

Advancing English language learners' linguistic fluency through learning centers

— Susan Ferguson Martin and Andre Green —

Before working at the university level, I taught high school biology to both English language learners (ELLs) and native English speakers. In our linguistically diverse culture, my challenge was teaching science content while also helping ELLs learn English. As a former English teacher, I found a way to do this through learning centers, or classroom areas designed for specific small-group activities.

This article shows how to use learning centers to accommodate ELLs and differentiate instruction for all learners. The activities included here incorporate content teaching strategies—covering topics such as DNA, the nature of matter, and the water cycle—and assessment techniques appropriate for both ELLs and native English speakers.

Background

Learning centers ensure that all students interact with the content, regardless of English proficiency. In fact, many of the strategies that advance fluency for ELLs also help struggling native English-speaking students. Research shows that spending more time working with peers on academic tasks may help lower ELLs' inhibitions, engage them intellectually and emotionally, expose them to the target language, and enhance their academic performances (Freeman and Freeman 2003; Schecter and Cummins 2003; Bunch et al. 2005).

I was initially hesitant to use learning centers in the high school science classroom. I had only used them in elementary and middle school language arts classrooms, but I thought the

nonthreatening nature might appeal to not only ELLs but any struggling learners. Of the 23 students in my biology classroom, 11 spoke Korean as their primary language, four spoke Spanish, three spoke German, and five were native English speakers. Fluency levels varied. Two of the five native English speakers were repeating biology, and two were transfer students who had never taken biology. The rest of the class had taken life science, which is the prerequisite class for biology, the previous year.

Considerations

Learning centers are relatively easy to set up and can be contained at a small table or desk. To help create a theme, I typically place trifold presentation boards on each table, affixing instructions and displaying graphics for use with the center's activity. Learning centers facilitate interaction among peers, shifting the focal point from the teacher to students and putting students in charge of executing their own problem solving and consequent learning. But consider several factors—not all academic—before designing learning centers for your classroom.

First, review what students are expected to know in your course so your learning centers maintain high content standards. When I did this, I found that I had been using assessments that measured linguistic knowledge but not necessarily cognition. For example, an exam might require students to know photosynthesis terms in English. A newcomer who speaks limited English may understand the process of photosynthesis, having studied it in his or her first language or understanding what was taught in the classroom, but struggle with learning the English terminology.

The eventual goal is for students to communicate cognitive understanding in English, but until they have the experience to do so, it is important to determine whether they understand the content. Consider major learning objectives when making accommodations for ELLs. Too often, we develop elaborate activities and assessments that involve more than the target objective. With learning centers, teachers can work individually with students, who can proceed at



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their own paces. The variety of assessments allows students to learn content at levels best suited to their needs while still maintaining the lesson objective.

Though many ELLs are cognitively prepared for the content, some have not yet developed the linguistic skills to communicate their understanding. Federal guidelines require that teachers know ELLs' fluency levels so they can make appropriate accommodations. Each learning center should accommodate multiple fluency levels, providing learning opportunities comprehensible to all students.

When first implementing learning centers, establish ground rules, reinforce any applicable safety rules, and educate students on what is expected of them at each center (e.g., concept goals, objectives). Consider your space requirements. Learning centers should be situated throughout the classroom with space for student groups to sit at each center and move freely between centers. In my class of 23 students, I divided students into groups of three to five. This number allowed the entire group to interact without excluding any one member. Groups generally rotate among five centers, though I occasionally set up more.

Time is another consideration (i.e., when to use learning centers and for how long and how frequently). Learning centers can be time-consuming depending on whether a teacher uses them to introduce, reinforce, review, or assess a concept or a combination of these. Some teachers use centers quite frequently (e.g., weekly), and others use them as a culminating activity or a review tool before a summative assessment.

Developing learning center activities

Teachers of English to Speakers of Other Languages (TESOL 1997) standards offer a comprehensive understanding of English linguistic fluency and academic proficiency in content areas for ELLs. Teachers can use this resource to better understand what ELLs can do at their given fluency levels and how to help ELLs advance to the next fluency level.

Based on TESOL (1997) and World Class Instructional Design and Assessment (WIDA 2007) standards and my state course of study for biology, I used a framework (Figure 1, p. 42) to develop activities that benefited not only ELLs but also native English-speaking students. I used centers for every major unit, always taking into account the varying fluency levels of students.

I typically introduce the overarching concept and related vocabulary on the first day of a new unit. On the second day, student groups of three to five—made up of combinations of native and nonnative English speakers—travel through the centers, which offer activities with the same assessment goals at varying levels of linguistic complexity. The following is a sample of the centers I have used in my classroom.

Worksheet center

This center contains different types of worksheets. Students can choose which worksheets to complete, challenging their understanding or reinforcing unit concepts. Students at more advanced fluency levels are encouraged to complete more linguistically complex worksheets. Types include

- ♦ A blank list that challenges students to explain or name the steps or parts of a process (e.g., “List the steps of photosynthesis.” “Explain cellular respiration.”).
- ♦ Fill-in-the-blank sentences and a corresponding word bank.
- ♦ A diagram with partially completed labels (e.g., an image of the human body with arrows pointing to certain body parts and some of the letters filled in).

Writing center

Writing seems to be one of the toughest forms of communication for ELLs. For this reason, teachers should provide scaffolds and examples of quality English writing, specifically in the content areas. In the writing center, students write essays explaining a process or concept (e.g., the water cycle).

BALANCE



FIGURE 1

Learning center activity framework.

(**Note:** This framework is adapted from the *English Language Proficiency Standards and Resource Guide* [WIDA 2007], *ESL Standards for PreK–12 Students* [TESOL 1997], *National Science Education Standards* [NRC 1996], and federal fluency designations for English language learners. The linguistic complexity of the activities and accommodations increase along with students’ fluency levels.)

State and federal classifications for English language learners	Entering: Non-English proficient (silent and receptive period, lasting up to 6 months)	Beginning: Limited English proficiency (an additional 6 months)	Developing: Limited English proficiency (an additional year)	Expanding: Limited English proficiency (an additional year)	Bridging: Fluent English proficiency (5–7 years)
Characteristics and expectations	<p>Label objects, pictures, and diagrams.</p> <p>Draw in response to a prompt.</p> <p>Produce icons, symbols, words, and phrases to convey messages.</p>	<p>Make lists.</p> <p>Produce drawings, phrases, short sentences, and notes.</p> <p>Give information requested from oral or written directions.</p>	<p>Reproduce bare-bones expository or narrative texts.</p> <p>Compare and contrast information.</p> <p>Describe events, people, processes, and procedures.</p>	<p>Summarize information from graphics or notes.</p> <p>Edit and revise writing.</p> <p>Create original ideas or detailed responses.</p>	<p>Apply information to new context.</p> <p>React to multiple genres and discourses.</p> <p>Write multiple forms or genres of writing.</p>
Activities and accommodations	<p>Water cycle: Draw or illustrate the water cycle.</p> <p>DNA: Using a blank diagram of the double helix, color-code phosphates, deoxyriboses, adenine, thymine, guanine, and cytosine and hydrogen bonds.</p> <p>The nature of matter: Sort various things into their material states in a graphic organizer (depending on fluency level, use pictorial or words).</p>	<p>Water cycle: Draw or illustrate and label the water cycle.</p> <p>DNA: Draw and label the double helix as in level one, classifying purines or pyrimidines and writing brief phrases to explain their differences.</p> <p>The nature of matter: In addition to the activity for level one, list the properties of each state of matter.</p>	<p>Water cycle: Describe the water cycle using simple phrases and sentences.</p> <p>DNA: Fill in a cloze passage about the nature of DNA and its role in the biology of life.</p> <p>The nature of matter: Fill in a cloze passage about the properties of each state of matter and their relationship to each other.</p>	<p>Water cycle: Describe the water cycle in paragraph form.</p> <p>DNA: Describe the role of DNA in paragraph form, explaining its composition.</p> <p>The nature of matter: Describe the properties of matter in paragraph form and explain their relationship to each other citing examples.</p>	<p>Water cycle: Describe the water cycle and explain how environmental conditions can both enhance and hinder the process.</p> <p>DNA: Explain how different organs look and function differently when all cells in the body are comprised of the same DNA.</p> <p>The nature of matter: Describe a simple experiment whereby matter is changed from one state to another.</p>

Students can also complete cloze passages—reading comprehension exercises in which words have been systematically omitted. These allow students to demonstrate their understanding without penalizing them for their levels of linguistic fluency and to participate in academically structured writing. Cloze passages can include word banks but as students become more linguistically proficient, they are encouraged to attempt writing with fewer scaffolds.

Computer center

When ELLs are becoming accustomed to oral communication, they may feel intimidated about speaking in front of native speakers. A presentation tool such as PowerPoint provides support for ELLs, directing audience attention to a screen. At this center, students visit several websites, gather information, and create PowerPoint or similar slideshow presentations to explain concepts. Many students choose to find their own informational websites, but it is helpful to suggest websites that you have deemed academically sound and beneficial (Figure 2).

Students make presentations to the teacher or other group members, improving speaking skills and developing understanding of the content. They may enjoy internet research, which they can conduct in both English and their primary languages.

Personal dictionary center

At the personal dictionary center, students make their own dictionaries (I provide one as an example) or add to previously created dictionaries. Focusing on vocabulary I suggest based on the unit, they write notes, in both English and their native languages, and draw illustrations that will help them better understand the material and master processes. I allow students to use bilingual dictionaries when necessary.

To promote a sense of cultural understanding and awareness, I encourage native English speakers to create bilingual dictionaries, as well—using the primary languages of their group members. Students can also use a foreign language they are studying. In my district, biology is part of the high school graduation exam, so students appreciate having their dictionaries as study tools.

Conclusion

Learning centers can help teachers assess students' content knowledge without penalizing them for language barriers. With the increasing number of ELLs in classrooms, the emphasis on mastery of content and inclusion of all students in class discussions and activities will provide all students a chance for scientific literacy. ■

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On the web

Cellular respiration: www.sumanasinc.com/webcontent/animations/content/cellularrespiration.html

NOVA: www.pbs.org/wgbh/nova

Photosynthesis: Light reactions: <http://dendro.cnre.vt.edu/forestbiology/photosynthesis.suf>

References

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FIGURE 2

Useful websites.

(Note: See “On the web” for links to the websites below.)

Website	Description
Photosynthesis: Light Reactions	Allows students to observe the step-by-step process of photosynthesis, including clearly labeled diagrams and explanations.
Cellular Respiration	Explains and illustrates the components of cellular respiration.
NOVA	Contains extensive information about many different topics, including current events in science.