Considering ELLs When Planning Lessons

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Abstract: *Teachers typically prepare lesson plans for non-ELLs and then attempt to "retrofit" lesson plans for ELLs. This article offers suggestions for planning mathematics lessons that meet ELLs' needs.*

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1 Introduction

Despite the burgeoning population of English language learners (ELLs), mainstream teachers do not feel prepared to meet their needs (Lucas, 2011). There is a myth that mathematics is easy for ELLs because it is a universal language, but the mathematics used today involves more language than the traditional approaches used in the past (Ewing, 2017). There is more emphasis on word problems and on justifying answers (Ewing, 2016). Whereas teachers need training in many areas on how to meet ELLs' needs, the focus of this article is to offer guidance to mainstream elementary teachers for planning lessons for ELLs in mathematics.

Harper and de Jong (2004) note that teachers tend to treat ELLs the same as non-ELLs rather than capitalizing on their language and cultural strengths. Typically teachers prepare lessons for non-ELLs and later attempt to "retrofit" their plans to meet the needs of ELLs (Meyer, Rose & Gordon, 2014). Teachers might find it helpful to consider reversing the order on occasion—to plan for ELLs and then adapt the lessons, as necessary, to meet the needs of non-ELLs.

2 Cultural Responsiveness

Often when lesson plans are retrofitted, they are not culturally responsive. This is unfortunate, since culturally responsive lessons help diverse students learn content in greater depth (Gay, 2009). Culturally responsive teaching involves more than simply replacing names used in textbook word problems (Kersaint, Thompson & Petkova, 2009). For example, if there is a word problem about Mary going to the mall and buying dresses, merely changing the name to Maria is unlikely to provide an adequate hook to interest Mexican ELLs. Teachers need to learn what ELLs are interested in so they can tie mathematics to the lives of their students in meaningful ways. For instance, a student from Monterrey, Mexico, will likely be more motivated to answer a mathematics problem about "arrachera" (a typical beef dish from that region). When teachers make the mathematics relevant to all students' lives, ELLs will be more likely to participate in discussions (Leonard & Guha, 2002). Bresser, Melanese, and Sphar (2008) add that when teachers learn a few words of the ELLs' heritage vocabulary and use these words in their instruction, ELLs are encouraged to value their own language.

3 Teaching English in the Mathematics Classroom

Mainstream teachers need to help ESL teachers develop ELLs' English in all subjects, including mathematics. As ELLs become more proficient in English, they solve word problems more effectively, develop stronger mathematical arguments, and are better equipped to critique arguments of their peers (Ewing, 2016). When writing mathematics objectives for lesson plans, language objectives should be included (Borgioli, 2008). Kersaint et al. (2009) recommend developing English proficiency in students through mathematical conversation rather than lecture. ELLs are more likely to share if teachers develop a safe environment for students where mistakes are considered learning opportunities (Kersaint et al., 2009)—a classroom where conversation and listening are valued help support the development of such an environment.

While questions for ELLs will vary depending on student proficiency, ELLs of all ages should be asked probing questions to further develop their English skills and strengthen their mathematical thinking. For the ELLs at lower levels of language proficiency, questions that require one-word answers are often appropriate (e.g.,"What color comes next?"). ELLs with more advanced English proficiency should be asked to justify their answers. By asking questions that challenge ELLs mathematically and linguistically, teachers can develop mathematical concepts and English proficiency (Ewing, 2016).

4 Adding Literature to Lesson Plans for ELLs

Engaging students with mathematics-oriented literature (e.g., picture books) provides teachers with a method for enhancing cultural responsiveness while strengthening ELLs' proficiency with English. Turner et al. (2009) report how storytelling and reading books motivated two classes of Spanish-speaking kindergartners to solve challenging word problems. For example, after a teacher read a book about bees, one student noticed that the beehive was the same shape as the hexagonal blocks they used during their mathematics instructional time. The teacher also told a story about going shopping at a local market familiar to most of the students. She asked how many oranges there would be if she had six and her son added six more. Throughout the year, the teacher used stories such as these as a framework to facilitate learning for her kindergartners. The students in the study became more confident and competent as a result of culturally relevant instruction.

Similarly, we can choose culturally relevant books to read to students to complement our mathematics instruction. Note that such an approach should be undertaken with care. For instance, we can't assume that all ELLs have the same experience as characters in children's books (Ebe, 2010). ELLs may be uncomfortable with what they perceive to be errors or stereotypes. Shioshita (1997) proposes choosing books that are recently published and portray characters in a positive light. To avoid stereotypes, she recommends avoiding books that make sweeping statements about any culture. In light of Turner et al.'s (2009) and Shoshita's (1997) research, the following four books featuring Mexican ELLs, the biggest group of ELLs in the United States, provide examples of how teachers may begin with ELLs in mind through short, relatable stories. Teachers can extend these stories to their own context and the content they teach. When teachers read these books at the beginning of mathematics classes, for example, opportunities to engage in culturally relevant discussions of content are enhanced (Kersaint et al. (2009). While the stories below are short, they have the power to lower the ELLs' affective filter, inviting them to join in a risk-free setting that encourages them to master content and language. For ELLs who have the daily challenge of learning a new language in addition to content, use of books such as these encourage students to persevere and be successful.

4.1 *Round is a Tortilla* by Roseanne Thong

This rhyming read aloud-content book for four to seven year-olds intertwines Spanish and English vocabulary words. There are only a few words in Spanish, and the mathematical terms are in English. The Spanish words will catch the Mexican ELLs' attention and encourage them to share about their culture. The pictures are inviting and can lead to discussions about shapes in our surroundings. Thong mentions that "sandia" (watermelon) is a triangle and "ventanas" (windows) are squares. After introducing these objects, Thong asks the reader to find more shapes in the colorful pictures. Teachers can ask the students to compare the properties of the various shapes. If teachers want, they can teach the Spanish vocabulary words to the whole class. Many of the geometry words are cognates and are similar in English and Spanish (Circle/círculo, triangle/triángulo, and rectangle/rectángulo). Reading this picture book to students with similar backgrounds may motivate them to learn their shapes.

4.2 *¡Hola! Jalapeño* by Amy Wilson Sanger

¡Hola! Jalapeño is a book about Mexican food that preschoolers would enjoy, but I have read this to students of all ages. Sanger brings the food to life as she describes how the "frijoles negros" dance and the tamales have hidden presents. The last two pages offer teachers help in pronouncing Spanish words, but the savvy teacher might ask the Spanish-speaking students in the class for help. After reading this short board book, teachers can instruct a lesson on number sense. In the early grades, students can compare the number of "frijoles negros" in two bowls. If the goal is multiplication, teachers can ask questions such as, "How many olives would there be if there are three in each tostada and there are six tostadas?" Teachers might ask their students how many tamales they would need so that each student may eat two. Students can also come up with number sense problems of their own.

4.3 *The Night of Las Posadas* by Tomie DePaola

A famous author, Tomie DePaola, writes this book for ages 4 to 8. It takes place in New Mexico and is a colorful account of Hispanics who are still celebrating their Christmas traditions in the United States. The book describes the tradition of a town play with Mary and Joseph looking for a place to stay in a "posada" (inn). When the actors, Lupe and Roberto, get caught in a snowstorm, a miracle takes place so the play can continue. Since this book is longer than the other books reviewed, teachers may choose to read part of the book to the students before leading a discussion on how students celebrate holidays. Teachers can apply the story to many topics, including measurement. For example, in this book it is mentioned that Sister Angie makes costumes for Maria and Jose. Teachers could ask students to decide how much material Sister Angie will need for the two costumes. Other measurement tasks could involve Jose's staff or the distance that the actors walked in the procession.

4.4 *Look What Came from Mexico* by Miles Harvey

Harvey offers a non-fiction book that includes many aspects of life in Mexico, such as traditions, clothing, and a recipe for guacamole. It is written for seven to ten year olds–each theme is full of colorful photographs and key words are highlighted. Teachers may lead a discussion on life in Mexico, which can segue to lessons on financial literacy. Students can be asked how many pesos they would need to buy the items habaneros (chili peppers), rebozos (shawls), and vihuelas (mariachi instruments). For the older grades, students can calculate the potential cost and profit of making and selling yucca baskets. This book is written in stand-alone chapters, which remain short; thus the invitation to ELLs is brief yet inviting as the conversation eases into the world of mathematics.

5 Conclusion

To meet the needs of ELLs, lessons need to be culturally relevant and develop students' English. Teachers need to know the culture and the lives of their ELLs so that they may design lesson plans that will engage them. Culturally relevant mathematics texts (e.g., picture books) are useful for enhancing lesson plans for ELLs. Using literature in mathematics lessons sends the message to ELLs' that their language and culture are valued. Lastly, literature-infused lessons are typically appropriate for non-ELLs and encourages them to learn about another language and culture while learning mathematics.

To see examples of other book suggestions appropriate for Mexican ELLs and the integration of mathematics content, please go to `ewinglearning.com`.

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