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Bringing the Environment into the English-as-a-Second-Language Classroom

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Abstract: Environment and Community: Caring for Our Natural Resources is a curriculum developed by UC Cooperative Extension to teach adult immigrants about the environment in English-as-a-second-language (ESL) classrooms. It was developed with participation from ESL instructors and students. Surveys were conducted to determine knowledge of and interest in the environment among ESL students and to assess changes after participation in the program. Results indicate a high level of interest in the environment. After using the Environment and Community curriculum, students experienced a significant gain in knowledge about the environment, and 63% indicated that they had implemented pro-environment behaviors.

Introduction

In the 21st century, environmental concerns are increasingly complex. In Southern California, our need for an environmentally literate population is especially urgent. We have a high number of endangered species and complex ecosystems experiencing tremendous pressure and face shortages of fresh water and clean air.

Few environmental education programs are targeted towards recent immigrants. New and recent immigrants are a significant portion of the U.S. population (10.4% in 2000), and this population is expected to double within the next half century (Tolbert, 2001). Half of the immigrant population resides in the major metropolitan areas of New York, Los Angeles, San Francisco, Miami, and Chicago (Hong, 2002). Los Angeles County is home to 2,137,689 non-U.S. citizens and 2,542,505 residents with limited-English skills (The California Endowment, 2006). While these residents are primarily Latino, Los Angeles is also home to some of the largest Asian and Eastern European populations in the country. Our local environment can benefit if new arrivals are interested in and educated about protecting natural resources.

At the same time, immigrants themselves can benefit by working towards healthier, more enriching living conditions through becoming engaged in environmental issues. Effective environmental decision-making requires involvement of local stakeholders, and organizations often hold meetings to gain input, but the audience rarely reflects the ethnic diversity of the affected community. One reason for this is a language barrier, and translation as it is usually practiced can be an unsatisfactory solution because it limits the ability of the entire group to engage in meaningful and free exchange of ideas. We may increase the participation of diverse communities in environmental management by enabling recent immigrants to express their views in English.

To build knowledge about local environmental issues in immigrant communities, University of California Cooperative Extension - Los Angeles County developed an ESL curriculum in cooperation with the adult ESL program at a local community college.

Goals of the program included:

- Educating ESL students about the local environment
- Increasing their interest in and capacity to take part in environmental decision making
- Assessing their knowledge of, interest in, and behavior regarding environmental issues
- Developing a curriculum that ESL teachers without a science background would feel comfortable using, while continuing to increase students' English language proficiency

Curriculum Development

Through participation in a flexible multi-week program, we hoped to increase the environmental literacy of ESL students. For natural resource professionals, entering the ESL classroom has several advantages. You do not need to attract an audience, because people are already coming to take part in an educational experience, and ESL instructors are searching for new, interesting material. The greatest challenge, then, is to present environmental information in a way that will be interesting, relevant, and not intimidating to either the student or the teacher.

To learn how to do this, we worked closely with 200+ non-credit ESL students and four faculty members from a local community college, East Los Angeles College (ELAC).

Through interviews with faculty members, we identified several elements that would make the curriculum useful in the classroom. We pilot tested our draft curriculum in spring 2005 and revised it based on student

and faculty input.

Each of our lessons has clearly stated objectives, a list of preparatory steps and materials needed, key vocabulary, and lists the CASAS competencies the lesson is designed to achieve. (CASAS—Comprehensive Adult Student Assessment Systems—is a standardized system used in California and other states to evaluate English acquisition instruction.) Types of exercises include reading/listening, journal writing, discussion, presentation, video, and hands-on map-based activities. The idea of field trips intrigued us, but the typical 1-hour class structure was not conducive to this kind of activity. So we incorporated do-it-yourself structured field trips students could enjoy with their families, then discuss in class. A list of the lessons and content is found in Table 1.

We organized the curriculum into three units: water, land, and community. The university's Division of Agriculture and Natural Resources will publish the first unit of the curriculum, Water, by the end of 2009, with the subsequent units following. These will be available as free electronic documents from the UC ANR publications department at <http://anrcatalog.ucdavis.edu/>.

The water unit focuses on issues such as water supply and quality, and human alteration of watersheds. The land unit will look at local ecosystems, population growth, habitat loss, and invasive species. The community unit will focus on environmental stewardship, environmental justice, and resources decision making.

Table 1.

Lessons in UCANR's Environment and Community: Caring for Our Natural Resources Unit 1-Water Adult ESL Curriculum

Lesson	Main Theme	Topics	Activities
Lesson 1: Water, water everywhere....	Importance of water	Water proverbs and poems, definitions, synonyms	Reading, writing, matching as a group, observing media coverage (at home), group discussion
Lesson 2: Water conservation	Water as a limited resource	Amounts of freshwater, personal consumption of water	Using charts, group discussion, home water audit, reading a brochure
Lesson 3: Water in your community	Local rivers	History of water development in the region	Reading maps, multiple choice, filling in charts, reading, group discussion, group presentation
Lesson 4: Watersheds	What are watersheds	Local watersheds, history of water development and flood management	Reading maps and relief maps, cloze exercises, group discussion
Lesson 5: Reducing water pollution	Water quality, pollution	Sources of pollution, sewers vs. storm drains, disposal and recycling	Reading, filling in a chart, video, problem solving

Survey Results

Participating ESL instructors agreed to allow their students to participate in a pre-test survey, our 6-week environmental education program, and a post-test survey. Demographic information on respondents is presented in Table 2.

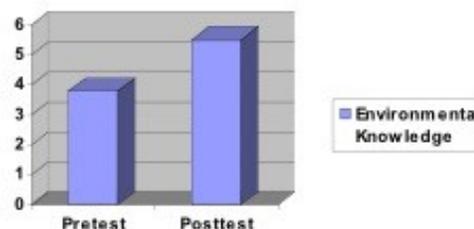
Table 2.
Demographic Characterization of ESL Students at East Los Angeles College

Demographics	N = 78
Ethnicity	62% Asian (mostly Chinese origin), 27% Latino (mostly Mexican origin)
Gender	73% female, 27% male
Income	73% < \$20,000 per year
Employment	69% not currently employed
Age	37% 20-29 years old, 37% 30-49 years old, 26% 50 and older
Residence time	98% in US 5 years or less
Education	35% at least some college, 57% high school level education, 8% other

Among this group, we found that 65% described themselves as "very interested" in the environment, and another 22% were "somewhat interested." Women were significantly more likely to describe themselves as interested in the environment.

Our pre- and post-tests measured knowledge about key environmental issues. Several questions were borrowed from a national Roper survey (Coyle, 2005) on the environment, and we could see that on those questions, our ESL students scored lower than the "average" American. However, utilizing a t-test ($p < .05$), we found that participants' environmental knowledge rose significantly, from a mean of 3.8 on the pre-test to a mean of 5.5 on the post-test (the possible score ranged from 0 to 9).

Figure 1.
Increase in Environmental Knowledge from Pretest to Posttest



Participation in "Our Watersheds" also promoted behavior change. Sixty-three percent reported behavioral change based on what they learned, including increasing recycling and water conservation and reducing fertilizer use.

In conclusion, we found that adult ESL classrooms are an excellent venue for environmental education. Students are interested in the material and were able to increase their environmental literacy. They adopted concepts they learned, such as recycling and water conservation, into behavior changes. Adult ESL teachers found that environmental education could be readily integrated into their curriculum. As we expand the availability of the curriculum, we will continue to track whether our curriculum also met the goal of increasing environmental participation among recent immigrants.

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