



Foreign Languages and the Environment: A Collaborative Instructional Project

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Foreign Languages the Environment

A Collaborative Instructional Project

Editor's Note: The project described here—a collaborative venture between Modern Languages and Physics—provided an opportunity for students to increase their language proficiency while learning about concepts related to the environment. *The Standards for Foreign Language Learning*, and in particular the “Connections” goal, call for foreign language educators to integrate language instruction into other disciplines, while the “Communities” goal advocates using the language beyond the classroom. In the same vein, the Modern Language Association (MLA) has issued a report (“Foreign Languages and Higher Education: New Structures for a Changed World,” 2007, found at www.mla.org/fireport) that envisions “a broader and more coherent curriculum in which language, culture, and literature are taught as a continuous whole, supported by alliances with other departments and expressed through interdisciplinary courses.”

The authors of this article—German Professor ter Horst and Physics Professor Pearce—believe that their project promotes the very type of interdisciplinary learning that leading professional organizations advocate. The positive results for student learning obtained in this project will ideally encourage other foreign language educators to adopt a similar interdisciplinary approach to teaching.



APPROPEDIA
the sustainability wiki.

“Foreign language departments, if they are to be meaningful players in higher education—or, indeed, if they are to thrive as autonomous units—must transform their programs and structure. This idea builds directly on a transformation that has already taken place in the profession. In their individual scholarly pursuits and in their pedagogical practices, foreign language faculty members have been working in creative ways to cross disciplinary boundaries, incorporate the study of all kinds of material in addition to the strictly literary, and promote wide cultural understanding through research and teaching. It is time for all language programs in all institutions to reflect this transformation.”

—From the MLA report, “Foreign Languages and Higher Education: New Structures for a Changed World”

In our effort to connect the disciplines of Modern Languages and Physics, we undertook a pedagogical experiment working with a website, Appropedia (www.appropedia.org), which is devoted to global sustainable development and features environmentally friendly projects that can be built using local resources.

Appropedia is wiki-based website, similar in structure to Wikipedia (www.wikipedia.org), where a large number of participants can create and modify the content directly from their web browsers. Despite its ambition to reach people throughout the world, however, Appropedia had very little content in languages other than English when we began our experiment. The students’ task was to expand the

content in other languages. Initially, German was chosen to establish the foreign-language template because of the relatively advanced nature of Germany’s sustainability thinking and initiatives.

At the time this project began, Appropedia contained only a single German-language article that had been poorly translated, and there were no German-language content guidelines. In order to establish the foundation within Appropedia for students and others to begin adding content, a small group of students undertook a one-credit independent study (IS) in Spring 2008. These three students established the front end of the German area—including the welcome page, help pages, and main categories—and translated numerous



content articles to create a foundation for German speakers to use Appropedia.

In the same semester, a unit on Appropedia was incorporated into an upper-level German course, German Conversation and Composition, which had 10 students enrolled. This course was offered at three Pennsylvania State universities in the classroom and via interactive television: Clarion University, Slippery Rock University, and Edinboro University. Interactive television allows for real-time student-teacher and student-student interaction and conversation, in contrast to a web-based course. This course is generally taken by students who have completed the four-semester language sequence and who are planning to major or minor in German. It was already planned to be content-based: It was organized around a series of topics pertaining to German culture before and during World War II, which led into related class discussions and writing assignments. The Appropedia unit, however, allowed the students to take a more active role in learning by creating content that can be read and used by the global community of German speakers.

Components of the Project

The work of the independent study students provided the basis for the students in the German class to begin their projects. Since the beginning of the semester, the IS students had been translating

Students involved in the project created "demo camp units" to raise awareness of the environment and international issues on the Clarion University campus. Find out more about these units at www.appropedia.org/Demo_Camp_Units.

pages and articles on Appropedia from English into German, and were meeting weekly with the two professors leading the project. By the fifth week of the semester, when the class began the unit on Appropedia, the IS had already established a fair amount of content in German.

The class unit on Appropedia lasted five weeks, or approximately one third of the semester. It began with an introduction to environmental issues in German-speaking countries, including information on recycling, public transportation, and alternative energy development in Germany, Austria, and Switzerland; the German and European Green Parties; and vocabulary development and discussion of cultural differences related to environmental issues. The students' first assignment was to contribute to an online discussion board on the question: *Which environmental issues do you find to be most important, and how are these issues being addressed in German-speaking countries and in the United States?*

Next, the students were introduced to Appropedia and environmental concepts, such as "sustainable development," "poverty reduction," "international development," "appropriate technology," and other vocabulary related to these issues. The initial survey had



German students working on the Appropedia project practice their language skills while learning about the environment.

indicated that students were not familiar with some of these terms in English, so we worked on developing the concepts in both languages. Since the concepts have different cultural connotations in German and English, class discussion revolved around understanding how these concepts are embedded in each culture. The students' next assignment was to create a user page on Appropedia by choosing an English-language article that corresponded to their interests and that they would like to translate into German.

The project continued with the translation of articles from English into German and posting of them to the website. Students chose a wide variety of article topics ranging from a drip irrigation system used in India to a waterless toilet to an economic exchange system that does not involve money. Class sessions were devoted to technical and translation issues. The IS students, who already had experience with translating and editing web pages, assisted the students involved in the classroom project.

Students next prepared short oral presentations of five to 10 minutes, and edited those translations. The students explained the project described in their article and identified aspects of the project that contributed to poverty reduction, sustainability, and the development of appropriate technology. They also mentioned any further difficulties that they were having with translation or conceptual issues related to the article, so that these difficulties could be resolved through class discussion. During this phase of the project, students were asked to look at other students' translated articles and comment on them in writing through the Appropedia site. They could also edit one another's articles online.

Students were then ready to prepare a longer oral presentation (15 to 20 minutes with discussion) in which they described their project in greater detail; analyzed its environmental, cultural, and economic ramifications; and discussed any potential difficulties that might arise when implementing this project. During the presentations, other students in the class were asked to comment on the project, its benefits, and any drawbacks they might envision.

The final assignment was a paper (2–5 pp.) where students imagined they were working for a German organization devoted to international development. They prepared arguments either in favor of or against expending the organization's resources on development of the item or process described in their article. They were instructed to be specific about the possible environmental, economic, cultural, and social benefits of the item or process; in what part of the world

it might be best used; and any drawbacks that the organization should consider. They also needed to take into consideration the other students' comments during their oral presentations.

Student Responses and Reactions

The backgrounds of students were quite diverse, including an exchange student from Germany who volunteered to work on the independent study. While the other participants in the IS and the classroom project were American students who had completed at least the prerequisite of four semesters of German language, their linguistic abilities varied considerably. Students also came to the project with a variety of academic backgrounds and majors. Initial and final surveys were given to the students in the course, while students enrolled in the IS were asked to write a progress report each week in which they reported what they had accomplished, what challenges they had encountered, and what they had learned about the German language and about sustainability issues.

The IS students had volunteered to work on the project and were highly motivated. They viewed the experience positively throughout the semester. In a weekly progress report, one student commented that, through translation of an article, he was learning a great deal about food and "survival essentials," and that the genitive case (used to express possession) was very useful for translating the article. The integration of linguistic skills with concept development is one of the goals of content-based instruction. Students were motivated to increase their proficiency and use appropriate grammatical structures because of the immediate rewards of communicating about an important topic and connecting with other speakers of the target language while making a difference in the global community.

In summarizing her experience with the project, one student stated, "Working on Appropedia was an experience of a lifetime. The site increased my knowledge of sustainable development greatly and expanded my understanding of the German language. Everyone should get involved in this site."

The initial survey results from the course showed that students were well disposed towards the premises of the project: that it is important to connect to German-speaking communities outside of the classroom, that addressing environmental issues requires a global approach, and that knowledge of foreign languages is useful in addressing environmental issues. A student pointed out that, "It is necessary to be able to connect to people of the world so we can all work together and we



cannot do that if we do not understand each other.” Another student noted that, “Each country has a different culture and . . . different approaches concerning environmental issues.” All of the students also thought that the United States could learn from Germany, as it is significantly ahead on environmental issues. Most of the students, however, had little familiarity with environmental concepts, even in English. The final survey results showed that students had made progress in understanding these concepts in both English and German; by the end of the semester, most were able to define the key terms, and all had written a paper using the concepts of sustainability.

When asked to summarize their overall experience with the Appropedia project, 100% of students stated that it was positive, although a few qualified their responses (e.g., by saying that there were times when they felt frustrated with the technology of the website or with translation problems). In providing details about their experiences, many stated that they enjoyed doing the translation work, and felt that they learned about sustainable development while acquiring vocabulary in German. Some enjoyed the collaborative aspect of the assignment (i.e., “working with others online.”) Others appreciated the connections to other disciplines: “It tied into a few of my current and previous classes in another department.” Several expressed pride that their work had helped Appropedia reach a broader audience: “It was a good feeling to be able to help the website reach people it couldn’t before;” and “[It is exciting] to know that people all over the world can read what I have made.”

All students believed that their proficiency in German had improved as a result of the project. Many mentioned that they had developed skills in translation, not only with new vocabulary but also with the nuances of the language (i.e., “thinking in the way that Germans speak and write”).

A further advantage of the Appropedia unit was that it encouraged students to participate in community service and involve themselves in projects that benefit humanity. The initial survey indicated that only about half of the class had participated in community service before the unit, only 10% had participated in a service learning project before, and only one-third of the class felt that their life had benefited humanity in any way. In the final survey, however, a significant majority stated that they would continue contributing to Appropedia after the completion of the project, that they would definitely or possibly consider working on a similar project in the future, and that they would definitely or possibly recommend Appropedia development to their friends as a means of community service. One of the most powerful features of this Appropedia-based assignment was that it enabled students to make a positive difference in the world immediately. Although these contributions may have been small, they have the advantage of involving students in the global community of people working on environmental issues.

Instructor Reflections

Eleanor E. ter Horst

When I started this project, I was most apprehensive about not being an expert on the subject matter that I would be teaching. Since Dr. Pearce and I decided to collaborate on this project shortly before the semester began, I had only a few weeks to rework my syllabus for the German Conversation and Composition course and prepare to teach about technical and environmental issues in which I lacked expertise. The features of this project that seemed at first to be most daunting, however, also made it most exciting—both pedagogically and personally. As I researched areas such as biofuels and debates around nuclear energy, I found myself no longer worried about knowing more than the students; instead, I was able to share some of their excitement in learning about environmental issues. The collaboration with my colleague, Dr. Pearce, was also extremely rewarding and led to some fascinating discussions about scientific and pedagogical topics, as well as future plans to combine his engineering classes with my language and culture classes.

As a result of teaching new subject matter and learning along with the students, I took a different approach pedagogically, in that I completed some of the assignments along with the students, and shared in both their successes and frustrations. In order to develop the instructional handouts for the students’ assignments, I created my own user page in Appropedia, translated two articles from English into German, and posted them to the website. I believe that my own work with Appropedia motivated the students to overcome their difficulties with posting their articles, or with translating technical terms, since I had experienced and resolved similar problems. I also shared their excitement in seeing the rising number of visits to my pages after I had posted the material. Participating in this collaborative teaching venture allowed me to learn about new subjects, work with a colleague in a different field on topics of interest to both of us, develop a different pedagogical style, and contribute in a small way to environmental awareness, both on my own campus and in other parts of the world.

Looking to the Future

From a pedagogical standpoint, this unit provided a model for successful content-based instruction. Students developed both linguistic and conceptual skills, and were highly motivated to complete challenging assignments. The survey results from the advanced German class and our discussions with students involved in the independent study show that integrating environmental issues with foreign language study provides significant opportunities for students to increase their language proficiency, develop their understanding of concepts related to the environment, and become more involved in a global community. This type of collaboration allows for successful implementation of the Connections goal for foreign language education.

Although this project involved working with students of German, teachers of other languages could immediately involve their students



Instructor Reflections

Joshua M. Pearce

Although this collaboration has proven extremely successful, I also had concerns entering the project due primarily to my lack of language skills. I had previously worked with students developing appropriate technologies in the Physics and Engineering classroom and had found that the creation of Appropedia provided an enormous opportunity for students to contribute directly to sustainable development and have their work published and spread internationally. This is an extremely motivating and powerful teaching tool, but also comes with some risk as your students are posting their projects for the entire world to see. Accurate information is vitally important (e.g., if someone in a developing country is spending a month's salary building a water pump your student designed, it had better work).

In the technical classes I have control over what is posted because I can review and edit it (just as all users can), but for the German language articles I was only able to assist with the structure, not with content or translation. This represented a concern not only because of potential inaccuracies in translation or conversion, but also because Appropedia currently holds all of the articles in different languages in the same database, so that the addition of more articles in a disorganized manner could affect the structure of the entire database. Fortunately, Dr. ter Horst organized the projects in her classroom using a peer review system for translation, which ensured that the quality of the student work remained high and structure remained consistent. It was very gratifying to work with students and share their excitement as their translations developed a life of their own in the rapidly expanding Appropedia community. I look forward to observing their base work in German grow into an active German Appropedia community and am also looking forward to an influx of German content coming back to English.

This work added to the already considerable research in service learning pedagogy that has shown a positive impact on students' academic learning and complexity of understanding. Unfortunately, service learning is not nearly as widespread as its outcomes suggest it should be. I think this is due in a large part to the difficulty of finding and setting up community partnerships. Appropedia, an online community, provides the opportunity to incorporate diverse content into any type of class (e.g., one-semester projects could focus on water issues, energy issues, or poverty reduction in a specific locale, etc.). I am really excited to continue working with Dr. ter Horst as we develop this project by interlinking technical and language classes in multiple countries and use both the development of content and translation as mutually reinforcing motivational aides in our respective classrooms.

in similar projects. One of the students in the advanced German class was also a native French speaker who, out of interest in the project, created the front end for French on Appropedia. Some articles are already available in Spanish, and the non-English component of the website continues to expand, with sections in Italian and Bahasa Indonesia. A student noted that one of the most exciting things about working on the project was "seeing how quickly other languages were added to the site" following the creation of the main pages in German.

Student responses show that they experienced the most challenges with the translation of technical terms. Although online bilingual dictionaries such as LEO (dict.leo.org) do provide some technical vocabulary, it is often insufficient. At the suggestion of the students, we plan to purchase printed bilingual technical dictionaries, as well as recently published books in German on sustainable development. To help students with creating and editing wikis, we directed them to the Help pages on Appropedia and Wikipedia. We also composed handouts specifically for the class on creating a user page, posting translations of articles, and editing and commenting on their own and other students' articles. Creating a few templates helped improve the quality of student pages. For this class project we created templates for stubs, user pages, and Wikipedia in German. The language template was also extremely useful for linking the German pages back to English and vice versa.

One of the features of Appropedia that is the most beneficial for long-term student motivation is that the number of times pages are accessed is listed on all Appropedia pages so the students can immediately track the popularity of their work. This feature should be emphasized to the students from the initial phases of the project.

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The Appropedia main page (in English) is located at www.appropedia.org. At the top of the page, users can click on links to other languages (Español, Deutsch, Français, Italiano, etc.). Professor ter Horst's user page with links to assist in translation projects can be found at www.appropedia.org/User:E.terHorst.