# STEM, STEAM, and German Language Acquisition:

Modified Project-Based Learning in a German Conversation Course



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#### Abstract

This project describes an investigation into the efficacy of employing a modified project-based learning model to enhance the presentation and conversation skills of students in *German 235: Intermediate German Conversation*. Unlike usual language conversation courses that rely on expensive textbooks and focus on reading selections followed by discussion questions, GER 235 sought to engage students in a journey of discovery as they explored topics typically more at home in science, technology, engineering, and mathematics courses (STEM) and that were supplemented by the arts: STEAM. The impetus for this course developed out of a teaching unit that I created on the concept of the "ecological backpack," my final project for a professional development seminar at the University of Leipzig, Germany, in Summer 2015.

#### Course Objectives

Objectives for the German conversation course were two-fold. The driving goal was to have students discuss topics that are immediately relevant to them and the world in which they live. Supporting the main objective was the second goal of having students engage in cultural comparisons of critical issues common to the United States and Germany. To achieve these objectives, students explored the similarities and differences evident in US American and German cultures surrounding five topics related to sustainability. Ultimately, the final goal was for each student to identify an issue of personal interest, identify the driving question, conduct research using German language resources, prepare necessary didactic materials, present the project in class, and lead the class in a critical discussion of the issue.

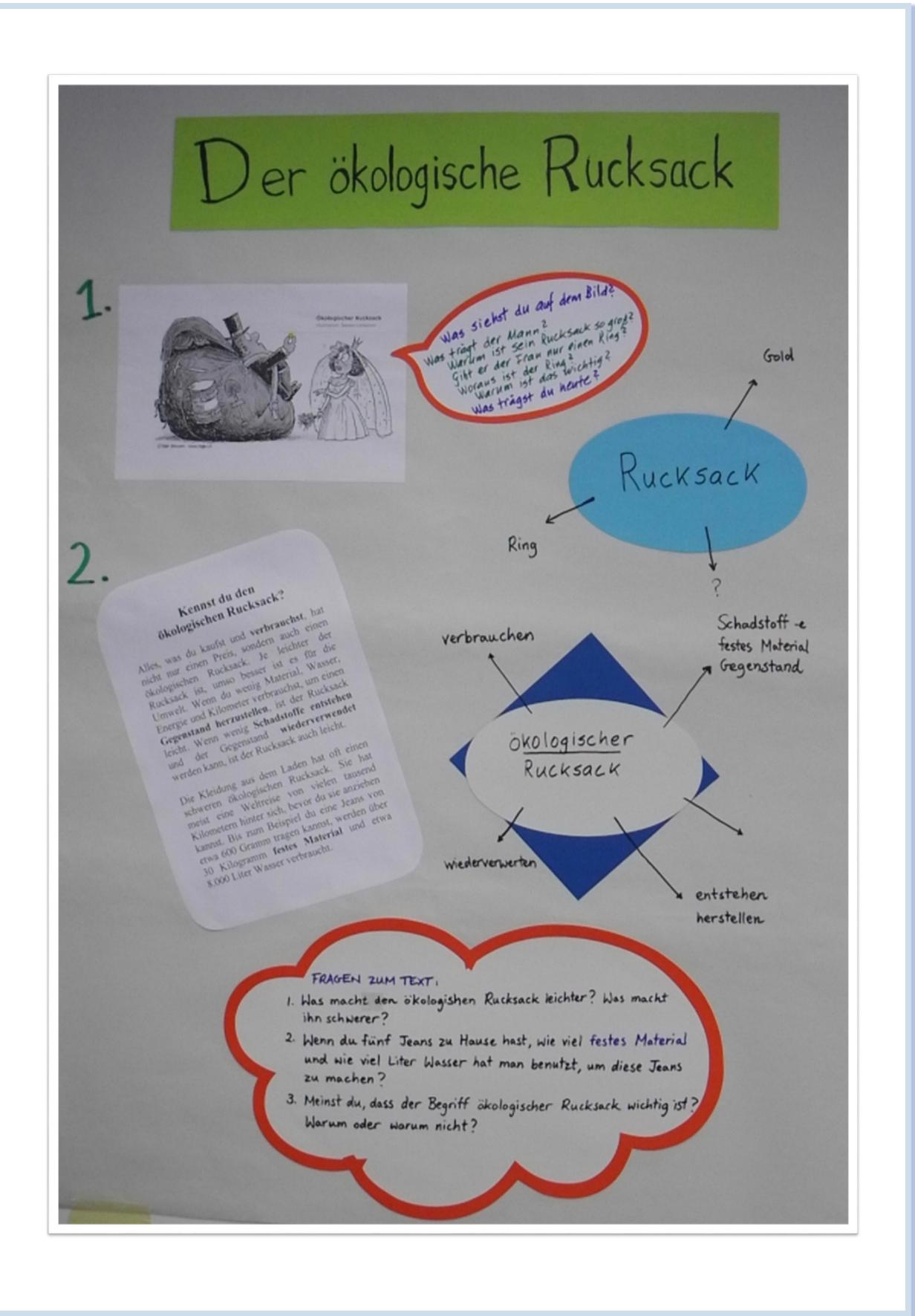
### Pedagogical Foundation

"Project-based learning is a dynamic approach to teaching in which students explore real-world problems and challenges. ... students are inspired to obtain a deeper knowledge of the subjects they're studying" (Edutopia.org).

ACTFL guidelines require that students (1) engage in authentic *Communication* in varied situations, for multiple purposes; (2) gain knowledge and understanding of another *Culture*, enabling them to interact with cultural competence; (3) make *Connections* with other disciplines, acquire information and diverse perspectives, and use language in professional settings; (4) develop insight into the nature of culture, interact with cultural competence, and make *Comparisons* between native and target culture; and (5) develop ever greater ability to participate as equals in multilingual *Communities*.

### Open Resources and Project-Based Learning

Ample and up-to-date information on and discussions about sustainability are readily available at German-language web sites. Careful selection and didacticization make materials appropriate for use in language class. Students initially listen to "Gebet an den Planeten," by German rapper Thomas D, and begin identifying key issues of sustainability. They then analyze and discuss singersongwriter Konstantin Wecker's definition of sustainability as they begin to develop their own definitions. For each of the five units, students were asked critical questions and provided German-language web resources to use as research tools to support the journey of discovery and presentation in class. In this manner, the class explored 1) the ecological backpack and CO<sub>2</sub> footprint; 2) real cost of clothing; 3) environmental cost of electronics; 4) pros and cons of energy sources; and 5) extreme weather. For individual course projects, students followed a similar model: they each identified their driving question, located appropriate materials, didacticized it, and presented to class in a manner that encouraged critical interaction and discussion.



### Student Learning Outcomes

Employing wide-ranging resources, such as a rap song and an article on precious metal components in mobile phones, and guided by the American Council on Teaching of Foreign Language's 5 Cs (see Pedagogical Foundation), students explored current German perspectives on sustainability. They greatly increased their vocabulary and conversational abilities, and throughout the journey were introduced to authentic German voices. From two different musicians who helped introduce the concept of *Nachhaltigkeit* to videos about the environmental impact of our food choices, to documentaries on the clothing industry, to examining technical documents on the impact of modern electronics on the environment, to describing and identifying the often nightmarish landscapes created by extreme energy extraction followed by discussion on the need for energy versus the environmental impact of energy sources, to exploring weather phenomena and extreme weather events, students have expanded their cultural horizons and further developed their linguistic abilities. They have developed an awareness of sustainability from a German point of view and are equipped to engage in critical discussion of these issues with their peers in the United States and in Germany.