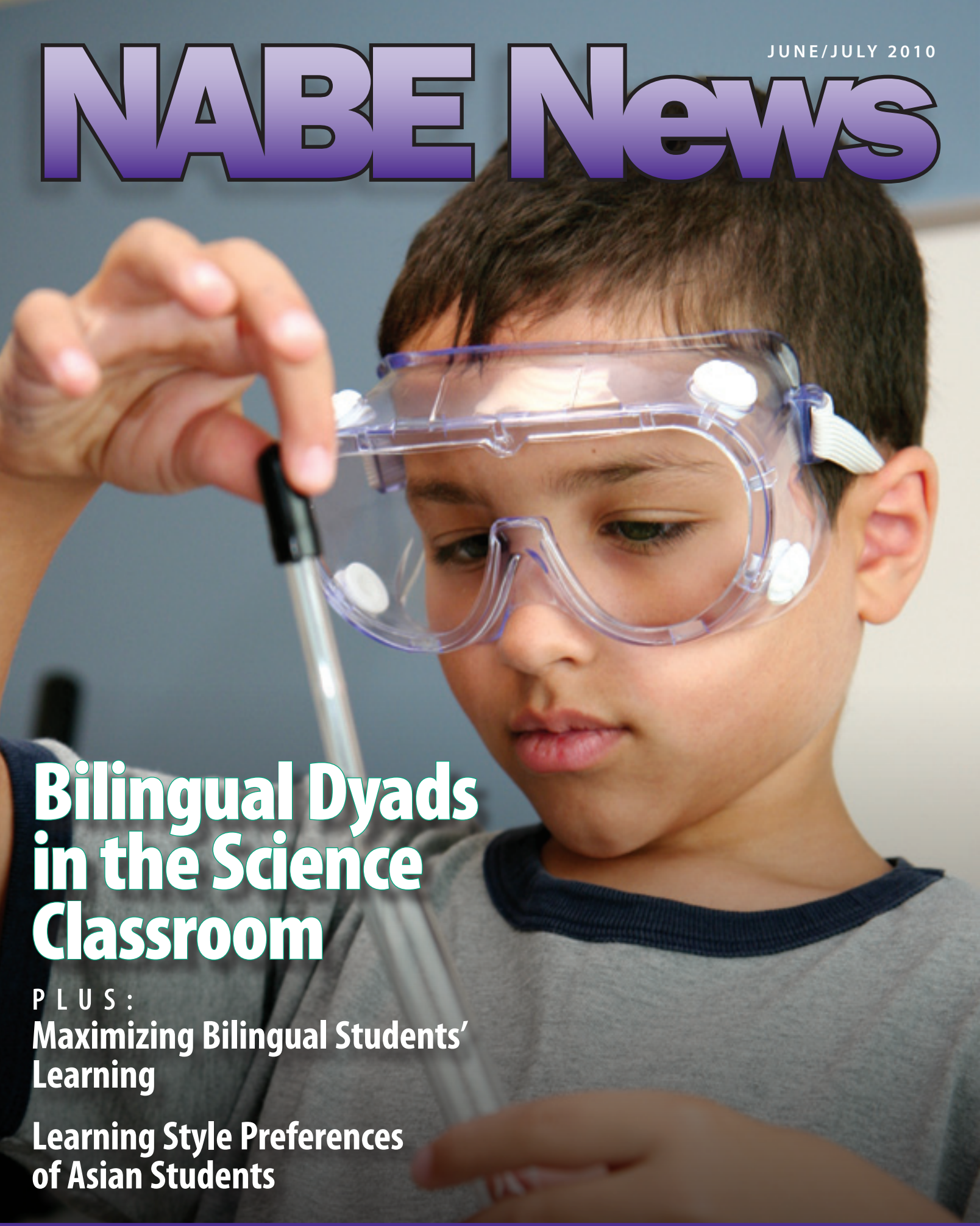
JUNE/JULY 2010

# NABE News



## Bilingual Dyads in the Science Classroom

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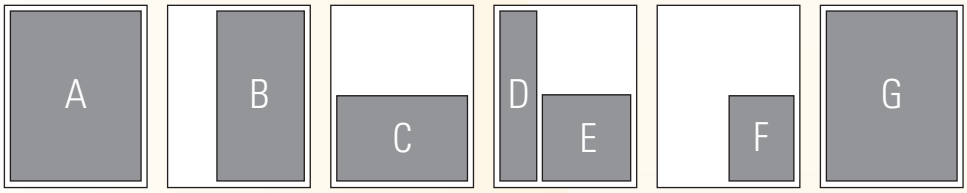


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Issue 3: February/March
Issue 4: April/May
Issue 5: June/July
Issue 6: August/September

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Articles for *NABE News* must be original, concise, and accessible, with minimal use of jargon or acronyms. References, charts, and tables are permissible, although these too should be kept to a minimum. Effective articles begin with a strong "lead" paragraph that entices the reader, rather than assuming interest in the subject. They develop a few themes clearly, without undue repetition or wandering off on tangents.

The *NABE News* editors are eager to receive manuscripts on a wide range of topics related to Bilingual and English learner programs, including curriculum and instruction, effectiveness studies, professional development, school finance, parental involvement, and legislative agendas. We also welcome personal narratives and reflective essays with which readers can identify on a human as well as a professional level.

Researchers are encouraged to describe their work and make it relevant to practitioners. Strictly academic articles, however, are not appropriate for *NABE News* and should be submitted instead to the *Bilingual Research Journal*. No commercial submissions will be accepted.

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Each issue of *NABE News* usually contains three or four **feature articles** of approximately 2,000 – 2,500 words, often related to a central theme.

**Reviews** are much shorter (500 – 750 words in length), describing and evaluating popular or professional books, curriculum guides, textbooks, computer programs, plays, movies, and videos of interest to educators of English language learners. Manuscripts written or sponsored by publishers of the work being reviewed are not accepted. Book reviews and articles should be emailed to:

Dr. José Agustín Ruiz-Escalante
jare21@yahoo.com

**Columns** are Asian and Pacific Islander Education and Indigenous Bilingual Education. (If you have other ideas for a regular column, please let us know.) These articles are somewhat shorter in length (1,000 – 1,500 words, and should be emailed to one of the editors below:

*Asian and Pacific Islander Education*
Dr. Clara C. Park: clara.park@csun.edu

*Indigenous Bilingual Education*
Dr. Jon Allen Reyhner: jon.reyhner@nau.edu

### PREPARING ARTICLES FOR SUBMISSION

Manuscripts to be considered for the August/September issue must be received by July 15. Manuscripts to be considered for the October/November issue must be received by September 15. Reference style should conform to Publication Manual of the American Psychological Association (5th ed.). Articles and reviews should be submitted electronically to NABE Editor, Dr. José Agustín Ruiz-Escalante at jare21@yahoo.com in a Microsoft Word file, 11 point, Times New Roman, double-spaced. Be sure to include your name, affiliation, e-mail address, phone and fax numbers.

Photographs and artwork related to the manuscript are encouraged. Please include the name of the photographer or source, along with notes explaining the photos and artwork, and written permission to use them. Photographs should be submitted as separate TIFF, or JPEG/JPG files, not as images imported into Microsoft Word or any other layout format. Resolution of 300 dpi or higher at actual size preferred, a minimum pixel dimension of 1200 x 1800 is required. (Images copied from a web page browser display are only 72 dpi in resolution and are generally not acceptable.) When in doubt, clean hard-copy images may be mailed for scanning by our design staff.

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# NABE News

The Magazine of the National Association for Bilingual Education

## Cover Story



## Columns & Articles



## Departments

# Letter from the President

**José Agustín Ruiz-Escalante**
**NABE Board President**

The U.S. Department of Education finally announced the appointment of the Deputy Secretary and Director of the Office of English Language Acquisition. The bilingual community had anxiously been waiting for such an important appointment. It took a while to make this announcement, but the appointment of Dr. Rosalinda Barrera to this position was worth the wait and NABE is extremely pleased. This is the first time in over ten years that we have a bilingual educator heading the office.

Dr. Barrera has been serving as the Dean of the College of Education at Texas State University-San Marcos since 2005. Dr. Barrera earned her doctorate in curriculum and instructional with a specialization in reading from the University of Texas at Austin. Her research has focused in the development of literacy skills of Latino/Mexican American children as well as immigrant students. Dr. Barrera has worked at New Mexico State University and the University of Illinois at Urbana-Champaign in the area of curriculum and instruction.

NABE welcomes such an important appointment, and we are looking forward on establishing a working relationship? with Dr. Barrera. This relation will help us address the issues affecting bilingual learners in this country. It is a good feeling to know that an advocate of children and bilingual learners is serving in such important position. Dr. Barrera is an advocate and an individual who knows bilingual education. NABE together with other advocate groups can assist the US Department of Education on drafting bilingual education legislation and programs that address the academic needs of our students and that will have a positive effect on them. We are willing and ready to contribute to all efforts aimed at transforming the education of bilingual learners.

Our 40th Annual Conference is fast approaching. We extend an invitation to all of you to join us in New Orleans to celebrate this milestone. We are planning an exiting conference together with our local committee headed by Dr. Norma Hernandez. The LABE membership is exited to be hosting NABE once again. Please check our website for information on registration, call for papers, and other activities associated with the conference.

I would like to take this opportunity to thank the many individuals who continue to support the NABE's goals and mission. In particular, I would like to thank Carolyn Riddick and Celia Torres for their total commitment to our association. As NABE has reduced its staff, Carolyn and Celia continue to provide the services necessary to keep NABE going. We recently moved our office to Silver Spring, Maryland. The move was not easy, but thanks to Celia and Carolyn, we are finally settled in our new office. These two ladies have dedicated their time and effort to make sure that NABE continues operating regardless of the situation. We appreciate their loyalty and dedication to our children and NABE members.

Sincerely,

José Agustín Ruiz-Escalante

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# Bilingual Dyads in the Science Classroom

## Infusing the 5E Model with Student Talk

*María G. Arreguín-Anderson*
*University of Texas at San Antonio*

*Lynda Cavazos*
*University of Texas at San Antonio*

Student talk is a crucial ingredient in science classrooms. When students verbalize their thinking in well designed science activities, they become aware of their own conceptions and misconceptions about the natural world. Opportunities for verbalization are especially crucial for English Language Learners. Therefore, when invited as a guest teacher in a fifth grade bilingual classroom a first priority was to design opportunities for language use as well as content mastery. The goal was to engage students in complex thinking while they talked. For this lesson with bilingual learners, the first author explored ways to infuse the 5E learning cycle (Engage, Explore, Explain, Elaborate, and Evaluate) with a variety of peer dyad learning strategies aimed at raising the students' levels of linguistic and cognitive engagement. Although bilingual learners at the beginning levels of second language acquisition may be hesitant to talk, science instruction can be modified through purposeful infusion of resources such as visuals, sentence stems, gestures, and repetition.

## Theoretical Framework

Our theoretical framework draws from Vygotsky's socio-cultural perspective suggesting that interaction with a more capable other or someone with a different knowledge base facilitates learning (O'Donnell, 1999). This interaction may progress from rote learning to advanced levels of thinking. Vygotsky (1978) referred to this process as the zone of proximal development, the distance between the actual developmental level and the level of potential development in collaboration with adult guidance. Ultimately, learning is determined by the quantity and quality of socialization and interaction.

MacNaughton (2003) coincided with Vygotsky (1978) that the social environment is crucial in guiding and challenging students to engage in new and differentiated thinking. Mental processing may also involve "major qualitative transformation in thinking" (Berk & Winsler, 1995, p. 11). Therefore, instruction for bilingual learners must provide "hands-on and minds-on" experiences that support linguistic and cognitive development, and be reminiscent of the social context. Koch (2010) argues that social contexts are influential in the individual's ideas because they are constructed through communication. When language is socially transformed it becomes more meaningful as the social context is more implicated in a concrete experience.

Vygotsky (1978) stated that scaffolding allows students to be active agents in cooperation with their peers resulting in higher levels of thinking, questioning, and language use. This form of cooperation evolves in learning communities. Not only is Vygotsky's theory relevant to the discussion on science in general social contexts, but it is specifically relevant to the discussion on peer bilingual dyads. Benefits of working in dyads vs. working alone include increased opportunities for verbalization and significant cognitive-academic gains (Fawcett & Garton, 2005; Kumpulainen & Kaartinen, 2003; Rittle-Johnson, Saylor, & Swygert, 2007). In the following section, we provide an overview of factors to consider when implementing cooperative learning in dyads.

## A Brief look at Dyads in the Classroom: First Steps

Student characteristics play a key role in successful dyadic interactions. Criteria for assigning students to dyads must stem from a conscious analysis of their learning styles, personality, race and ethnicity, gender, and levels of second language proficiency. Because girls and minority students tend to participate less in cooperative learning activities (Webb, 1984) heterogeneous dyads can be planned so that both partners contribute equally toward the successful completion of a task.

Additionally, transitioning from whole group structures to dyads should be a smooth process. Pocket charts with students' names written on index cards facilitate quick regrouping and must be visible from any point in the classroom **(see Figure 1).** In the early grades, names are generally accompanied by the child's picture. Along with the use of pocket charts, other physical aspects of the classroom also contribute to a smooth transition. Classroom furniture should be arranged so that students can regroup without major distractions and students' desks can be set up in clusters of four to allow an easy combination of dyads.

After logistics have been considered, teachers should gradually introduce basic cooperative skills. Explicit modeling on taking turns, asking questions, and/or taking the role of the audience should precede full engagement in highly structured dyadic interactions, specifically when this type of dynamics is new to the students (Bass, Contant & Carin, 2009). Once a routine for peer dyad interaction has been established, special attention must be paid to the quality of conversations between students. Studies indicate that students do not spontaneously engage in complex thinking and high levels of elaboration during classroom interactions unless prompted to do so (Briton, Van Dusen, Glynn, & Hemphill, 1990). Dyad structures increase quality and frequency of responses during practice of process skills, especially when children are asked to explain and/or justify their thinking (Tudge, 1992). Because "different types of interaction facilitate different kinds of learning" (King, 1999, p. 88), the cognitive demands embedded in simple and complex process skills requires a variety of collaborative learning structures. With this in mind, the following section presents a lesson on force and movement adjusting peer dyad strategies to the phase of instruction and the process skill in practice.

Figure 1: Sample of Pocket Chart for Organization of Peer Dyads.


## Dyadic Interactions within the 5E Model

### Engage

This lesson examined force and movement in relation to mass and matter. First, we reviewed the concept of gravity and discussed everyday examples of this downward force. Then, I showed a fragment of a YouTube video demonstrating a bird hovering over a beach in California and asked students to predict how long the bird would remain on the same spot. Rather than simply asking the whole group for predictions and having only two or three students respond, I asked all students to verbalize and explain their thinking to their partner. The *Engage* phase is key in challenging pre-existing beliefs, mental structures, or misconceptions to a point where students perceive the need to "open a new space" for learning. I displayed the predicting dyad conversation patterns so that students could refer back to it during their conversation. Subsequently, dyads viewed the complete video and checked their predictions.

### Predicting Dyads

> **Partner #1:** What are your predictions? How long do you predict the bird will be able to hover over the same spot?
>
> **Partner #2**: I predict that _____ will hover for approximately _____ minutes because _____. What are your predictions and why?

Formative assessment of these dialogues occurred through random selection of 2-3 students who were separately asked to summarize their partners' predictions and the theory behind those predictions. This practice yielded a double opportunity for active cognitive engagement. First, it required verbalization and justification of students' responses. Then, it held them accountable for listening and speaking to their partner in the context of academic and skill-related interactions.

### Explore

The *Explore* phase promotes self-discovery and requires a well planned combination of structured and ill-structured dyadic interactions. I planned accordingly. First, using a variety of symmetric paper shapes, dyads built and tested four flying objects (see Internet Resources for more information on these activities). Each member of the dyad was asked to select a different type of material to modify one of the objects. The flying objects were listed and predictions related to duration of flight were made before conducting tests. Then, dyads compared results and predictions. Next, students grouped and described the flying objects that hovered for longest and shortest periods of time; placed the objects in two groups and identified two similarities and two differences. Finally, as a dyad, they completed the following statement:

> Some objects hovered the longest because _____. (Use observations in orderto draw conclusions).

High-level reasoning dyads in which observations lead to in depth analysis of data allow students to clarify their thinking, think-aloud, and venture conclusions that otherwise would remain untold when activities are conducted in larger groups (Johnson, Johnson, & Smith, 2006).

### Explain

The *Explain* phase of inquiry represented a special challenge. Along with academic concept development and a focus on content area vocabulary, I wanted to assist students with knowledge organization skills (Bass, Contant & Carin, 2009, p. 123). I also emphasized the role of their students as active listener/speakers. Johnson, Johnson, & Holubec (1998) proposed informal cooperative activities through the use of discussion pairs. Paraphrasing pairs, the strategy selected, was structured in the following way:

> **Partner#1:** Tell me one thing that surprised you during our exploration and why?
>
> **Partner#2:** (Response)
>
> **Partner #1:** "So what you are saying is……."

Using a PowePoint presentation and the textbook as the context, I incorporated Note-Taking Pairs, a strategy in which both members of the dyad participate in a whole class discussion, learn academic concepts and vocabulary related to the topic, and take notes. During this part of the lesson, I made stops that allowed student to share, compare, and take at least one note from their partner's journal. For assessment purposes we used a rubric (see Figure 2).

### Elaborate

As an extension, each member of the dyad built a different kind of kite. Partner A built a one-straw kite (see references for more information). Partner B built a bamboo stick kite (see internet resources for more information). I provided each dyad with a

Figure 2: Rubric for Assessing Note-Taking in Dyads

| | Notes Related to Concept | Neatness and Clarity | Required Entries | Cooperation in Dyads |
|---|---|---|---|---|
| **3** | 2-3 notes related to gravity, mass, and matter in connection to the website were added to the journal. | Notes are complete sentences with correct grammar and punctuation. | One additional note taken from the partner in the dyad and incorporated. | Peer dyads dialogued and exchanged information. |
| **2** | Notes with unclear connection to gravity, mass, and matter were added to the journal. | Notes include incomplete sentences and a few grammatical and spelling errors. | One incomplete note was taken from the partner in the dyad and incorporated. | Peer dyads seemed to be distracted and/or did not exchange information in both journals. |
| **1** | Entries as insufficient (1) and/or do not relate to gravity, mass, and matter. | Notes are not coherent. | No notes were incorporated. | Peers did not exchange information. |

Figure 3: Rubric for Kite Design and Construction

| Performance Level | | |
|---|---|---|
| | **2** | **1** |
| **Cooperation in Dyads** | Students listened to each other's ideas. Helped and/or requested help from their partner when needed. | Students did not work in a dyad. |
| **Design and Construction** | Final version of the kite incorporates opinions from both members of the dyad and can fly efficiently without being pulled by gravity or losing control. | Kite does not fly efficiently and/or is not stable. |
| **Design Process** | Both students designed/built their own kite, shared their design, and contributed to the new design of a kite. | Final design included features produced by only one of the members without input from both partners in the dyad. |

construction paper, regular typing paper, and butcher paper. Part of the challenge in this task was the discussion of what makes a kite fly and how some materials may cause the kite to be pulled down by gravity. In order to promote participation of both members in a dyad, individual members were asked to:

1. Build and/or design their own kite, share their ideas with their partner, and try it out.
2. Discuss and decide on the final version of the team's kite, which could be a combination of both designs or one that proved to be more efficient and on which both members agree.
3. Make modifications (if necessary) as a team (see Figure 3).

### Evaluate

Formative assessment was emphasized throughout the inquiry process by keeping students accountable for contributing and listening to their partners in the dyad. This was also done through informal pairs or informal cooperative learning strategies that initiated with simple indications such as: 'Turn to your partner and ask…" In these instances, I monitored, listened, and checked for understanding through random selection of pairs for further questioning. The use of rubrics during the explain and elaborate phase of inquiry targeted skills such as cooperation, communication, planning an investigation and drawing conclusions alone and in pairs.

## Conclusion

Designing science instruction in classrooms where bilingual learners are present is a complex and demanding endeavor. Because bilingual learners generally exhibit different levels of second language proficiency, instruction must be tailored to accommodate their linguistic needs while supporting academic growth. The dyad learning strategies described in this article purposely infuse inquiry instruction with opportunities to use academic spoken language as students interact with their peer. Peer scaffolding, through dyadic interactions, is a strategic method that significantly enhances learning in a social context. Teachers contribute to this process through inquiry lessons that connect the instructional discourse with social interactions, and opportunities for reflecting. The goal is to maintain a high cognitive demand that is congruent with science reform documents advocating science literacy for all, including diverse learners (The American Association for The Advancement Of Science [AAA], 1990). ★

On a final note, because this article focuses on the use of dyadic interactions, the activities related to force and motion are described briefly. A more detailed account can be found under the Internet Resources section that follows.

## Internet Resources

20-minute Kite
http://www.bigwindkites.com/20kids/

Aims Education Foundation-Unbelievable Flying Objects and One-Straw Kite
www.aimsedu.org

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# Developing Science Bi-literacy: Maximizing Bilingual Students' Learning

*by: Zulmaris Diaz*

If I were to ask your students about their science class what would their responses be? Something like: "science, what's that? We never do science;" or "boring, we only read the book and answer questions;" or "fun, we are always doing experiments and learning new information." I hope their answers are on the lines of the latter statement. But sadly for many students, and hopefully not yours, their experiences with science are limited, negative, or constrained to the preparation of the state mandated test. As a result, a great percentage of students in the United States are only achieving partial mastery of the prerequisite knowledge and skills that are required for proficient grade level science work. According The Nation's Report Card in 2005, only 41 % of 4th grade students identified as non- English language learners were performing at the basic level in The National Assessment of Educational Progress (NAEP)[1] while only 23 %of English language learners reached this level.[2] See **Table 1** for more NAEP results.

With these results in mind, we should question ourselves: "Are we teaching science effectively? How effective are we at delivering science instruction to bilingual learners? If our students were to take the NAEP how well would they do?" As indicated by Arreguín-Anderson and Diaz (in press), "students' understandings and views on science are greatly determined by the way they are taught." Thus, our teaching practices should promote in our students inquiry, understanding, and passion for science. Moreover, for bilingual students the main goal should be to develop science bi-literacy, having competency to learn and perform academic scientific tasks in both languages.

However, many teachers believe that the best way for bilingual learners and urban students to learn is by means of direct teaching (Barnes & Barnes, 2005) where the teacher delivers the "knowledge" to the students via textbook reading, teacher lecture, and discussion. This type of teaching approach is responsible for the widely spread myth that science is the result of rote memorization of concepts. Likewise, this type of instruction provides students with fewer opportunities to inquire and to learn on their own "the very strategies that make for successful science learning throughout their years of schooling" (p. 75). In other words, telling about "science

Table 1: Average Fourth Grade NAEP Science Scores and Percentage of Students Identified as Non-English Language Learners and English Language Learners, 2005

| U.S. students | Average Score[1] | Below Basic | Basic | Proficient | Advance |
|---|---|---|---|---|---|
| Non- ELLs | 152 | 30 | 41 | 27 | 3 |
| ELLs | 120 | 72 | 23 | 4 | — |

Source: NAEP (http://nationsreportcard.gov/tuda_science/t0110.asp)

without being allowed to do science is like learning the alphabet without being encouraged to put letters together to make words" (Victor, Kellough and Tai, 2008, p. 63).

Science is learning, inquiring, and trying to find answer to the wonders of the universe. Therefore, a science classroom should foster curiosity, openness to new ideas, and informed skepticism (American Association for the Advancement of Science, 1990). Children, like scientists, are curious by nature. It is our role as teachers to foster their curiosity and to guide and help them find answers to their questions. One of our goals as science educators should be to create open-minded citizens, those that are willing to listen and consider others' ideas even if these ideas contest their own beliefs. Nevertheless, being open to new ideas require skepticism. Students need to learn to question and to critically analyze the information presented; they cannot assume as truth everything that is told to them.

## Teaching Science Through Inquiry

By now you are probably asking yourself: then how should I teach science to bilingual students? What is most important to target, the knowing or the doing of science? Arreguín-Anderson and Diaz (in press) state that "excessive emphasis on conceptual understandings of science has resulted in students who "know" something about science; they store it in their short term memory, and eventually forget about it;" therefore, we should concentrate on the doing. We need to expose our students to scientific knowledge, one that is developed through observation, appropriate questioning, designing and implementing experimentation, and drawing valid conclusions. Through the doing bilingual students can develop scientific knowledge because it gives them the opportunity to learn the abstract concepts and the vocabulary of science through hands-on experiences, thus transforming the cognitively demanding context into comprehensible input. Furthermore, the doing of science promotes conversations and require students to do scientific talking; which means "learning the rules of scientific discourse, such as making arguments based on evidence, communicating scientific information through oral, written, and graphic forms of representation, and using scientific terminology appropriately" (Luykx, Cuevas, Lambert, & Lee, 2005. p. 121). Science talking gives bilingual learner the opportunities to talk extensively about their thinking of science, which often times they are not allowed to do in the classroom. In a nutshell, we need to teach our bilingual students the knowing by means of the doing, while providing them opportunities to do the talking.

> Children, like scientists, are curious by nature. It is our role as teachers to foster their curiosity and to guide and help them find answers to their questions.

Children come to school with many questions; they want to find the answer to their whys. Their frame of reference is their experiences with the world and their prior knowledge. Therefore,

> *If children are struggling with an idea, they need time to come to a physical understanding of it before they can really use it in their world. If they do not have these opportunities, they may learn the words and information they need for school. They may get all the answers right on a test. And they may also create another kind of understanding on their own. They may come to believe that there is something called "science," in which they are told what to see, what to know, and what to think, and that is rather unrelated to the world they experience outside of school (American Association for the Advancement of Science, 1990, p. 31).*

Based on how children learn, the National Research Council endorses inquiry[3] as the preferred method of instruction for science education. To teach science through inquiry, it is imperative that the students play a crucial role in the science classroom; they need to be users and producers of science. This can be accomplished if students are provided with the opportunity to formulate their own scientific questions, conduct investigation, and find ways to answer these questions. Consequently, the teacher's role is of a facilitator; one that guides the students to find the answers or solutions to their inquiries. Learning through inquiry "does not happen by accident;" the teacher needs to provide opportunities in which students are motivated to experiment in order to "develop the targeted learning objectives" (Abruscato & De Rosa, 2010, p. 43). And one of the main goals of an inquiry science classroom is for students to become independent learners.

## Incorporating the 5E Inquiry Model

There are many ways to promote inquiry in the science classroom. However, many science teachers tend to follow the 5E model that is based on the constructivist theory of learning. The constructivist theory of learning proposes learners build their own understanding and meaning based on their experiences. Each of the 5 E's represents five stages of a sequence for teaching and learning:

1. ***Engagement***: this phase should "grab" the students' attention and curiosity by linking the new concept to the students' prior experiences.
2. ***Exploration***: gives time to students to get involved with the topic and to explore their own ideas. It provides students a chance to find the solution by themselves.
3. ***Explanation:*** this is the time to clarify and explain the concept and to explicitly point out the difference between students' beliefs and generalizations. At this stage reading from the text book, teacher

Table 2: Teaching Archimedes' Principle Using the 5E Inquiry Model

### Engagement

Show the students a lemon and a lime and ask them:

- What do you think will happen to each if I put them in this glass containing water?
- Would both of them sink or float?
- Why do you say that?

Then demonstrate the experiment to the students and discuss the findings

### Exploration

- Tell the students that they are now going to create a boat made off aluminum foil that can hold as many pennies as possible.
- Before creating the boat, ask the students to use their science journal to draw a sketch of the boat they are planning to create and to write an explanation of why they think their sketch will hold the most pennies. They can also write any questions or curiosity that might come to their mind.
- Then have the students discuss with their group members their sketches and have them decide which model they are to create for their group.
- Allow students to experiment. They are to create a boat out off aluminum paper and place it in a bucket full of water. They are to place as many pennies as they can on top of their boat until the boat sink (remind them to keep track of how many pennies they are placing)

### Explanation

- After all the groups have completed their experiment have each group bring their boats to the front and tell how many pennies their boats hold.
- As whole class discuss: the similarities of the boats that held more pennies; the similarities of the boats that held the least amount of pennies; their conclusions for these results; their hypothesis in relation to the shape of the boats.
- Now you can explain or have students read Archimedes Principle. Have them explain to each others what it means to them.
- Also, you can find online a small video excerpt that explains the concept. (If your school offers Brain Pop, you can find the video Buoyancy which clearly explains the concept.

### Elaboration

During this stage, students can visit the science learning center. Some of the activities they can do at the learning center are:

1. They can create 2 boats one that will hold the least amount of pennies and another that will hold the most.
2. They can pour salt to the water and experiment with different amounts of salt to see if it affects the results.
3. Fill a glass with water up to the rim and have students drop paper clips and see how many paper clips it takes for the water to overflow.

### Evaluation

Students can use their science journals to write about their findings. To reduce the linguistic demand, bilingual students should be allowed to use drawings or illustrations; they can also use their native language when needed.

lecture and discussion occurs. It also gives students the chance to take what they have learned so far and figure out what it means.

4. ***Elaboration***: this phase provides students with the opportunity to further explore the concept through a variety of activities.
5. ***Evaluation:*** at this time, both students and teacher find out how much learning and understanding has taken place.

You might not be so sure if this method of instruction will work for your students and how you can incorporate the 5E model into your teaching, but let me recount a personal experience with this model. One day, my students, pre-service bilingual teachers, and I were discussing the article *Learning a Second Language* by Ellen Bialystok which discusses the challenges second language learners face when learning science. The reading starts with a classroom excerpt in where the teacher explains to the students that they will be learning about Archimedes' Principle and to do this they are to read in their text the following:

> *"Archimedes' principle says that the buoyant force on the object equals the weight of the fluid it pushes aside. So the object will rise or sink depending on whether it weighs less or more than the fluid it displaces. Since they have equal volumes, the object will rise or sink depending on whether it is less or more dense than the displaced fluid" (Ritter 1999, p. 147, as cited by Bialystok, 2008, p. 107).*

So I asked my student to express in their own words what they just read. Many showed puzzled looks and others re-read the text but were not so sure of the meaning of the text. As a result, I decided to show the students how to incorporate the 5E model to teach this concept. After the demonstration all of the students were able to explain Archimedes' Principle in their own words. **Table 2** demonstrates the lesson I presented to introduce Archimedes Principle using the 5E model.

Using the 5E model provides bilingual learners with enough exploration that will facilitate the understanding of complex science concepts. It also allows students to do and talk science; they experiment and have to communicate their findings through

group discussion and later in writing in and safe and supportive environment.

## The Role of the Centers in the Science Inquiry Classroom

A science learning center can also serve as means to promote science learning because "learning science is something that students do, not something that is done to them" (National Research Council, 1996, p. 20). Through the science learning center students can actually take the role of scientists. They have the opportunity to actively and independently experiment with the concept to be learned and examined. It allows students to be in charge of their own learning.

The learning centers can be used to promote and elaborate on a concept previously explored in class, as well as a follow up to a unit or series of lessons on a particular content standard. In all cases, the activities in the learning center expose students to multiple representations of a concept through a variety of hands-on, academically based, meaningful activities. Some other benefits to using centers in the science classroom are:

1. Provides students with an environment that encourages positive behavior, active engagement and autonomy;
2. Gives students the opportunity to explore, discover, create, practice and apply scientific skills, as well as to problem solve and use critical thinking skills;
3. And allows students to become independent learners. (Diffily, Donaldson & Sassman, 2001)

For the bilingual student, the center can also have a twofold purpose: 1) to lay a strong foundation in the language of instruction and 2) to encourage the use of the other language (Diaz, Arreguin-Anderson, & Sarmiento- Arribalzaga, in press). To accomplish this, it is important that the science center includes activities in both languages. I suggest that for every 3 activities provided in the language of instruction, one activity should be offered in the other language. The activities should NOT be a translation of one another; this defeats the purpose, if the same activity is supplied in both languages the student will choose to work in the language he/she feels more confident. Take advantage of science learning centers, it can also help promote science bi-literacy.[4]

## In Conclusion

If the students were **only** assigned to read the science text, answer the questions at the end of the chapter, and asked to memorize factual information, we would be neglecting their learning needs as well as eradicating their desire to inquire and learn science. It is of essence that we awaken in our students the desire to inquire and the love for science, but to do this as educators we need to accept the challenge of creating and inquiry classroom in where bilingual learners will explore, experiment, and discover. It is our duty to provide our students with the necessary tools to succeed in school and to become individuals who can learn and carry out academic responsibilities in both languages. ★

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> [Science Learning Center] allows students to be in charge of their own learning.

### Notes:

1. The National Assessment of Educational Progress (NAEP) a nationally representative and continuing assessment of what America's students know and can do in various subject areas
2. NAEP Achievement Levels:

   Basic: denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade assessed

   Proficient: represents solid academic performance for each grade assessed: demonstrate competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

   Advance: denote superior performance at each grade assessed

   (Source from NAEP Frequently Asked Questions)

   Maximum score=300
3. Inquiry: is a question, an investigation, a close examination which intends to find a solution to a problem, or an answer to a questions, or merely to expand knowledge
4. To learn more on how to help bilingual learners develop content bi-literacy you can refer to Diaz, Z., Esquierdo, J. J., De León, L., Almaguer, I., & Curts, J. (Eds.) (in press). Teaching Content to Latino Bilingual-Dual Language Learners: Maximizing their learning. Kendall Hunt.

# Learning Style Preferences of Asian Students

*Clara C. Park, California State University*

This study investigated the four basic learning styles (auditory, visual, kinesthetic, and tactile) and preferences for group and individual learning of Asian (Chinese, Filipino, Korean, and Vietnamese) students in secondary schools and compared them with those of white students based upon 803 cases collected from 10 high schools in California. For statistical procedure, multivariate analysis of variance (SPSS MANOVA), univariate F-tests, and post hoc multiple comparisons of means tests (Scheffe test) were used. Reid's (1987) self-reporting questionnaire of perceptual learning styles was used. This is the first comparative study of learning style preferences between Asian American and white students in secondary schools. The findings of this research shed important light on the organization of instructional activities, curriculum development, and teacher training.

Learning styles are broadly described as "cognitive, affective, and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (Keefe, 1979, p. 4). More specifically, style refers to a pervasive quality in the learning strategies or the learning behavior of an individual, "a quality that persists though content may change" (Fischer & Fischer, 1979, p. 245). Schools that addressed the learning styles of previously underachieving American youngsters showed significantly increased achievement test scores and improved the students' attitudes toward school. Similar responsiveness to the learning style preferences of Asian American English learners may increase their school achievement.

Asian American students are an expanding ethnic group in U.S. public schools. The majority of Chinese, Koreans, and Filipinos immigrated to this country after 1965 although they have long American roots prior to the Immigration Reform Act of 1965. However, Vietnamese are new immigrants who came to the United States in the 1970s mainly as refugees.

Asian Americans, Chinese and Koreans especially and to a certain extent Filipinos and Vietnamese, have distinct cultural values, such as conformity to authority and respect for elders, taciturnity, strong social hierarchy, male dominance, and a high emphasis on learning which are deeply rooted in the Confucian tradition. These cultural traits are exhibited in family socialization practices. In general, Asian American students tend to be passive and nonverbal and rarely initiate class discussions until they are called on. It is because reticence and humility are highly valued Asian cultural traits. Therefore, they do not want to show off what they know nor do they want to lose their face in case their answers are not correct (Park, 1999). In Asian classrooms there are hardly any experiential and interactive learning activities, nor small group activities (Park, 1999). Asian students are apt to learn through rote memorization. They usually listen to a teacher's lecture, take copious notes, and answer teachers' questions. Asian students are taught to be polite and are encouraged to remain silent. The classroom talk is dominated by the teacher. Thus, Asian students come from a highly controlled and structured classroom environment to a more open and flexible American classroom environment where small group activities and free discussions are encouraged (Park, 1999).

Moreover, there is significant cultural diversity observed within these Asian American groups. In general, Chinese and Korean students tend to be highly competitive and individualistic, due to their parents' stress upon academic excellence, which often means striving to be the best in class (Park, 2003). For Chinese and Koreans, and to some extent Vietnamese and Filipinos, the Confucian philosophy is very much alive and sets a powerful interpersonal norm for daily behaviors, attitudes, and practices that demand reflection, moderation, persistence, humility, obedience to superiors, and stoic response to pain. The great majority of Chinese and Korean students have had a solid pre-immigration schooling experience (Park, 1991), while many Vietnamese students experienced interrupted schooling prior to their immigration to this country (Trueba, Cheng, & Ima, 1993). On the other hand, Filipino students bring with them very diverse linguistic skills in English and varied educational backgrounds. Public education at the elementary level is compulsory in the Philippines, although it is often not enforced (Trueba, Cheng, & Ima, 1993). Many Filipinos are direct descendants of Spaniards who conquered the Philippines and are, therefore, Christians; others are black Africans who represent several racial types. As such, the Filipinos are highly diversified ethnically and racially.

Due to these diverse backgrounds, Asian American students show different academic needs and patterns. In order to help close the achievement gap among various Asian American student groups, to reduce their dropout rates, and to meet the different needs of these students, it is crucial that they are provided a viable educational environment by first identifying the preferred learning styles of Asian American students.

> In order to help close the achievement gap among various Asian American student groups, to reduce their dropout rates, and to meet the different needs of these students, it is crucial that they are provided a viable educational environment.

## Findings and Implictions

The findings of this study shed important light on the learning style preferences of Asian students in secondary students and have great implications for educators. Asian students favor a variety of instructional strategies. They exhibit either major or minor learning style preferences for all four basic perceptual learning styles (auditory, visual, kinesthetic and tactile) and individual learning except for group learning style.

Chinese, Filipino, and Korean students appear to be visual learners. Therefore, teachers are encouraged to use more visual materials to provide effective instruction for these Asian American students. Writing the lecture content on the blackboard, showing films and videos, using charts, character webs, graphs, computer graphics, graphic organizers, semantic maps, and other materials that can visualize instructional content appear to be helpful to these students.

Korean and Chinese students, like white students, do not prefer group learning, while Filipino and Vietnamese students do. This means that cooperative learning activities in small groups appear to match the learning style preferences of Filipino and Vietnamese students, but a mismatch for Chinese, Korean, and white students. Therefore, teachers need to be careful when placing newly arrived Korean or Chinese students in small groups. They might want

to put them in pairs rather than in groups during their initial adjustment period and between the same sexes rather than between boys and girls, because most Korean and Chinese boys and girls go to separate middle and high schools in their native countries and still tend to hold traditional concepts of separation between sexes. Korean or Chinese students who are new to this country may initially feel uncomfortable about working closely with the opposite sex in small groups and contribute less than they are capable of.

All ethnic groups in the current study indicate major preferences for kinesthetic learning and minor preferences for tactile learning. Educators are encouraged to plan instructional activities for them to learn by doing and develop curricular materials that will require whole body involvement and provide experiential and interactive learning. For example, teachers may have students conduct interviews of real people in the community, then write an "I-Search Paper," or have a debate on a focus issue based on their research in social studies or literature class. In a math or science class, teachers may use materials that will engage both their mind and body, such as content-related computer games, or provide laboratory experiments to write about. Also, hands-on activities such as math manipulatives, algebra and integer tiles, geoboards, task cards, electroboards, flip-charts, and computer-assisted instruction will greatly assist all students, especially Vietnamese students. These findings have great implications for materials development and teacher education.

In order to provide a viable educational environment for all students, teachers are encouraged to identify the learning styles of their students, match their teaching styles to students' learning styles for difficult tasks, and strengthen weaker learning styles through easier tasks and drills.

In addition, teachers are also encouraged to teach students diverse and specific learning strategies to improve their academic performance, especially because the majority of them plan to go to college (Park, 1991, 2003). ★

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# Place-based Education

*Jon Reyhner, Northern Arizona University*

Students have trouble finding meaning in decontextualized one-size-fits-all curriculum and instruction that does not relate to their cultures and homes. The best way to contextualize education is to relate what students are learning to their heritage, land and lives. While students need to learn the knowledge and skills codified in state standards, they also need to have some choice in what they read and what type of learning projects they can become engaged in.

> The best way to contextualize education is to relate what students are learning to their heritage, land and lives.

A 2006 report on the National Science Foundation's Rural Systematic Initiative notes that "Place-based education strengthens communities" and is "inherently interdisciplinary and project-based, it builds on local resources and expertise without great cost" (Boyer, pp. 114-115). This idea of teaching students about their specific locality and its people and their cultures and languages is not new. Neither is the criticism of teaching that focuses on test preparation and memorization, which can lead to school dropouts who give "boredom" as the leading cause of their leaving school.

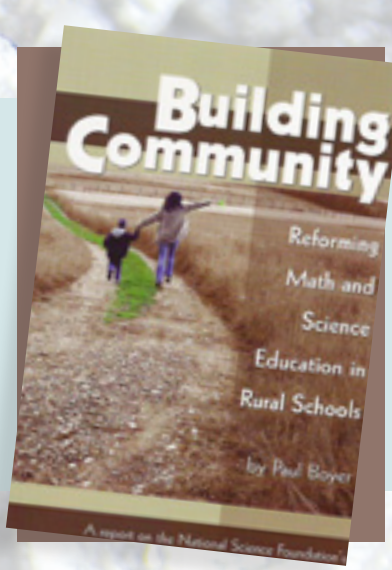
Back in 1928 the Meriam Report, an investigation of the U.S. Government's Indian Office, noted that in some Indian schools children were forced to "maintain a pathetic degree of quietness" (p. 332). In the 1933 edition of his *How We Think* John Dewey called on teachers to engage their students in "constructive occupations" or "projects" that engage students' interest, have intrinsic worth, awaken curiosity, and are carried out over an extended period of time (pp. 216-217). These projects should integrate as many of the basic subjects taught in schools as possible. More recently, University of Toronto researcher Jim Cummins (1992) identified culturally appropriate experiential and interactive teaching methods that build on students' background knowledge and engage their interest. The active learning strategies that Cummins and others advocate would go far in getting students motivated to come to school, learn, and stay to graduate.

The "project method" was used successfully with Indian students in the 1930s and 40s in South Dakota. In Fundamental Education in an Amerindian Community published by the Bureau of Indian Affairs in 1953 and printed by Haskell Indian School students, Pedro T. Orata described how the Bureau in the 1930s consulted with the community and worked to make the curriculum more relevant to students' lives at Little Wound School in South Dakota. At that time, community concerns could be as simple (and as important) as locating outhouses away from drinking water supplies. On the Navajo Reservation developing water sources for livestock was a major concern.

American Indian education has been criticized for being too vocational and slighting academics in the past with racism being seen as a factor that lowered the government's expectations of the academic potential of American Indians. However, the Director of Education for the U.S. Indian Office from 1936 to 1952, Willard Beatty was himself a graduate of a model vocational high school in San Francisco saw the value for everyone of a challenging curriculum that combined academics with vocational education.

*"Place-based education strengthens communities" and is "inherently interdisciplinary and project-based, it builds on local resources and expertise without great cost."*

(Boyer, pp. 114-115)




## Place-based Thematic Units Incorporating Projects Incorporating Math and Science

The exploitation of natural resources on reservations through coal mining and other extractive industries, Indian gaming, and a host of other issues facing American Indian Nations can become engaging projects for Indian students to study. For example, the dependence of the Hopi and Navajo Nations on the strip mining of coal for a large portion of their budgets along with its impact on their land and water resources can be a topic for study. Projects involve an integrated approach to the various subject areas so that a unit on Indian gaming could involve probability in math as well as a study of its economic and social effects.

Considering the environmental concerns currently facing us locally and globally, one possible topic for a thematic unit that integrated science, mathematics and other school subjects would be a unit on oil. The recent oil spill in the Gulf of Mexico in conjunction for some politicians call for "drill baby drill" could help spark students interest in this topic. Such a topic for a thematic unit would be particularly relevant if the students' tribe, like the Osage in Oklahoma and the Navajo in the Four Corners Region, numbered oil among their natural resources.

In regard to science, especially geology, topics for students to study more in depth include how oil is formed, where it is found, and whether we have reached, or are rapidly approaching, "peak oil" production and thus need now to rapidly develop alternative energy sources. In regard to economics, how oil is pumped, refined, distributed, and used along with why oil prices rise and fall are important subjects of study. In addition students could study the environmental impact of oil production, ethanol production, and the burning of gasoline. The film March Point made by three Swinomish teenagers documents some of the effects of having a large oil refinery near their reservation in Washington State (see http://www.pbs.org/independentlens/marchpoint/)

A teacher can connect a number of subjects into a thematic unit on oil. The Osage in Oklahoma were both blessed and cursed with oil wealth. Some were killed to get their riches and the Federal Bureau of Investigation in the 1920s was able to solve some of these murders. Maria Tall Chief's family moved to Los Angeles and used their oil money to give their daughter ballet lessons, lessons that led her to become a world-famous ballerina.

Not only individual Indians have benefited of mineral royalties. Today, the Southern Ute are one of richest tribes in the U.S. because while they lost much of their land to allotment in what was left of their reservation, they retained the mineral rights and natural gas was found in enormous quantities, which is shipped today by pipeline to Los Angeles and other places. Based on mineral royalties and investments the Southern Ute Indian Tribe's Growth Fund approaches two billion dollars in value.

While environmentalist are calling for a radically decreased usage of fossil fuels, many tribes depend on oil, gas, and coal royalties to operate their tribal governments and employ tribal members. Some of the first tribal governments, including the Navajo tribal government, were first set up by the U.S. Government's Indian Office, now the Bureau of Indian Affairs, to sign mineral leases, but often these leases seriously undervalued what was being sold. Twenty-two tribes formed the Council of Energy Resource Tribes (CERT), a Native OPEC, in 1972 with Peter McDonald, leader of the Navajo Tribe, as its first chairman. It now has over 50 member tribes in the United States and Canada.

Whether it is getting students to study issues related to oil, salmon, Indian gaming or some other locally relevant issue, there are many ways that creative teachers can put before their students a cornucopia of issues for their students to pick projects from that can get them reading and writing and learning more about science, mathematics, history, economics, the arts and other subjects. ★

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# LA EDUCACIÓN BILINGÜE O MULTICULTURAL EN CENTRO AMERICA Y LA REPÚBLICA DOMINICANA.

**Los maestros becarios del Programa Internacional CASS 2010, de El Paso Community College, José Alberto Escobar de Guatemala, Margarita Molina de El Salvador, Marbeli López de Nicaragua y Santo Jeremía Cayetano de República Dominicana, compartimos algunas políticas y estrategias en la conservación y promoción de la Educación Bilingüe y Multicultural en nuestros países, para el fortalecimiento de los valores culturales.**

Presentadores, Maestros de Centro América y República Dominicana

En Guatemala; el Modelo Educativo Bilingüe Intercultural trata de dar respuesta a las demandas educativas de los 22 Pueblos Mayas, Garífuna, Xinka y Ladino que coexisten en el país, en recibir una educación en su propio idioma y desde su propio contexto, cosmovisión y cultura en los diferentes niveles del sistema educativo nacional.

Las fortalezas para la implementación de este Modelo Educativo son: El proceso de enseñanza aprendizaje se basa en los principios de la multiculturalidad, el multilingüismo y la interculturalidad; desarrolla los saberes y conocimientos ancestrales de cada pueblo e incorpora selectivamente los conocimientos universales de otras culturas del mundo; desarrolla competencias básicas para la vida, la cultura y la productividad; afirma y fortalece la identidad de las niñas y los niños; mejora los indicadores de eficiencia, retención, promoción escolar; aborda la concepción holística de la realidad, el equilibrio entre hombre y mujer, la convivencia armónica y dialógica, el respeto a las diferentes culturas, en el marco del Desarrollo Humano.

Como todo proceso innovador, la puesta en marcha de éste nuevo Modelo Educativo padece de debilidades que nosotros los docentes chapines estamos transformando en retos a superar a través de nuestro esfuerzo y lucha por la reivindicación de nuestros pueblos. Mencionaré algunos por su incidencia en nuestra labor educativa: En el sistema educativo aun no se concretiza el ejercicio pleno de la ciudadanía multicultural e intercultural; la estructura social del país no ha permitido responder a las demandas y necesidades educativas de los Pueblos que existen en él; las estructuras administrativas, técnicas y financieras del Estado no permiten el cumplimiento de las leyes pertinentes al desarrollo de la educación bilingüe intercultural; carencia de una visión básica compartida en los niveles técnico, administrativo y docente del Ministerio de Educación; carencia y aplicación de materiales educativos pertinentes a la cultura y al idioma de los (as) niñas y niños de los cuatro pueblos; aunque en los últimos años se han impreso libros de textos en los diferentes idiomas que se hablan en el país y el currículum contempla la enseñanza de la lengua materna de la niña y el niño y es el maestro quien está sujeto a adecuarse al contexto del estudiante; finalmente la existencia de Escuelas Multigrado y Escuelas Unitarias ( un solo maestro para los seis grados de primaria) atendiendo a más de 75 niños en un solo salón,impiden el desarrollo adecuado del proceso educativo.

Los fines de la implementación de éste Modelo Educativo son: Desde la visión de los Pueblos "proporcionar una educación basada en los principios humanos, científicos, técnicos, culturales y espirituales que forman integralmente a la niña y al niño , lo preparen para el trabajo, la convivencia social y le permita al acceso a otros niveles de vida" y "Cultivar y fomentar las cualidades físicas intelectuales, morales, espirituales y cívicas de la población, basadas en su proceso histórico y en los valores de respeto a la naturaleza y a la persona humana".

En El Salvador; el idioma oficial es el castellano y constitucionalmente está establecido su conservación y enseñanza en todas

las instituciones educativas del país , así como también su lengua autóctona que es el Nahuat. En la actualidad existe una eminente influencia del Inglés sobre el sistema educativo del país, tanto así que como misión especial, está en este momento incluirlo como segundo idioma a nivel nacional, y se está aplicando las siguientes estratégias para desarrollarlo e impulsarklo:

- Evaluar , fortalecer y acreditar las competencias de los educadores, instructores o tutores que enseñan inglés (promoción 2009: 265 docentes)
- Implementar un mecanismo de certificación para reconocer el grado de dominio del inglés por parte de jóvenes y adultos.
- Fortalecer la enseñanza del inglés en el tercer ciclo básico y en educación media.
- Promover el uso de medios informátivos como apoyo a la enseñanza y aprendizaje del inglés.
- Propiciar asistencia técnica internacional y aprovechar la experiencia de otros paises para fortalecerlo.
- Crear oportunidades de aprendizaje intensivo del inglés para los jóvenes, por medio de programas no formales en localidades estratégicas del país, con la participación de centros escolares e instituciones del sector privado.
- De los trabajos más importantes realizados a traves de la Unidad de Asuntos Indígenas respecto al Idioma Náhuat, actualmente se desarrolla un proyecto de mediano plazo para la enseñanza-aprendizaje del mismo, en centros escolares pilotos; considerando que el 10% de la población total es indígena de habla Náhuat.

## Conclusión

La conservación de nuestra lengua natal no es de gran prioridad para el Estado en este momento, se piensa que el idioma Inglés es al que se le debe dar mayor impulso, incluso el mayor porcentage en cuanto financiamiento se refiere ya que los tiempos actuales exigen cada vez más capacidades y conocimientos. Dominar un segundo idioma aumenta las posibilidades de aprender y de comunicarnos; asimismo, tiene el potencial de volvernos más competitivos en el plano laboral y más multiculturales en nuestras relaciones con personas de distintintos culturas del mundo.

La República de Niacaragua se divide en las regiones del Pacífico, Atlántico Norte (RAAN) y Central. En la Región del Atlántico Norte se implementa el programa de Educacion Bilingüe Intercultural en los pueblos habitados de Mayagnas, Sumos, Miskitos, Ramas, Creoles y Garífunas. Sus respectivas lenguas son el Panamaka, Ulwa, Ramas, Creol, Inglés, Mayagna y el Español como segunda lengua.

El programa de Educación Bilingüe Intercultural cuenta con libros de textos y cuadernos de trabajo en cada una de las lenguas maternas y español como segunda lengua, han sido elaborados por docentes y técnicos pertenecientes a estas lenguas y culturas.

La Educación Bilingüe e Intercultural de la nación vive actualmente un proceso participativo de Transformación Curricular, que plantea investigaciones, revisión y elaboración de perfiles, programas y textos, tomando en consideración las particularidades y necesidades de las regiones del país.

Actualmente la cobertura es de 38,000 alumnos, de preescolar hasta sexto grado, atendidos por 900 maestros.

El Ministerio de Educación, Proyecto Aprende y la USAID han destinado una asignación presupuestaria para capacitar a los maestros en el área bilingüe y multicultural.

Recientemente se inauguraron las Escuelas Normales de Bluefields y Puerto Cabeza, las cuales son formadoras de maestros en el area bilingüe e intercultural. Se está implementando con apoyo de diferentes proyectos, el sistema de escuelas modelos bilingües, con un total de 75 centros de Programa de Educación Bilingüe e Intercultural. El propósito final es atender en un futuro a toda la población estudiantil que requieren educación bilingüe.

La República Dominicana no es la exepción ya que el curriculum educativo contempla dos horas de instrucción semanal en lenguas extranjeras ( Inglés y Francés) a partir del quinto grado de la educación básica, hasta el último año de la secundaria. En el sector privado existen colegios con planes de estudios en inglés en las principales ciudades y polos turísticos del país. Algunos como La Escuela Caribe en Sosúa, Puerto Plata están acreditados por la Asociación Sur de Escuelas y Universidades de los Estados Unidos. La Universidad Autónoma de Santo Domingo ofrece un programa de inmersión completa en inglés, con una duración de dos años. La Alianza Francesa oferta un programa de inmersión total en Francés de dos años. Estos programas aportan las herramientas necesarias, a los estudiantes, para manejarse en un segundo idioma.

El aprendizaje del idioma inglés como herramienta de trabajo en la República Dominicana es una realidad, gracias al esfuerzo del Estado y las Instituciones Educativas privadas.

La República Dominicana vive un proceso de aculturación permanente con las migraciones haitianas. Durante el período de cosecha de la caña El Central Romana introduce miles de ciudadanos haitianos con un estatus temporal para emplearlos en el corte y recolección de la caña. Los niños de estas familias son inscritos en el sistema educativo sin una planificación previa; por tal motivo las escuelas no cuentan con los recursos necesarios para darle respuesta a esta problemática de forma satisfactoria. ★


> Dominar un segundo idioma aumenta las posibilidades de aprender y de comunicarnos

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