While researchers have long advocated integrating disciplines, practitioners have sometimes viewed the combination of language arts and science for a particular purpose as unnatural and difficult to accomplish. An introductory section of this paper examines the underlying concepts for the integrated approach, that students learn based on what they know, and that genuine learning results from students interacting with and internalizing information into their cognitive structures. The paper describes a lesson plan that provides opportunities for students to use their cultural capital (i.e., their language, history, experiences) as they develop and expand their skills. The particular focus of the lesson is environmental issues, combining language and science. The lesson is designed to demonstrate a multicultural focus through an examination of environmental proverbs from diverse groups. A model lesson plan is provided which outlines the lesson goals and objectives, lists materials required, and offers suggestions for introducing the lesson content, fostering discussion during the lesson, and proposing student activities and projects as well as follow-up activities. (Contains 14 references.) (ND)
RADICAL PEDAGOGICAL STRUCTURES:
Infusing a Multicultural Perspective through Environmental Proverbs

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The title of this paper may raise an immediate question in the reader's mind. What are environmental proverbs, and how do two words coming from seemingly dissimilar academic disciplines relate? To answer the questions requires affirming the results of overwhelming national data that show the persistent lag in academic achievement scores of students who differ by gender, ethnicity, linguistics, or socio-economic backgrounds. Then follow this with but the briefest possible mention of the terms desegregation and multiculturalism, two words that have been so overused in the literature as to elicit an instant ho-hum response. Rather than lower their significance this paper simply points to both—the historic fact of legal desegregation resulting from the Brown (1954) decision in the United States and the socioeconomic aspect of the multiculturally revolutionary demographic changes as of the late 1900s—as a basis for the need to radicalize teaching methods in the public schools.

While researchers have long advocated integrating disciplines, practitioners have sometimes viewed the combination of language arts and science for a particular purpose as unnatural and a difficult task to accomplish. Environmental sciences and proverbs do, in fact, complement each other, as this paper will illustrate in a fully developed lesson plan.
Clearly, educators cannot shoulder full responsibility for societal ills; however, we can and should model effective strategies toward achieving academic equity and excellence, at least across the cultural spectrum. Most teachers are interested in addressing the issues of diversity. Their attempts are frustrated by two obstacles: a perceived lack of public support for or understanding of nontraditional teaching; and a paucity of examples of finely-tuned teaching strategies aimed at reaching a multicultural audience. Banks (1993) suggests that many of the existing efforts are really additive models. They merely add content and examples about diverse cultural groups to the old, traditional curriculum and are not fully integrated into it. Derman-Sparks (1995) describes existing efforts as a "tourist" approach to multiculturalism. Schools operationalize their multicultural objectives by including nonmainstream information, but only during Black History Month, women's history month, Hispanic week, or at special cultural/international fairs. Attempts like these result in further marginalizing the target groups; the message is that information reflecting a multicultural perspective can be mentioned in special programs but cannot be included for ongoing serious study.

Because language is at the heart of culture and cognition (Bennett, 1990), Freire and Macedo (as cited in Schultz, 1995) urge educators to develop "radical pedagogical structures" that provide students with the opportunity to use their own reality as a basis of literacy. Part of this reality is the language--the one that
students use among themselves and the one that they bring to the classroom. It is important to note that the goal is never to simply allow students to use their own language, but to recognize the duality and to fuse the two to bridge what they know and what they will need in order to achieve and contribute to society (Delpit, 1988; Au, 1980). Responding to Freire and Macedo's appeal, this paper describes a lesson that operationalizes the "radical pedagogical structures." The lesson provides opportunities for students to use their cultural capital (i.e., their language, history, experiences) as they develop and expand their skills. The particular focus of the lesson is environmental issues. Based on the premise that schools must teach the need for creating a clean and healthy environment, the lesson combines language and science.

Theoretical Underpinnings

The underlying theoretical concepts for this lesson come from cognitivist and a multicultural theory. Cognitivist theories suggest that students learn based on what they know, and that genuine learning results from students interacting with and internalizing information into their cognitive structures (Vygotsky, as cited in Wertsch, 1985).

The lesson plan that this paper offers is based upon Banks' (1994) five-dimensions paradigm. This provides the operational framework for infusing a multicultural perspective. Banks describes multicultural education as consisting of at least five different dimensions: content integration, knowledge construction,
equity pedagogy, prejudice reduction, and empowering school culture and social structure, described below.

Banks' term, content integration, refers to teachers' use of examples and content from a variety of cultures in their teaching. Knowledge construction refers to methods teachers use to help students understand how knowledge is created. This is an important dimension because multicultural education is largely a way of viewing reality and a way of thinking. This dimension denotes the importance of having students view issues from more than one perspective, one that is comfortable to their own background and others that relate to different backgrounds. The third dimension, an equity pedagogy refers to the teacher's use of a wide variety of instructional strategies that are compatible with the diverse learning styles of students in the class. The fourth dimension, prejudice reduction, speaks directly to the attitudinal component of multicultural education. It refers specifically to the reduction of thinking processes, leading to stereotyping, discrimination and prejudicial behavior. The fifth dimension, an empowering school culture, refers to an examination of school practices and policies that perpetuate inequities. For the purpose of this paper, this dimension is extended to refer to environmental policies that reflect social inequalities, beyond the school.

It is important to note that Banks views these dimensions as totally integrated and interrelated and occurring simultaneously. The typology is helpful because it provides a means of organizing and thinking about multicultural education in ways that expand the
concept and make it more accessible for the classroom teacher.

This lesson is designed to demonstrate a multicultural focus in at least four ways. First it demonstrates Banks' content integration. The lesson gives students opportunities to learn about different cultural values regarding the environment through an examination of proverbs from diverse cultural groups. Second, the activities allow students to analyze information from different perspectives, thus covering the knowledge construction dimension. Third, instructional activities model the equity pedagogy dimension in that students are actively engaged in learning, and the activities promote intercultural communication. Fourth, it provides informed opportunities for students not only to examine their communities, but also to advocate for change if they deem it necessary.

Using the Banks paradigm for an underlying theoretical support, teachers must search for new pedagogical strategies specific to their particular subject area. One example of a radical pedagogical structure is the application of using proverbs as a mechanism to teach environmental science. Literature selections, nonfiction selections, poetry, and proverbs frequently provide science information and do so, in a nonthreatening, easy-to-read manner. Additionally, it offers students a forum to explore ethical and social issues regarding environmental concerns. Following is a model lesson plan.
Lesson Plan

Overview

One way to gain a greater appreciation for different cultural groups is to better understand their language and language use. Proverbs (short statements that set forth a general well-known truth) convey information about a cultural group's values, customs, opinions, beliefs. The telling of the proverb illustrates communication styles and language use (American Heritage Dictionary, 1982; Pusch, 1979).

Goal. The goal of this lesson is for students to explore cultural assumptions and values regarding the environment by examining proverbs.

Objectives. The student will:
- Define the word proverb.
- Locate proverbs from different cultures that reflect values related to the environment.
- Interpret proverbs and identify the cultural values they reflect.
- Create proverbs that reflect the student's cultural values and perceptions of environmental issues.

Materials.
- Use resource books with proverbs from different cultural groups, being sure to include proverbs from the country's diverse cultural groups.
Introducing the Lesson

The first step in introducing the lesson is to create a comfortable environment. Next the teacher must clarify objectives, while encouraging risk taking. These variables are important in any lesson, but are absolutely essential when teaching content that some may consider controversial.

I recommend that teachers use experiential activities to provide a forum for students to explore their feelings and to initiate thinking about environmental issues. One activity I use is called Barnga. Developed by Thiagarajan (1990) Barnga provides an innovative mechanism to peak students' interest and spark discussion and deep thought about culture and its impact on decision making. Barnga is a class-involvement game of movement-with-a-purpose and is adaptable to any level of student groups. It is ideally suited to the self-discovery of personal biases and group differences and similarities.

Barnga simulates the effect of cultural differences on human interaction. The activity requires students to play a simple card game in small groups. Built-in conflicts begin to occur as participants move from group to group. The resulting confrontational behavior simulates real cross-cultural encounters, where people initially believe they share the same understanding of the basic rules. In discovering that the rules are different, students undergo a mini-culture-shock similar to actual experiences when interacting in a different cultural milieu. Students gain first-hand knowledge of the different types of misunderstanding and
miscommunications that can occur in cross-cultural interactions. Following the activity, the teacher should conduct a debriefing session and ask students to describe personal reactions. (My own experiences with numerous groups of varied ages and status show that participants, regardless of "where they are coming from," report similar responses, ranging from withdrawal, passivity, competition for dominance, to anger, and paranoia.)

The debriefing session provides a forum for teachers to discuss the different environmental issues on a local, national and international scale. Playing Barnga provides a springboard for students to think about their values and perceptions regarding environmental issues. Students can examine similarities and differences in environmental issues existing for developing nations as compared with industrialized nations. Students can also examine these differences in relationships to their own communities. Such examinations may highlight such local issues as the fact that disadvantaged communities are disproportionately identified as sites for landfills or that recycling bins are seldom located in disadvantaged neighborhoods.

**During the Lesson**

Discuss the components of a proverb. Describe the use of imagery, references to culture (i.e., rural, suburban, language usage, ethnic, or historical references). Follow this discussion by reading several familiar proverbs (e.g., "A word to the wise is sufficient." "Haste makes waste."
These proverbs offer the teacher an opportunity to demonstrate how they apply to environmental issues. The proverb, "Haste makes waste," for example, could be used to have students examine the American urban renewal policies of the sixties and seventies. Students' analyses can show that in many instances hasty governmental policies acerbated urban blight and created hazardous environmental conditions.

After reading familiar proverbs and discussing them, ask: Has anyone (a) heard the sayings? (b) where? (c) what does it mean? (d) could these apply to almost any group of people? Take each statement one at a time. These are purposely nonthreatening. Now try "A penny saved is a penny earned." Students will respond that the proverb extols the virtues of thrift and it is probably an American saying. What about "Birds of a feather flock together?" Again, students will respond that they have heard it. This has a mixed meaning. It conveys either the idea of camaraderie and solid friendship or even clanship or guilt by association. Its origin is American, but extends beyond all "borders."

Now the teacher may expand on the wide application of most proverbs. Proverbs may begin with specific meaning for a specific group under specific circumstances. But if their few words are thought about, they usually convey a deep, wide meaning, often applicable universally.

Follow up by asking students if they have heard this proverb, "To every bird its own nest is charming" (Allen, 1992). Most students will respond, No. This proverb comes from another
country, Japan. Ask What do you think it means? Can you think of an American saying that is equivalent to it. Some may suggest, "Every frog praises his/her own pond." Give students other examples of proverbs from other countries. For example, the South African proverb, "The horse who arrives early gets good drinking water" (Leslau and Hill, 1962). Describe cultural similarities by following up with an American proverb such as, "The early bird gets the worm."

Give students a sufficient amount of time to use classroom reference materials to identify proverbs from different cultural groups. Ask students to select proverbs representing at least two different cultural groups. After selecting a proverb, each student must share it with another student and together respond to the following for each proverb. (a) What does the proverb mean? (b) Reword the proverb using your own words (e.g., "Kumquats are both sweet and sour," can be changed to read "Oranges are both sweet and sour" (Push, 1979); (c) What value does the proverb convey regarding the environment? (d) Think of or make up a parallel proverb that fits in with your own particular ethnic culture. After the discussion, students are to write a one paragraph response to each question.

**After the Lesson**

Students will share their selected proverbs with the entire class. First, they will state the proverb. Next, their classmates will try to guess the proverb's cultural origin, explaining why they selected a particular culture. For example,
they may say Native American as the cultural reference for proverbs that reflect a spiritual connectedness with the earth. For a proverb that refers to volcanoes, students may respond "Hawaii," because volcanoes are common in that area. Now the teacher may lead the students into expanding the meanings, from the particular into the general application.

Ask students to share the proverbs they created. Contributions from middle and high school classes included the following examples: "When the going gets tough, the tough recycles, reuses, and reduces." "Let's talk trash, recycle." (Talking trash is a way of saying let's be honest in African American slang.) "You're straight, if you recycle, reuse, and reduce." or "People who recycle, reuse, and reduce are all that." (Both sayings use African American slang meaning you're o.k. if you use environmentally sound practice.) Another student sample is "We preserve the earth when we recycle, reuse, and reduce." Following is an example that paraphrases a well-known proverb. One student changed the well-known proverb ("Necessity is the mother of invention.") to "Recycling, reusing and reducing is the mother of preservation."

The teacher can conclude the lesson with another experiential activity called Taking A Stand (O'Malley and Davis, 1994). This activity is designed to allow students to discuss controversial issues in a nontargeting way, to perfect their decision-making skills, to examine diverse viewpoints, clarify personal values and perceptions, and to make connections with the information to be
learned.

For this activity, the teacher places two signs on opposite walls. One sign reads "Strongly Agree" and the other sign reads "Strongly Disagree." The teacher reads a statement and then tells students to line up anywhere on the continuum between the two signs that best represents their views about the particular statement being read. As students move to their places, the teacher asks a few to explain their decision.

To demonstrate the process, the teacher begins with an innocuous statement such as "Chocolate ice cream is the best ice cream in the world." Once students understand the concept, subsequent statements should relate to a topic of multicultural/environmental significance, being sure to adapt statements for the target audience. For example, "Politicians are justified in using disadvantaged neighborhoods as landfills, because the property value is low." A similar statement can be made for developing nations.

Teachers can conduct an informal assessment to determine if students have altered their opinions about environmental issues as a result of the activity. Involving the students, if appropriate (considered age and ability levels) is an added bonus. Students can keep personal record of where they originally placed themselves on the continuum for each statement. At the end, students can again place themselves. Comparison will indicate degree of change of attitude, if any, by individual and by group, as the teacher considered meaningful, by such factors as gender, personal
interests, etc.

**Extension Activities**

- Have students share their proverbs on the internet and analyze their replies in terms of country of origin and values conveyed.
- Have students interview traditional and nontraditional community leaders regarding environmental issues. Leaders might include representatives from the Environmental Protection Agency, local government, churches, barber shops, beauty shops, and funeral directors. Let students identify the informal leaders. (You may get some surprising results.) Students can compile their findings and draw conclusions about their communities actions or inactions concerning environmental issues.

**Conclusion**

In times of increasing intolerance to diversity and inattention to environmental issues, it is important that schools focus on these issues and actively engage students in making a difference in their schools and communities. This paper offers a sample lesson that operationalizes a radical pedagogical structure as it provides a forum for students and teachers to address the myriad of issues related to diversity and environmentalism.
Reference


