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Aleidine Kramer Moeller

University of Nebraska-Lincoln, amoeller2@unl.edu

Anastassia McNulty

University of Nebraska-Lincoln

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WebQuests, Teacher Preparation and Language Learning: Theory into Practice

Aleidine Moeller

University of Nebraska-Lincoln

Anastassia McNulty

University of Nebraska-Lincoln

The teaching and learning of a language has changed significantly as a result of the introduction of the World Wide Web and multimedia in the classroom. Innovative software, Web-based quiz makers, and interactive Websites provide venues for language learning inside and outside the classroom. While these technological advances can provide efficient and effective ways to teach and learn language, there are also challenges that have limited the integration and expansion of technology use in the classroom.

This article focuses on two of these challenges: a) creating a critical mass of teachers who know and can use technology and b) *using* technology to motivate learners and to increase language and cultural proficiency in ways that focus students on specific objectives and content that reinforce the language curriculum.

Technology and Teacher Preparation

A review of the literature on instructional technology (IT) has revealed that a large number of students in teacher education programs were enrolled in coursework in IT, but there existed little tie to curriculum, methods, field experience, or practice teaching (Willis and Mehlinger, 1996). The National Council for Accreditation of Teacher Education (NCATE, 1997) conducted a review of its accreditation program with regard to technology and found that technology was treated as a supplement to the teacher education curriculum, not as a topic incorporated across the entire teacher education program. Consequently

pre-service teachers were provided instruction in IT but were rarely required to apply this technology in their courses and fieldwork.

Johnson (2002) found that modeling “is most effective in preparing teachers to integrate technology into their classroom” and can result in teachers who are “far more confident, skilled, and motivated to use computers with their own students” (p. 74). Moeller and Park (2003) summarized technology approaches for foreign language methods classrooms and described a pre-service model program that provided continual scaffolding of technology skills that resulted in the application of technology into the foreign language classroom.

In addition to knowledge of technology, teachers must have the language and pedagogical skills to use technology in interesting, challenging, and rewarding ways. Technology, such as the World-Wide Web, provides a variety of resources that allow the learner to construct meaning by gathering and synthesizing information. Roblyer et al. (1997) identified nine elements that result from technology-enhanced learning: motivation, cooperative learning, shared intelligence, problem solving and higher level skills, tracking learner progress, helping learners visualize problems and solutions, increased teacher productivity, efficient access to accurate information, and the capacity for teachers to create student-friendly materials efficiently (p.29).

The Role of the Teacher and the Learner

Reigeluth and Garfinkle (1992) state that technology changes the teacher’s role to that of facilitator. The teacher monitors, questions, and provides feedback in ways that actively support the learning process. The role of the learner is one of active seeker of information, analyzer of information, and ultimately the presenter of new information gleaned from research, inquiry, and reading. A question that emerges is how can the teacher find **a balance between freedom and control in discovering knowledge in ways that are meaningful for students** that promotes the national and state language standards and creates an equal playing field for all language learners?

Moeller (1998) notes “like languages, technology is not learned in isolation; it is learned best in the context of content” (p. 9). By integrating carefully scaffolded Web-based projects that are strongly aligned with curriculum and standards, students interact directly with content, peers, and authentic texts while learning technology and expanding content knowledge. The WebQuest offers one potential approach to language learning that strikes a balance between freedom and control, optimizes interaction with authentic texts while working with peers in a problem-solving context.

The Role of Standards

The Interstate New Teacher Assessment and Support Consortium (INTASC) *Model Standards for Licensing Beginning Foreign Language Teachers* (2002) emphasize that beginning teachers be able:

- to create learning experiences that help students develop language proficiency and build cultural understanding (Principle 1);
- to create an interactive, engaging, and supportive learning environment that encourages student self-motivation and promotes their language learning and cultural understanding (Principle 5);
- to use effective verbal and non-verbal communication, and multi-media resources, to foster language development and cultural understanding (Principle 6).

WebQuest, a Web-based approach to teaching and learning on the World Wide Web, can uniquely meet these principles by building a supportive language learning environment that is interactive, encouraging self-motivation and language and cultural understanding through problem solving tasks.

Why WebQuests?

Language teachers seeking active ways to engage their students in inquiry activities can send learners on a quest for information using the World Wide Web. March and Dodge define WebQuests as “an inquiry-oriented activity in which some or all of the information with which learners interact comes from resources on the Internet” (Dodge, 1997, p.1). This approach provides a highly structured format that guides the learner in seeking, reviewing, analyzing, and presenting information. A short term WebQuest engages learners on tasks that require one to three class periods allowing learners to interact with new information that they read, interpret, analyze, and summarize (Dodge, 1997). A long-term WebQuest usually requires more than three class periods depending on the amount of work required by the teacher (Dodge, 1997). Learners analyze a body of knowledge, transform it in some way, and demonstrate in-depth understanding of the material by creating a final product to which others can react or respond.

WebQuests were first introduced as an instructional approach in 1995. The format consists of the following six elements:

1. Introduction (Introduces the topic of the inquiry)
2. Task (Provides a description of the task to be accomplished)
3. Process (Provides description of the steps that need to be taken to accomplish the task)
4. Resources (Websites related to the topic described in step one where students can locate the necessary information to complete the task)
5. Guidance (Some instructors include assessment rubrics to provide students with clear assessment guidelines that will be used by the teacher to evaluate the project)
6. Conclusion (Provides closure, a list of references, and summarizes what has been accomplished) http://webquest.sdsu.edu/about_webquests.html.

Due to the highly structured nature of the WebQuest approach, parameters are defined to eliminate free surfing of the Internet, yet choices are provided as

regards links that can be selected to gather information, what information to include, and how to present the resulting product. Language students interact with authentic texts and sites prepared for native speakers that reinforce the interpretive, interpersonal, and presentational modes of communication (*Standards for Foreign Language Learning: Preparing for the 21st Century*, 1996). Students typically work in small groups and assume a specific role in the project (e.g. review certain Websites, create the slides for the PowerPoint). This encourages interaction with peers as they share their findings and negotiate the final product. Skimming and scanning texts, summarizing and interpreting these texts, evaluating what should be included are real tasks that make this activity meaningful and motivating for students.

The WebQuest approach allows teachers to integrate critical thinking, cooperative learning, and authentic texts into one problem-solving task. Students are provided sufficient scaffolding while still encouraged to think on their own (March, 2003). WebQuests can provide open-ended questions that require students to go beyond mere facts, to analyze and evaluate texts, and to synthesize the readings and transform and exhibit this knowledge and deeper understanding of the topic into a product that is presented to their peers.

It is important to design WebQuests that use authentic assessment (March, 2000) that allows classroom learning to be linked to the real world (Hawley and Hawley, 1981) in ways that provides purpose to the learning task.

A most attractive feature of the WebQuest approach to language learning is the fact that students are learning content while learning language. They are learning about geography, history, the arts and music as they read to comprehend the content. This is one important way to narrow the gap between cognitive and linguistic competency that language students often experience in beginning and intermediate language courses. While the typical high school student has reached the formal operational cognitive level of thinking at fifteen years of age, his or her ability to speak in the language is very limited, often at the pre-operational level of cognition (Piaget, 1971). This gap between cognitive and linguistic ability can cause high anxiety resulting in lower motivation on the part of the learner. The WebQuest allows the teacher to select texts that are linguistically and age appropriate, scaffold the tasks, and provide access to resources (dictionary, glossary, visuals) that will assist the learner in interpreting the text.

Advantages of WebQuests

A review of the literature reveals that WebQuests promote critical thinking (http://webquest.sdsu.edu/about_webquests.html), provide both teachers and students with structure and guidance (Dodge, 1997), provide a child-safe Internet environment (Vidoni, Maddux, 2002), provide realistic tasks (George Lipscomb, 2003, p.77), and encourage collaboration through group work (http://webquest.sdsu.edu/about_webquests.html).

WebQuests narrow and direct students' Web search (Vidoni, Maddux, 2002). If students are not directed through the Internet search, it can easily

become an overwhelming task. As Summerville (2000) notes, “with the plethora of information, students quickly become frustrated with following links that lead them to useless information” (p.1).

Empirical studies conducted on WebQuests have been few, but those classroom-based studies that have been published indicate that motivation, confidence, and positive attitudes have increased, but a significant gain in academic achievement has not been established.

Burke et al. (2003) conducted a study in an introductory Biology course that compared the WebQuest model to a traditional classroom method. Final test scores revealed no significant difference between the two groups; however, students expressed a positive attitude towards working with WebQuests. Similar results were found in a study conducted in the areas of social studies and science (Leite, McNulty & Brooks, 2005). The classes were randomly divided into two groups: WebQuest and non-WebQuest. The students were pre- and post-tested, allowing the researchers to measure the learning differences in scores statistically. Findings indicated a significant difference between pre- and post-test scores for the social studies group. There was no significant difference between pre- and post-test scores for the science group. The authors concluded that the introduction of the WebQuest unit did not “lead to superior learning relative to conventional instruction.” However, qualitative interviews after the experiment revealed a positive attitude on the part of both the students and teachers towards the WebQuest teaching model. Additional classroom-based research in the area of language learning needs to be conducted on WebQuests to determine their impact on student learning. It is clear that WebQuests increase motivation, confidence, and build community, all of which can contribute to higher student achievement.

Development of a WebQuest

When developing and implementing WebQuests, teachers should keep the following principles in mind to make the experience more meaningful for students. Students should work with their topic in “a real way,” or as Tom March (2000) cautioned, “the full potential of WebQuests can be lost if the final product is not reviewed by a real audience” (p.1). The topic of WebQuests should be closely connected to the students’ background knowledge to allow them “to be able to find themselves, their concerns, or their interests in the learning scenarios” (March 2000, p.1). The role of a teacher is therefore to identify the topic of inquiry, facilitate the learning process, and to motivate learners to participate actively in the research.

As part of their foreign language student teaching field experience, pre-service teachers are asked to create and implement cultural WebQuest projects in their classrooms. The WebQuest project consists of four parts: 1) design, 2) implementation, 3) evaluation, including a self-reflection, and 4) presentation.

During the first part of a project, students design a WebQuest focusing on a cultural topic tied to the curriculum as specified by their school district and approved by their cooperating teacher. The WebQuests are built using a

Manila Web-based platform (<http://manila.unl.edu>). Special training sessions are provided for the students to learn the basics of Manila before they start their projects. These sessions include a description of the WebQuest process and examples of culture WebQuests created by previous students.

During the second phase of the project, pre-service teachers incorporate their WebQuest projects into their language curriculum. The WebQuest is accompanied by a complete lesson plan including clear and measurable objectives. Usually, the pre-service teachers choose to implement short-term WebQuests that take approximately 3-4 days for students to complete.

The third part of the project requires the pre-service teachers to analyze their WebQuest experiences in their classrooms. The pre-service teachers are asked to write a reflective paper providing a detailed analysis of the project including advantages of using WebQuests, problems that they encountered, and how they can improve the lesson. Some of the pre-service teachers conduct pre- and post-tests as part of the evaluation process, which are summarized and presented in their papers.

Pre-service teachers expressed positive attitudes towards the WebQuest model, emphasizing the role of student collaboration, change of pace, increased motivation, and active student learning. One of the pre-service teachers noted “the greatest advantage of a WebQuest is that students have all the instructions on the computer and don’t need the teacher’s assistance to be able to finish the project, which allows them to be independent workers.” Several pre-service teachers expressed the importance of real life tasks offered through WebQuests that made the learning experience more meaningful for their students. The ability to address all learning styles was also observed: “My students collaborated well on the project, it catered to multiple intelligences, the kids’ vocabulary improved, and it was a real-world linguistic experience they may have someday.”

Pre-service teachers shared their WebQuests and their reflections with their peers through a formal presentation. A rubric for evaluation, based on one developed by Bernie Dodge (2001) (<http://edweb.sdsu.edu/webquest/webquestrubric.html>) was used by the instructors of the methods class to guide the pre-service teachers through all stages of project development and implementation. This rubric also served as an evaluation tool for assessing the WebQuests (see Appendix A).

Each pre-service teacher created, taught, and evaluated a WebQuest in the classroom of their cooperating teacher. Examples of these WebQuests created by the pre-service teachers can be found at <http://cehs.unl.edu/psmarsh/index.html>; <http://cehs.unl.edu/ctaylor/index.html>. The sample screenshots below (Figures 1, 2, and 3) demonstrate the format and content of the WebQuests created by pre-service teachers.

This was followed by a self-evaluation of the WebQuest that included: an analysis of the achievement scores of the students based on a pre- and post- test; results of a questionnaire regarding the attitude of students toward the WebQuest project, a self-reflection by the pre-service teacher of the impact of the WebQuest on student motivation, and general effectiveness of the project.

Figure 1. Food in the Spanish-speaking World

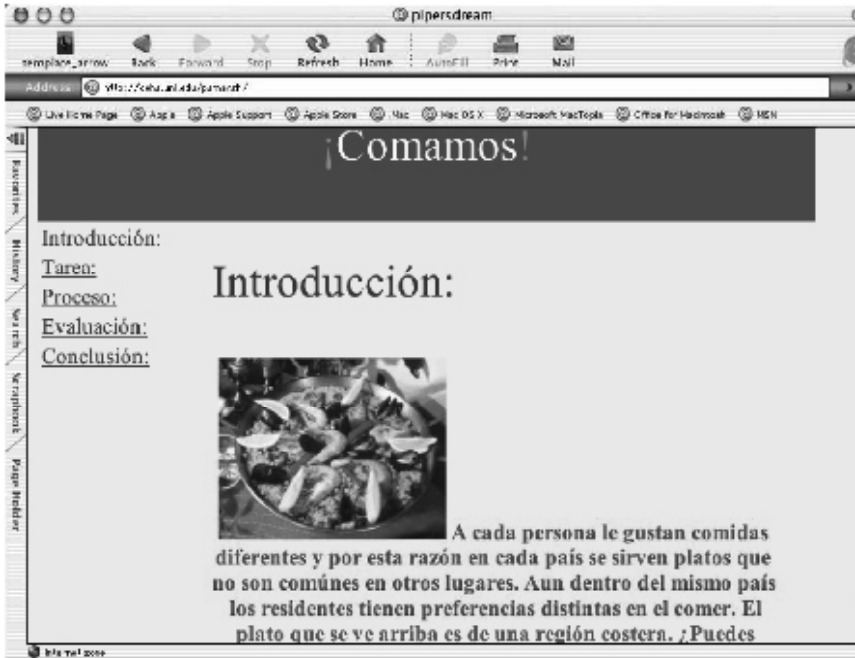


Figure 2. Austrian Webquest

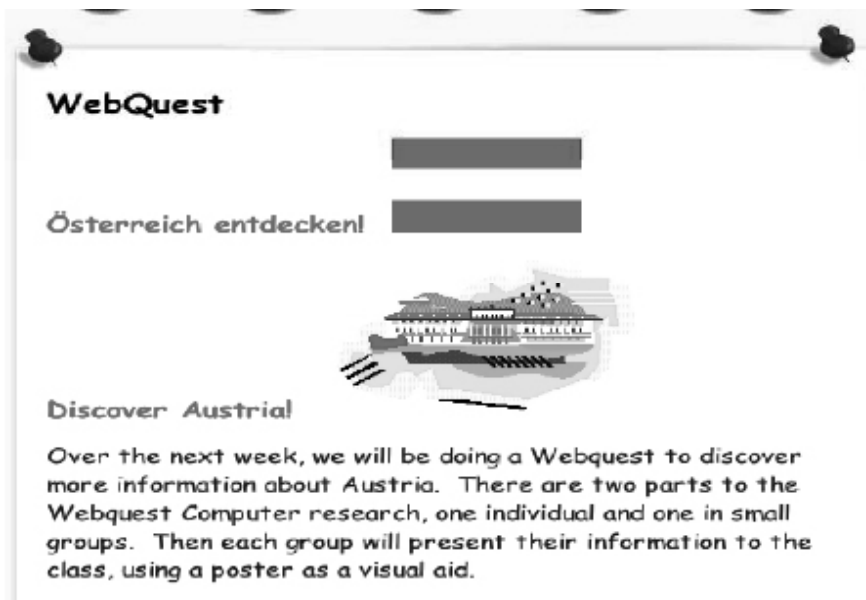


Figure 3. Directions for Spanish WebQuest

Resume

Pictures

School Profile

Spanish at Norfolk High

WebQuest

Country WebQuest

Discussion

Recent Discussion

Create New Topic

Membership

Join Now

Login



¡Hola clase! Ustedes van a hacer un Web quest. Es muy divertido! Antes de entrar en al pagina web, tengo algunas consejas.

1. Look please at the lista de direcciones - This is a list of the steps you need to complete. ¡Ojo! Your Webquest is slightly different than the one on the internet.

2. Click on the main website:

<http://www.nevada.edu/~brunelle/travelxperts.html>

Not only did several of the pre-service teachers create additional WebQuests and include them on their Website Home Page, but the cooperating teachers began using them in their classrooms as well. Pre-service classmates shared their WebQuests and were equipped with a collection of examples that could be integrated into their own classrooms upon graduation. Because they were based on content related to the text they were using in the classroom, the pre-service teachers were asked to lead a staff development on the use of WebQuests in the local school district. Such a synergistic relationship between the pre-service teachers, university, cooperating teachers, and school district creates a supportive community of scholars that promotes professional development in ways that results in classroom application.

Action Research

An important feature of the WebQuest project during the foreign language methods courses involved conducting classroom-based research to determine the effect of using this technology approach in the classroom. Action research provides pre-service teachers with a first-hand experience with a research tool that will allow them to analyze the effectiveness of a classroom strategy/approach and to measure the impact of the approach as regards student learning. Action research studies were conducted on a variety of technology related issues such as: the effect of using online quiz makers versus paper and pencil assignments; the impact of key pals on language learning motivation and cultural understanding; and the differences in achievement level for students who completed a WebQuest project versus traditional classroom instruction.

These action research/inquiry projects are presented to the college as a whole in the format of a poster session. Pre-service teachers write a formal action research paper, summarize their results via a poster, and present these results at a research conference that is open to the public. This provides a real audience for their studies and allows the public to see the results of classroom-based research. Such classroom-based research is a powerful venue for changing beliefs about language teaching and learning and allows teachers to adjust their instruction based on their own experiences and investigations.

Conclusion

The WebQuest is an effective approach to learning that allows pre-service teachers the opportunity to connect curriculum, technology, and pedagogy in ways that help their students become more independent learners through a learning-to-learn approach versus the transmission model of instruction. This Web-based approach assists students in making cognitive connections and construct more complex mental schema in a real world task that can lead to confidence, higher motivation, and ultimately higher achievement. By creating a carefully scaffolded infrastructure for learning and using technology during the pre-service teacher education program and working with cooperating teachers in applying this technology during the field experiences, the chances for integration of technology in the classroom are greatly increased. This can result in the creation of a critical mass of teachers who can use technology to motivate learners and ultimately increase their language and cultural proficiency in ways that enrich the teaching and learning of languages inside and outside the classroom.

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Appendix A

WebQuest Rubric

Original WebQuest rubric by Bernie Dodge
<http://edweb.sdsu.edu/webquest/webquestrubric.html>
 (reproduced by permission of author)

	1	2	3
Visual Appeal	There are few or no graphic elements. Background interferes with the overall comprehension.	Graphic elements sometimes, but not always, contribute to the understanding of concepts.	Appropriate graphic elements are used to make visual connections that contribute to the understanding of concepts.
Navigation & Flow	The organization of the lesson is confusing. Pages can't be found easily.	There are few places where the learner can get lost and not know where to go next.	Navigation is seamless. It is always clear to the learner where all the pieces are and how to locate them.
Mechanical Aspects	There are more than 5 broken links, misplaced or missing images, badly sized tables, misspellings and/or grammatical errors.	There are some broken links, misplaced or missing images, badly sized tables, misspellings and/or grammatical errors.	No mechanical problems noted.
Introduction	Introduction doesn't prepare a learner for the task.	Introduction provides a learner with some idea about the task itself.	Introduction effectively introduces the task to a learner.
Task	Task requires simply comprehending or retelling of information found on web pages and answering factual questions.	The task requires analysis of information and/or putting together information from several sources.	Task promotes thinking that goes beyond simple comprehension. The task requires synthesis of multiple sources of information to prepare a final product.

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Process	Process is not clearly stated. Students would be confused about all the steps that they need to do to accomplish the task.	Some directions are given, but there is missing information.	Every step is clearly stated. Most students would know exactly where they are at each step of the process and know what to do next.
Resources	Resources provided are not sufficient for students to accomplish the task.	There is some connection between the resources and the information needed for students to accomplish the task.	There is a clear and meaningful connection between all the resources and the information needed for students to accomplish the task.
Evaluation	Evaluation criteria are not presented.	Evaluation criteria are partially presented.	Evaluation criteria are clearly stated in the form of a rubric. Criteria include qualitative as well as quantitative descriptors. The evaluation instrument clearly measures what students must know and be able to do to accomplish the task.
Presentation	Weak voice projection. Demonstrates poor knowledge of the project's content. Unable to answer questions.	Good voice projection. Demonstrates the knowledge of the project's content in a comprehensible and professional manner.	Excellent voice projection and knowledge of the project's content.
Reflective paper	Paper is a summary of the project, contains no reflective analysis of the experiences related to working with WebQuests.	Somewhat organized paper, more than just a summary of the project, contains some reflective analysis of the experiences related to working with WebQuests.	Well-organized paper, more than just a summary of the project, contains reflective analysis of the experiences related to working with WebQuests.