the SIOP® form in Figure 7.3, rate Ms. Dowden’s lesson on each of the Practice/Application features.

### Miss Delgado

Miss Delgado taught the lessons on ecosystems by having students work as partners to read the textbook chapter. She pointed out key vocabulary and orally reinforced the key

FIGURE 7.3 *Practice/Application Component of the SIOP® Model: Ms. Dowden's Lesson*

	4	3	2	1	0	NA
20. Hands-on materials and/or manipulatives provided for students to practice using new content knowledge			Few hands-on materials and/or manipulatives provided for students to practice using new content knowledge		No hands-on materials and/or manipulatives provided for students to practice using new content knowledge	
21. Activities provided for students to apply content and language knowledge in the classroom			Activities provided for students to apply either content or language knowledge in the classroom		No activities provided for students to apply content and language knowledge in the classroom	
22. Activities integrate all language skills (i.e., reading, writing, listening, and speaking)			Activities integrate some language skills		Activities do not integrate language skills	

FIGURE 7.4 *Practice/Application Component of the SIOP® Model: Miss Delgado's Lesson*

	4	3	2	1	0	NA
20. Hands-on materials and/or manipulatives provided for students to practice using new content knowledge			Few hands-on materials and/or manipulatives provided for students to practice using new content knowledge		No hands-on materials and/or manipulatives provided for students to practice using new content knowledge	
21. Activities provided for students to apply content and language knowledge in the classroom			Activities provided for students to apply either content or language knowledge in the classroom		No activities provided for students to apply content and language knowledge in the classroom	
22. Activities integrate all language skills (i.e., reading, writing, listening, and speaking)			Activities integrate some language skills		Activities do not integrate language skills	

concepts. To illustrate an ecosystem, she drew a layered ecosystem on the blackboard that included decaying plant matter, insects, and small animals. Students were directed to copy her illustration from the board and to label the various species within the ecosystem. Miss Delgado then showed a video on ecosystems and symbiosis. Each student was required to write a paragraph explaining how various species on the Earth support and contribute to each other's sustenance and viability.

On the SIOP® form in Figure 7.4, rate Miss Delgado's lesson on each of the Practice/Application features.

## Discussion of Lessons

Mr. Nguyen, Ms. Dowden, and Miss Delgado differed substantially in how they taught their units on ecosystems. As you read our ratings, compare them to your own and those of colleagues.

### 20. Hands-On Materials and/or Manipulatives Provided for Students to Practice Using New Content Knowledge

Mr. Nguyen: 2

Ms. Dowden: 4

Miss Delgado: 1

Mr. Nguyen's lesson received a "2" for Hands-On Manipulatives and Practice. Although he modeled the creation of an ecosystem (the covered terrarium) the students did not have hands-on practice. He incorporated a "one-size-fits-all" approach by having everyone do the same task. Because native English speakers represented one-third of his class, and the rest of the students were in the beginning to advanced-beginning stages of English proficiency, the most vocal and competent English speakers assumed primary responsibility for monitoring the changes in the ecosystem (terrarium). Therefore, ELs may have concluded the unit with few opportunities to participate in a hands-on manner and most likely had limited mastery of the content and key vocabulary concepts.

Ms. Dowden's lesson received a "4" for Hands-On Manipulatives and Practice. All students in her class, regardless of English proficiency, were expected to master the content concepts related to ecosystems and symbiosis. Also, all students were expected to create their own ecosystems; however, the ELs were provided with materials and clear directions, including modeling, to assist them in building their ecocolumns. The hands-on experimentation by all students reinforced the content concepts and key vocabulary, and the meaningful practice made concrete what could have been abstract for the English learners.

Miss Delgado's lesson received a "1" on the SIOP® protocol for Hands-On Manipulatives and Practice. Although she attempted to illustrate an ecosystem on the board, students were mostly passive while they copied her illustration and when they watched the video. Few of the students had the opportunity to practice using their newly learned content information or key vocabulary. It is therefore doubtful that ELs had a clear understanding of ecosystems or that students could apply what they had learned in any meaningful way.

#### 21. *Activities Provided for Students to Apply Content and Language Knowledge*

Mr. Nguyen: 3

Ms. Dowden: 4

Miss Delgado: 1

In his lesson on ecosystems, Mr. Nguyen provided his students with photographs, illustrations, and procedural steps for creating a terrarium. Even though he was the one who actually created the terrarium, his students noted changes within the ecosystem and reported on examples of symbiosis. Further, they completed data reports on their observations and Mr. Nguyen discussed them with students. They were encouraged to ask questions and to share their observations and hypotheses with other students.

Therefore, Mr. Nguyen's lesson received a "3" on the SIOP® protocol for Applying Content and Language Knowledge. Students were involved as observers in the creation of the ecosystem, and they applied what they learned through their data sheets and in their discussions. Language knowledge was applied through oral interactions and in the writing of the data reports; however, there were few opportunities for students to engage in student-student interactions, which provide language practice and develop language proficiency. The video reinforced the textbook content concepts and the demonstration provided another level of scaffolding.



Ms. Dowden's lesson received a "4" for Applying Content and Language Knowledge. Throughout the lessons, students were required to apply what they were learning, not only during the creation of their ecosystems, but also during discussion and through their submitted data sheets. ELs had multiple opportunities to apply their new knowledge and to practice English (e.g., sharing observations of changes with partners and groups). While Ms. Dowden provided independent research opportunities for English-fluent students, she carefully scaffolded the learning for ELs; but she did not lessen her expectations that all her general biology students would master the content and language objectives.

After students read the textbook chapter, Miss Delgado drew an illustration of a layered ecosystem on the board. Students copied the drawing and labeled the species. They watched the video on ecosystems and symbiosis, and each wrote a paragraph about what they had learned.

Miss Delgado's lesson received a "1" for Applying Content and Language Knowledge. Although there was no opportunity for students to apply their content knowledge in a hands-on way, they could demonstrate what they knew through their written paragraph. There were very few opportunities for students to practice or apply their language knowledge orally.

## 22. *Activities Integrate All Language Skills*

Mr. Nguyen: 3

Ms. Dowden: 4

Miss Delgado: 2

Mr. Nguyen's lesson received a "3" on the SIOP® protocol for Integrating All Language Skills. Throughout their lesson on ecosystems, English learners were given the opportunity to read, write, listen, and discuss the content concepts. However, because he did not differentiate his instruction for ELs, his less vocal students may have felt reluctant to fully participate in class discussions. In addition, Mr. Nguyen's lesson was teacher dominated, so students' opportunities for language practice were somewhat limited.

For all of her students, Ms. Dowden facilitated the reading of the textbook chapter and the information on the Web site about ecosystems. The ELs followed her demonstration on how to build their ecocolumns, discussing their work throughout. Each student kept a data sheet on observed changes in the ecocolumns, and they were expected to talk about their findings with each other.

Therefore, Ms. Dowden's lesson received a "4" on the SIOP® protocol for this feature. Throughout the lessons in this unit, English learners were reading, discussing, and writing about the process of building their ecosystems. The language processes were well integrated into the delivery of the biology content because students were not only reading and writing about what they were learning, but they also had spoken interactions with the teacher and with each other.

Miss Delgado's lessons on ecosystems involved partner reading for the textbook chapter and a lecture with a blackboard illustration on the process of decomposition of plant material. Independently, students copied her illustration from the board and labeled the various species within the ecosystem. After she showed the video on ecosystems and

symbiosis, students wrote paragraphs explaining how various species on the Earth support and contribute to each other's sustenance and viability.

Miss Delgado's lesson received a "2" for Integrating All Language Skills. Her students read the textbook, listened to the mini-lecture, watched the video, and wrote paragraphs about their understandings. However, students had few chances to connect reading and writing activities with discussion, either with the teacher or each other. There were few opportunities for students to practice language and content concepts with each other.

## Summary

With any type of new learning, practice and application of newly acquired skills are needed to ensure mastery of content concepts. Hands-on activities and materials, including manipulatives, enable students to forge connections between abstract and concrete concepts. Students make these connections most effectively when they use all language processes, including reading, writing, listening, and speaking, during practice and application.

## Discussion Questions

1. Compare and contrast the following two teachers' approaches to teaching a lesson on nutrition.
  - a. One teacher's approach involves a lecture, a diagram of the food pyramid, and a list of appropriate foods for each group. Students are then tested about their knowledge of the food pyramid.
  - b. The other teacher's approach begins with students' maintaining a food diary for a week. Copies of the food pyramid are distributed and explained, and all students must analyze their food consumption according to the recommendations on the pyramid. With a partner, students must design a nutritionally sound weekly menu for each day of the following week, and they must be prepared to defend their food choices to peer group members.

Which of the approaches to teaching this content concept is most appropriate for English learners? How do you know? Be as specific as you can.

2. One way to ensure practice and application of new knowledge is through project-based learning. Develop a unit project that students in one of your courses can build incrementally as the series of lessons progress over several days or weeks. Identify the steps to completion that students will accomplish in each lesson of the unit. Plan a culminating presentation or performance to enhance language practice.
3. English learners benefit from the integration of reading, writing, listening, and speaking. For those with limited English language proficiency, tell what may be difficult. Is it performance of all four skills? What adjustments and techniques can a teacher use to provide ELs with successful experiences while they read, write, listen,



and speak about new information they are learning? Include specific activities and examples in your answer.

4. With a large number of content standards in each subject area for which teachers and students are accountable, how is it possible to provide direct application and hands-on practice for lessons? What can teachers do to alleviate the conflict between “covering the content” and making it “accessible” for English learners?
5. Using the SIOP® lesson you have been developing, write some activities for students to practice and then apply the key language and content concepts.