Active Learning through Materials Development: A Project for the Advanced L2 Classroom

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Abstract

Building on the notion of active learning, the assumption that students learn more when given opportunities to practice using their skills and to receive feedback on their performance, this article describes a project undertaken in an Advanced (third-year) Swahili course in which students were given the opportunity to develop L2 materials for computer-mediated peer instruction. The article examines the goals, design and results of the project in light of the literature on active learning and learner autonomy, and suggests how the project might be improved in order to serve as a model for other Advanced L2 courses.

Introduction

A large body of research in a wide range of disciplines has demonstrated the efficacy of active learning -- student-centered learning in which students are given opportunities to practice using their skills and to receive feedback on their performance. These results are no surprise to second language (L2) teachers, who, since the 1970s, have been increasingly using communicative, proficiency-oriented approaches in which students are given frequent opportunities to use the target language in realistic situations -- learning to *use* the target language rather than learning *about* it (Omaggio Hadley, 1993). In particular the literature on active learning has demonstrated the efficacy of peer instruction (Michael, 2006). In light of this research, in Spring 2006, I piloted a project in my Advanced (third-year) Swahili course at the University of California - Los Angeles (UCLA), in which I gave students the opportunity to develop web-based instructional materials to teach their peers in Beginning and Intermediate Swahili about a topic of their choice. My goals were to actively in-

volve Advanced students in the learning process, encourage them to focus on problem solving rather than memorization, allow deep analysis of authentic materials, and lead them to learner autonomy as well as, ultimately, life-long learning. This article examines the goals, design and results of the project in light of the literature on active learning and learner autonomy, and suggests ways in which the project might be redesigned in order to serve as a model for other Advanced L2 courses.

Cognitive science and education research demonstrates that meaningful learning is facilitated by explaining what one has learned, either to one's self or to one's peers (Chi, de Leeuw, Chiu, & La-Vancher, 1994). In math and computer science courses, students who give elaborate explanations of a topic understand the topic better (Webb, 1989).

There is evidence to suggest similar gains for L2 learners. Among Spanish-speaking learners of English as an L2, reciprocal peer-tutoring in reading strategies improves reading comprehension and reading self-confidence among both tutors and tutees (Saenz, Fuchs, & Fuchs, 2005). Undergraduate peer teaching assistants (PTAs) who were learners of Spanish reported that teaching the language to their peers gave them opportunities to practice using the L2 and to review the basics (Rodriguez-Sabater, 2005).

The push toward active learning in the sciences has been fueled by the argument that, "students should be able to *talk* science (to understand how the discourse of the field is organized, how viewpoints are presented, and what counts as arguments and support for these arguments), so that students can participate in scientific discussions, rather than just *hear* science" (Chi et al., 1994, p. 441). Likewise in L2 teaching and learning, Advanced students in proficiency-oriented courses should be encouraged to "discuss their interest and special fields of competence" (American Council on the Teaching of Foreign Languages [ACTFL], 1999, p. 9) in the target language so that they can participate in professional discussions in their respective fields, a measure of Superior proficiency. In L2 classes with students from diverse disciplines, individual projects are a useful tool for developing this skill. In courses with graduate students preparing for careers as professors, a shared competence that all students are working toward in their respective disciplines is peda-

gogy; using the L2 to practice pedagogy is a transferable skill that students will be able to use beyond L2 study (Michael, 2006).

Peer instruction need not take the form of interpersonal communication to benefit learning. Chi et al. (1994) argue that any type of activity in which "new declarative or procedural knowledge is constructed" (p. 470) helps students to retain what they learn. While Advanced learners will benefit from teaching the L2 through oral presentations to Beginning (first-year) or Intermediate (second-year) learners, the latter will be better served by oral input from expert rather than novice instructors (Tessier, 2007). Producing instructional materials, rather than teaching face-to-face, thus allows Advanced learners the opportunity to construct knowledge about the L2 by explaining it to their peers, but in a format that can be edited or vetted by an experienced instructor (and/or a more proficient speaker of the L2) before being made available to other learners. Littlejohn (1997) shows that "exercise production," a form of presentational communication, "engages learners in a deeper understanding of the language" (p. 191); moreover, it increases motivation and diversifies learning strategies.

Producing instructional materials using authentic texts provides opportunities for L2 learners "to receive comprehensive input, produce comprehensible output, and negotiate meaning" (Saenz et al., 2005, p. 244), all of which should lead to (but do not guarantee) learning. By creating such materials, Advanced students also provide similar opportunities to their Beginning and Intermediate level peers who will use the materials.

Teaching materials constructed by learners will be usable over a longer period of time and by a greater number of their peers than would, for example, a single classroom lesson or lecture. In the case of less commonly taught languages (LCTLs), and in particular African LCTLs, there is a real need for instructional materials. Even for Swahili, which is blessed with more instructional materials than most African languages, most of them in print form, there is a dearth of materials that make substantial use of authentic texts (Biersteker, 1990; Moshi, 1988; Rutayuga, 1984). Only recently have teachers of Swahili as an L2 begun creating teaching materials which feature non-print multimedia authentic texts (Hauner, 2001a; Hauner, 2001b; Hauner, 2006; Moshi, 2007; Thompson & Hinnebusch, 2006). Stu-

dents who create teaching materials can thus be motivated by contributing materials that are truly needed, not merely taking part in an academic exercise.

In Spring 2006, I piloted a ninth-quarter Advanced Swahili course in which I treated my students as apprentice teachers, requiring them to design multimedia web modules to teach Beginning or Intermediate students about a topic of interest to them. Over the course of the ten-week quarter, each student was required to create a self-contained lesson based on research on authentic materials related to a theme of personal or academic interest, create detailed cultural, lexical and grammatical help features based on their analysis of those materials, and to learn how to discuss modern technology in the target language. Predicted outcomes included the following: frequent opportunities for writing and speaking about their projects would improve students' proficiency in the target language; doing meta-level thinking about language teaching and learning would improve students' ability to learn autonomously; and conducting research on authentic materials would teach students skills that will enable lifelong learning.

Student Participants

The three students who participated in the pilot course were Advanced Swahili learners in their ninth quarter of formal Swahili study at UCLA. All were graduate students, two pursuing Master's degrees in African Studies (with emphases on the arts and public health, respectively) and one pursuing a Ph.D. in Anthropology. None had experience creating instructional materials. All in their mid-to-late twenties, prior to the course these students were experienced in using computers only for basic needs such as word processing, spreadsheets, databases and accessing the Internet.

Course Design

The design of the course followed Kupetz and Ziegenmeyer's (2006) "checklist for developing technologically enhanced learning environments" (p. 63) adapted from Knapper's (1988) "criteria for lifelong learning" (p. 94). The course involved problem-solving ac-

tivities; encouraged active learning; was motivating, relevant, flexible, and collaborative; integrated knowledge from different fields (L2 studies, technology, African studies, women's studies, film, ethnography); involved a dialogue about learning; responded to individual differences; and encouraged students to take responsibility through informed choices.

A major goal of the course was for students to take control of their learning, becoming autonomous learners (Benson, 2006; Kaltenboeck & Mehlmauer-Larcher, 2005), by conducting independent research on authentic materials, reviewing the grammar and cultural information needed to make sense of those materials, and by reflecting on how they learn(ed) the target language. Since the pilot course comprised their last quarter of formal L2 study, it was essential that these students become autonomous learners in order to continue learning Swahili on their own through interaction with authentic materials outside of the classroom as lifelong learners -- one of the ACTFL Standards.

Benson's (2006) review of the literature on autonomy demonstrates that "learners do not develop the ability to self-direct their learning simply by being placed in situations where they have no option" (p. 22).   Similarly, Michael (2006) writes, "active learning doesn't just happen; it occurs in the classroom when the teacher creates a learning environment that makes it more likely to occur" (p. 164). Therefore I did not give students total responsibility "for all of the decisions concerned with [their] learning and the implementation of those decisions" (Benson, 2006, p. 22), but rather gave them specific guidelines as to how the course would be structured and what I expected of them in relation to their projects.

The course was structured around what Benson (2006) describes as Holec's approach to "taking charge of one's own learning" through "planning, the selection of materials, monitoring learning progress and self-assessment" (p. 23).   In line with the notion that learner autonomy develops gradually (Kaltenboeck & Mehlmauer-Larcher, 2005; Kupetz & Ziegenmeyer, 2006), students must have already been exposed to a significant number of authentic texts during their previous courses in the target language before they can begin self-directing their learning. The final course in a series of L2 courses is thus the ideal setting for materials development. In this

case, students had already interacted with a wide selection of authentic texts over eight quarters of Swahili, including *kanga* writings (proverb-like statements printed on fabric worn as a wrap by women), proverbs, children's books, newspaper articles, novels, nonfiction books, poetry, cartoons, plays, radio broadcasts, documentaries and feature films. Two of the three students had spent time in the target culture.

At the planning stage, I asked students to first conduct a self-assessment of their target language proficiency in the four skills of reading, writing, listening and speaking. Students read the ACTFL proficiency guidelines for each skill[1] and answered the following questions by posting their responses to a blog:

1. How do you rate yourself?

2. Carefully read the description for the proficiency level just above your current level; this will be your goal for the quarter. What do YOU need do to move to the next proficiency level?

3. Among the goals you listed in response to question 2, in which of those areas do you need help from [the teacher]?

One goal of this assignment was not only to encourage students to set learning goals for themselves, useful not only for its own sake but also to help students to see how their projects might be used to benefit themselves and not just the lower-level language learners for whom they would create materials. A secondary goal was to expose them to the various skills expected of language learners at vari-

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[1] Speaking guidelines available at
http://www.actfl.org/files/public/Guidelinesspeak.pdf. Writing guidelines available at http://www.actfl.org/files/public/writingguidelines.pdf. Listening guidelines available at http://www.sil.org/lingualinks/languagelearning/
OtherResources/ACTFLProficiencyGuidelines/ACTFLGuidelinesListening.htm.
Reading guidelines available at
http://www.sil.org/lingualinks/languagelearning/
OtherResources/ACTFLProficiencyGuidelines/ACTFLGuidelinesReading.htm

ous proficiencies, to help them determine for which level they would create exercises.

In general, students' goals for improving their proficiency showed their *lack* of autonomy and insufficient planning for achieving their proficiency goals. For example, one student wrote a goal of "Increase my general vocabulary," but gave no indication of how that goal might be realized. Whereas questions 2 and 3 above were an attempt to get students to differentiate between self-directed learning and teacher-directed learning, students were clearer about the instructor's role in their learning than about their own roles. In response to question 3, one student wrote, "I need help from [the teacher] with all of the above." Others offered specific suggestions as to how the instructor might help them achieve their goals, such as slowing down videos to help them improve their listening comprehension. But in contrast to the specificity in how the instructor might help *them*, only one student included some specific, realistic goals about how to improve one's own proficiency, writing, "I need to keep working on incorporating different time frames and more varied vocabulary into my speaking patterns." Notably, this student was more advanced in speaking and listening proficiency than the others and seemed to have already developed a stronger ability to self-assess and to consciously direct his learning. Nevertheless, even this student tended to construct goals in passive terms, such as "I need to ... get exposed to native speakers more often," rather than "I will seek out native speakers more often." Students' comments demonstrated that achieving autonomy would be a challenge for them.

In the second stage (selecting materials), class meetings and homework assignments focused on brainstorming, a process through which students were alerted to the "unlimited database of authentic materials" (Kramsch, A'Ness, & Lam, Wan Shun Eva, 2000, p. 79) available online and in the library from which to choose. Each student brainstormed a list of ten possible topics for an interesting target-language lesson and then they shared their lists orally in class and discussed the merits and challenges of developing a lesson about each topic. I then asked students to find three authentic target-language sources online, requiring them to do independent research.

Another aspect of selecting materials involved recalling the types of activities and technologies student participants found useful

in their own L2 studies and reflecting critically on their own use of technological resources, an approach which Aston (1997) suggests helps students acquire more successful learning strategies. To facilitate this process, I provided students with a list of seven links to web sites designed for Swahili learners.

Swahili Hot Potatoes
http://www.humnet.ucla.edu/aflang/swahili/Exercises/index.htm

Kiswahili kwa Kompyuta (KIKO)
http://www.africa.uga.edu/Kiswahili/doe/index.html

Rosa Mistika
http://african.lss.wisc.edu/swahili/page1.html

Utamaduni Online
http://african.lss.wisc.edu/utamaduni/masomo.htm

Kamusi Online
http://www.yale.edu/swahili/

Kiswahili Web at U Penn
http://ccat.sas.upenn.edu/plc/kiswahili/

Magazeti
http://african.lss.wisc.edu/swahili/swahili_4/menu/main1.htm

For each site students answered the following questions:

1. What kinds of authentic materials are used if any?
2. What proficiency level is targeted?
3. What skills are targeted?
4. What are the strengths and weaknesses?
5. What ideas does it give you for your own project?

Their answers were then compared and discussed in class. As many of these sites were ones participants had used as learners in

previous quarters of Swahili study, the assignment gave them the opportunity to critically reflect on what and how they had learned and on the effectiveness of various activities and technologies. In order to expand their sources for ideas, I asked them to also examine exercises for three other LCTLs on the Center for Advanced Research in Language Acquisition's LCTL website (http://www.carla.umn.edu/lctl/materials/index.html) and we discussed their findings in class.

Active learning involves not only experience doing something with the material learned but also reflection and dialogue, which can occur either alone or in a group (Rine, 2006/07). To this end, students reflected alone by writing weekly blog entries in which they commented on their project progress. In the small group that was our class, each student also led one class meeting each week, presenting the project, discussing progress, and asking for feedback from their peers and instructor.

One area in which learner autonomy is most needed is in the review of grammar. Despite owning a textbook that has very clear explanations of grammar rules alongside clear reference charts (Hinnebusch, 1998), as well as a separate grammar book (Thompson & Schleicher, 2001), many of my students rely on me to review grammar rules rather than doing so themselves. In an effort to encourage participants to take control of their grammar learning, the course included the following assignment:

> Choose a grammar topic with which you have trouble. (You might want to look back at your final essay from last quarter again.) Review it, then design a review activity for your classmates. Bring enough copies for everyone.

In addition to encouraging self-direction in review of grammar, the assignment, like the earlier review of online language exercises, had the goal of making students aware of the pedagogical goals and content of learning materials, one of the levels of "learner action" Nunan describes as necessary to achieve learner autonomy. It placed a dual focus on the needs of the students preparing the lessons as well as on their target audience(s).

By the third week of the course, students had the skills needed to find authentic source materials and to develop a plan for a self-contained online lesson that would teach Beginning or Intermediate students the grammar, vocabulary and cultural background needed to understand an authentic text. Doing much of this work outside of class, each student presented his or her work once each week. Students followed these instructions:

> Each student will present on his/her assigned presentation day. Be prepared to explain your topic, present one authentic text for discussion (distributed in advance), discuss the kinds of technology you are considering using for your project, and the skills and proficiency level your project will target.

The three students respectively chose to develop (1) a Beginning level site about *kanga* writings, (2) an Intermediate level site about a serialized Kenyan comic strip, and (3) an Intermediate level site about Tanzanian popular culture.

Educators have argued that in order for students to learn problem solving the instructor must first "demonstrate a task from the viewpoint of the performer" (Michael, 2006, p. 161). Just as learners must receive comprehensible input in order to model their own output, learners involved in materials development must observe the process of materials development. Part of the pilot course therefore entailed my own development of a multimedia web module. Each week I led a discussion of my project goals, website design, selection of technologies, selection of authentic materials, and exercise design, thereby modeling the task which students were undertaking. As students presented their own weekly progress to the class, I also modeled giving feedback to facilitate peer-review and collaboration.

In contrast to the popular notion that our students know more about technology than we do, participants in the pilot course were inexperienced with many of the technologies used for creating language materials. In week four, they met with a technology consultant who not only taught them how to use *iWeb*, a user-friendly program that allows one to create simple but attractive pages that incorporate media such as sound clips, images, and video clips, but also

gave them a primer in copyright issues and fair use. Other technologies students incorporated included: *Springdoo*, a site that allows one to record audio email messages; blogging; *Before You Know It* electronic flashcards; and *Makers* self-check exercises.

In week five, student project development began in earnest. Class meetings involved: reviewing various grammar points; viewing and discussing contemporary and historical photographs of *kanga* as well as video clips of documentaries; reading and discussing print cartoons; listening to audio clips of interviews with East African Swahili speakers recorded by the students and myself; and practicing the use of new vocabulary related to technology. Weekly student presentations and blog writing allowed them to self-assess their goals and progress. By the end of the ten-week quarter, students had achieved a major goal: each produced a self-contained multimedia lesson that can be used by Beginning or Intermediate Swahili learners.

One project introduces Intermediate learners to a Kenyan comic strip, *Ushikwapo Shikamana* (when you are caught, stick together), which was used to educate Kenyans about HIV and other reproductive health issues. The project was designed by a graduate student in African Studies with an interest in the arts, and is available at <http://media.humnet.ucla.edu/quarters/06s/african103c_Flec1 _5F06s/paka>. The introductory page begins with some background on the comic and overview of the pages included in the lesson, and a reminder to students that they can access a vocabulary list if they need help as they proceed. It then uses thumbnail images and captions to introduce the various comic characters which students will encounter, and students have the option of viewing these images in a larger slideshow format. Subsequent pages include:

1. an introduction to the story told in the comic, through 5 scanned strips that form a narrative. For ease of reading, the text of the comics is also typed in web format. After reading the strips, students are asked to retell the story in their own words, using *Springdoo* to record their answer orally and emailing it to their instructor;

2. 3 pages of grammar review, in which students are asked to identify specified grammatical features in a number of

comic strips and then complete a self-check grammar exercise and/or email their findings to their instructor;

3. a listening activity in which students hear a Kenyan man's opinions about the cartoons, then record their own answers to several questions about what they heard, and send their audio recordings to their instructor;

4. a glossary of all the new vocabulary encountered in the instructions, comics and audio clip.

To create the site, the student incorporated comic strips and personal interviews with a Kenyan graduate student at UCLA. Unfortunately, the grammar pages require learners to have already mastered the grammar at hand, providing minimal explanations. The site provides exposure to authentic Kenyan Swahili, but the output produced by the student who developed the materials has too many errors to make it a useful tool for other learners. The student made minimal use of the technologies in which she was trained, relying entirely on *iWeb* and *Makers*.

A second project, entitled "Burudani" (entertainment), introduces Intermediate learners to various forms of East African popular culture. Designed by a graduate student in African Studies and Public Health, the project has not yet been made publicly available online. The first page of the site explains, "Tovuti hii inatumia matangazo, video na sauti ili kukujulisha juu ya burudani za kawaida" (this site uses advertisements, videos and sounds in order to inform you about typical forms of entertainment), and then goes on to describe what students will learn (to listen to Swahili speakers, get used to their speed, and about an important part of the culture of Dar es Salaam, Tanzania's major urban area), and what they will need (a blog and *Before You Know It* software). Subsequent pages include:

1. a link to a website describing upcoming events in Dar es Salaam, which students are asked to blog about, answering questions about what they find there, comparing entertainment in Dar to the entertainment they enjoy, and evaluating the source of the website;

2. a short clip from a film about Tanzanian soccer, which students are asked to blog about, answering comprehen-

sion questions of increasing difficulty after repeated view-
ings;

3. an introduction to *Bongoflava,* young people's music, that
    includes both a music video and several audio clips of a
    Tanzanian researcher discussing *Bongoflava*, followed by
    questions students are to answer in their blog entries;

4. an introduction to the Tanzanian filmmaker Josiah Kibira,
    a clip of his film *Bongoland*, and an article about his film
    Tusamehe, followed by comprehension and discussion
    questions which students are asked to blog about.

In addition, from any page students can access *Before You
Know It* flashcards, which allow them to review and quiz themselves
on new vocabulary used in the lesson.

To create the site, the student incorporated a wide array of
authentic materials including Swahili web sites, documentary films,
music videos, feature films, and a recorded lecture with a Tanzanian
visiting scholar. He also consulted secondary sources on Tanzanian
music ranging from scholarly work to popular sources. While the
student's output has a few grammatical errors, overall the site will be
useful to Intermediate Swahili learners. Moreover, the student shows
strong evidence of becoming a lifelong learner himself. While it is
unclear whether or not his understanding of grammar improved, he
did improve his own knowledge of Swahili culture as well as his read-
ing and listening skills.

The site about *kanga* is the most extensive and probably the
most useful for learners, an outstanding example of what Advanced
students can achieve as material developers. "Kanga and Swahili: Ex-
ercises for 1st Year Students of the Swahili Language," was designed
by a graduate student in Anthropology at UCLA, and is available at
<http://media.humnet.ucla.edu/quarters/06s/african103c_lec1_06s
/eleanor>. The introductory page begins with a concise description
of the *kanga* (fabric with a Swahili saying written on it, used by East
African women as clothing), written in Swahili that first year students
will comprehend with a bit of effort, and ends with the lesson's goals:

Mazoezi kwenye tovuti hii yatakusaidia kujifunza juu
ya njia nyingine tofauti za kuvaa na kutumia kanga

kwa watu wa Afrika ya Mashariki. Utajifunza pia juu
ya matumizi ya kanga katika mawasiliano.

(The exercises on this website will help you learn
about East Africans' other ways of wearing and using
kanga. You will also learn about the use of *kanga* in
communication.)

Subsequent pages include:

1. a history of *kanga*, written in English;
2. a slideshow of all the *kanga* used in the module, and the Swa-
   hili text shown on each one;
3. a vocabulary lesson on *kanga* terminology, linked to electron-
   ic flashcards for reviewing that vocabulary;
4. an exercise in describing the parts of a kanga, in which stu-
   dents listen to a Tanzanian woman describing a *kanga* and
   then record their own descriptions using *Springdoo*;
5. a cultural explanation in English on the role of *kanga* in
   communication, a useful review of the literature on the topic;
6. a grammar explanation, written in English, of the most
   common grammatical features used in *kanga* inscriptions,
   with references to more extensive explanations found in stu-
   dents' textbooks; followed by a grammar review exercise us-
   ing examples from real *kanga*;
7. a listening activity in which students hear a Tanzanian wom-
   an describing a *kanga* she received as a gift, study the vocabu-
   lary used in the audio clip, and then complete a self-check
   oral comprehension exercise;
8. a writing activity in which students describe the meaning of
   several *kanga* in an email to their teacher;
9. a listening activity in which students hear a Tanzanian wom-
   an describing the various uses of *kanga* and then complete a
   self-check oral comprehension exercise;
10. a listening activity in which students match short audio clips
    of a Tanzanian woman describing pictures of women using
    kanga with the pictures themselves;

11. a listening activity in which students listen to a Tanzanian woman describing the business of *kanga* production and sale, followed by a self-check oral comprehension exercise;
12. a multiple-choice cultural activity in which students read short scenarios, written in English, and select the Swahili *kanga* inscription that would be used in each situation;
13. a summary activity in which students write an essay in Swahili about what they have learned about *kanga*;
14. a bibliography;
15. an annotated list of links about *kanga*;
16. and a glossary of all the Swahili words used on the site.

To create the site, the student incorporated a wide array of authentic materials including *kanga*, images of East Africa, and personal interviews with a Tanzanian woman who works at UCLA. She also consulted secondary sources on *kanga* ranging from scholarly work to popular sources. She created a site that will be extremely useful to Beginning Swahili learners and shows strong evidence of becoming a lifelong learner herself. Moreover, she clearly knows more about the cultural, lexical and grammatical features of *kanga* for having explained them to other learners.

Students' initial reliance on the instructor to facilitate their learning subsided as each became more autonomous in mastering the area(s) in which each most needed improvement. For example, the student who wanted more exposure to native speakers created the project that featured video clips, recorded and then repeatedly listened to a lecture in order to create appropriate comprehension and discussion questions about it, and also interviewed the lecturer to get more cultural background on the topic of his project. The student who had the most difficulty with Swahili grammar and writing created a project that focused on those skills. The student who hopes to soon conduct interviews with Swahili speakers during dissertation fieldwork conducted a series of interviews that she used to create listening comprehension questions. When forced to take charge of their learning, students -- perhaps unwittingly -- made good choices that enabled them to focus on areas in which they needed or desired to improve their skills.

Discussion

At the end of the course, participants were asked to fill out standardized UCLA course evaluations. All of the students valued learning to use various technologies, an outcome also found in a similar project undertaken with Spanish learners (Kramsch et al., 2000). One student wrote, "I found the integration of technology to be very useful," and another commented, "I'm thankful to have learned so much new technology." The third found technology a mixed blessing: "[...] a lot of my time and energy went into dealing w/ the logistics + technology of doing the web site -- things that had nothing to do w/ Swahili -- though still of value."

Two of the three participants commented on their roles as materials developers and the potential impact on their peers. One wrote, "I learned a lot about teaching the language by creating exercises on [the] computer for students of lower levels" and the other commented, "I hope our websites will be useful to future Swahili students."

One of the three participants commented on his newfound autonomy, ability to access authentic materials, intention to become a lifelong learner, and the effect on his self-confidence: "We had to research authentic Swahili sources on the internet, which will be a useful skill to have in the future. We had to interview native Swahili speakers, which I found to be a valuable exercise and one which revealed how comfortable I actually am using the language."

Negative comments reflected students' impressions that they had not learned as much Swahili as they had in previous quarters:

> On the one hand, I don't think I learned as much new Swahili as I did in the previous quarter, but on the other hand, this quarter may have given me the chance to get what I did learn to stick better.

Such comments are consistent with Rodriguez-Sabater's (2005) findings that serving as a peer instructor helps with review of the L2 rather than with new learning.

Follow-up interviews with participants were conducted by email to gain detail about why they didn't learn as much as they would have

liked and what would have helped them to learn more. One student wrote back with a long and thoughtful commentary on the course, including this:

> I think that the complaints about having learned less Swahili during this course had mostly to do with the fact that the structure and intensity of the previous quarters (i.e. upwards of two hours of Swahili text reading per night and several regular intensive writing exercises) had influenced our expectations for [the course].

His comments suggest one drawback of encouraging autonomy in Advanced students: they may not do as much work without the external motivation of a teacher's daily expectations.
Additional comments obtained six months after the pilot had ended indicated that participants did feel they had learned from participating in materials development.

> I personally think that [the course] is one of the more valuable Swahili courses that I've taken. [...] Overall, I appreciated the opportunity to learn a different and highly useful subset of Swahili vocabulary, I relished the opportunity to experiment with previously unfamiliar technological tools, and I really found the chance for exercising a sort of artistic creativity to be most refreshing.

Conclusion

The three student projects described above have not yet been used by learners at my institution (in part because of technological problems and a few grammatical errors that need to be corrected), so I cannot yet speak to their effectiveness as learning tools. Nevertheless, predicted outcomes were achieved for the Advanced learners who created these projects. Frequent opportunities for writing and speaking about their projects improved students' proficiency in the target language, though perhaps less than writing and speaking about

instructor-selected texts had done in previous quarters. Learning gains were measured qualitatively through continuous assessment of oral performance in class discussions, weekly assessment of written work on blogs and in the final web projects, and weekly assessment of new vocabulary used in appropriate contexts. Learning occurred through peer and instructor interactions, student ownership of the curriculum, and educational experiences that were authentic for students. Because of varied student interests, the cultural knowledge each student gained was different, but each also learned something about the areas researched by the others. Likewise, the linguistic knowledge each student gained varied, with some focusing more on grammar and others on skills such as listening, but again students also shared what they learned with their classmates. Students shared linguistic, cultural, and technological information, assumed leadership and responsibility, and became decision-makers. Doing meta-level thinking about language teaching and learning did improve participant's ability to learn autonomously, such that they were able to self-direct their own research and create usable materials. Students took responsibility for their learning: the classroom became a community of learners as well as a community of instructors working together to build web modules, testing ideas on one another, and critiquing one another's work. Conducting research on authentic materials gave students skills that, if they choose to, they may use to become life-long learners, able to continue using and learning Swahili in their careers.

While writing for an audience with which they are authentically familiar, Advanced students had what Kramsch et al. (2000) call "the opportunity to gain an authorial voice" (p. 79), or what the student quoted above called "a sort of artistic creativity." In using that authorial voice to analyze an authentic text, students created useful teaching aids for other students, which, in the case of Swahili, fill a real need for teaching materials that use authentic sources. Such teaching aids might also function as motivators for Beginning and Intermediate students who can see the kinds of projects that await them in the Advanced course as well as how much they will learn if they continue language study to the Advanced level.

While the predicted outcomes of the pilot course were achieved, the results also indicate ways in which the project might be

redesigned in order to achieve greater learning outcomes. Extrapolating from the findings of Chi et al. (1994) that students who are "high explainers" (p. 467) have the most accurate mental models of what they have learned, it is expected that L2 learners who create the most instructional materials will most increase their linguistic competence. This finding is supported by the third student project described above. Student materials developers, then, should be required to create a significant number of exercises within a module so as to maximize their own learning gains.

Research in education has made clear that "individuals are likely to learn more when they learn with others than when they learn alone" (Michael, 2006, p. 161). This appears to be particularly true for computer-aided instruction (*ibid.*). While the pilot course described here did involve group dialog, it may be that group projects (e.g. one web module designed by two or more student co-authors) would lead to more learning.

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