

*Rethinking the Promise Of SCRATCH In the Applied Linguistics Classroom:
Students' Perspectives, Instructor's Observations*

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Abstract

For five fall semesters (2010-2014), undergraduate and graduate students taking applied linguistics (LN400, LN500) at the University of Guam were required to explore the promise of SCRATCH by designing projects relevant to their individual fields of specialization, from language teaching and literature, to pragmatics and sociolinguistics. SCRATCH, a free downloadable program from MIT (Massachusetts Institute of Technology), enabled them to think of creative ways to teach or transmit relevant information to their audience, as well as learn the rudiments of programming. At the end of the semester, each student was required to submit a CD Rom and paper discussing the relevance of the project to theories of second language acquisition or other relevant fields. This presentation will discuss the value of SCRATCH in the applied linguistics classroom by summarizing five semesters' worth of students' comments about and evaluations of the program, and the instructor's observations and assessments of students' SCRATCH projects.

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Introduction

In the 21st century, computers, Androids, iPads, iPhones, and even iWatches and their equivalents have become such part and parcel of almost everyone's everyday lives that effective educators must make technology integral to their teaching as well. Students use iPads, Tablets, iPhones, Androids, and decreasingly, computers (too big, too bulky), to take notes, to verify information, to do research, to stream, to watch shows and movies, to play games, to socialize: to chat, to Twit(ter), to Instagram (the last two are used as nouns and verbs). If teachers allow it, many students in their classes distractingly tinker with or sneakily check their Androids and iPhones several times during class (and perhaps anywhere else they may be). Two and three-year-olds learn to use the iPad at the same time as the fork and spoon. All these imply that every cutting-edge professional and educator must make use of these technological devices to enhance learning. They must find ways to make their students' favorite inseparable tools, toys, and gadgets that use technology – contribute to better teaching and better learning. The programming tool SCRATCH is an example of a promising classroom tool. For five Fall semesters, undergraduate and graduate students of Applied Linguistics (LN400, LN500) at the University of Guam were required to design SCRATCH computer projects for possible use in the classroom, for students of different ages and levels of competency. After becoming familiar with second language learning/acquisition theories in the first half of the semester, applied linguistics students were required to think of ways to integrate SCRATCH into possible classroom lessons in foreign language teaching and the teaching of other content areas. They were told that their projects had to reflect their creativity, imagination, (multi-) cultural / ethnic sensitivity, knowledge of second language/learning theories, and teaching ability.

SCRATCH

Why use SCRATCH in the applied linguistics classroom? SCRATCH is a relatively simple computer language that was originally designed to teach children the basics of programming in a simple, creative, fun, logical drag-and-drop way. But children are not the only ones who can benefit from the program. It enables anyone of any age to do simple-to-complex graphics, animation, interactive games, with or without music and sounds – the possibilities are endless. This free and downloadable program consists of a sprite (and other) characters, as well as a list of commands that can be used in any project. All commands are listed along the side of the program in the form of puzzle or lego-like pieces that can be added to the script. Developed by MIT Media Lab's Lifelong Kindergarten Group, with support from organizations and businesses like the National Science Foundation, Microsoft, Google, and Intel, SCRATCH was designed to stimulate and encourage anyone interested, from children to adults, not only to think critically, logically and creatively, but also to work collaboratively. Posted sample programs and tutorials on the net can be invaluable to those who wish to learn using the program. Fall 2010, 2011, and 2012 applied linguistics students used SCRATCH Version 1.4; Fall 2013 and 2014 students used the new Scratch 2.0 version. It was hoped that the new version would take care of the difficulties students had with the earlier version.

Applied Linguistics at the University of Guam (LN400/LN500) is a one-semester undergraduate/graduate course that English as a Second/Foreign Language (ESL/EFL), and English-language/linguistics track majors must take. It is an optional course for other education majors since the School of Education and Division of English and Applied Linguistics are separate units at the university. Although the course surveys the main subfields of Applied Linguistics, the first half of the semester covers second language acquisition theories, e.g., Cross-linguistic Influence or CLI (Kellerman 1995, Odlin 2003) –the weak version that remains from the controversial Contrastive Analysis Hypothesis (Lado 1957); Krashen’s (1981, 1982, 1983, 1985, 1997) theory with its bundle of five hypotheses – Monitor, Acquisition vs. Learning, Affective Filter, Input i+1, and Natural Order Hypotheses; Cognitive Theory and Approaches (McLaughlin 1987, Scovel 1999, R. Ellis 1997; q.v., Mitchell, Myles, Marsden 2013); Social Constructivist Theories (Long 1996, 2003); Inter/Intralanguage/Fossilization Theories (Selinker & Lamendella 1979, Long 2003); Linguistics/Universal Theory (Chomskyan) and Functional Approaches (q.v., Mitchell, Myles, Marsden 2015). Applied Linguistics students were expected to link any one or any combination of these theories with their SCRATCH projects.

Communicative Competence

Two previous papers (Quan 2013, 2014) proposed a model of the relationship between L2Acquisition theories and communicative classroom methods in the applied linguistics class projects based on Hymes’ (1974) notion of “communicative competence”. Below is a modified version of the model:

COMMUNICATIVE COMPETENCE IN A FOREIGN/SECOND LANGUAGE CLASS

Fun, Engaging, Practical Activities

L2Acq.THEORIES ← → Included: Learner characteristics	COMMUNICATIVE CLASSROOM METHODS TASK-BASED Linguistics: Phonology, Morphology, Syntax Content area learning/teaching Culture, social learning/teaching 4skills: Speaking, Listening, Reading, Writing Rhetoric	← → Lesson Plans & Tools (exploring SCRATCH) Teachers evaluating the effectiveness available programs/tools
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H.D. Brown (2007) enumerated some characteristics of an ideal communicative language teaching classroom (cf. Hymes 1972 on communicative competence). They include the need for the following: A) cultural, social, as well as linguistic competence since it is never enough to speak in grammatical sentences. Learners must also conform to the social and cultural norms of the speech community. This means that grammatical errors are more forgivable than social ones. For example, a monk cussing in the temple will entail serious consequences; the same monk committing a subject/verb agreement error will not; B) authenticity and functionality in lesson design because a speaker should sound natural and what he is taught must have practical uses; C) the necessity of sometimes sacrificing grammatical accuracy for fluency, or “getting the point across” for successful communication, especially in the early stages. A speaker who consults a dictionary for every word he wants to communicate will end up losing the attention of his listener who may ignore him in irritated impatience. The message is sometimes more important than the correctness or grammaticality of the message. D) the need to develop students’ ability to actually

be able to function in real-life situations, in the target language setting, beyond the classroom. One traditional, perhaps extreme trial by fire assessment activity was developed by Dartmouth College's John Rassias in the 1970s, which left the learner in the middle of nowhere in the target language (monolingual) speech community with little or no money. The learner had to find his way to a particular destination with no choice but to negotiate his way using the target language.

To Brown's list, I add three more characteristics of an ideal L2 communicative classroom: E) the need for positive rapport between students and between students and the teacher in the language classroom, to facilitate language learning/acquisition in the foreign language. A positive environment contributes to positive attitudes, openness, lack of fear in making mistakes, the formation of new friendships and possibility of collaboration, in the language classroom. F) the goal of decreasing the role and power of the teacher from sole informant, to guide, to minor guide, in order to prepare students for the target language real-life environment; and, G) the acceptability of using the native language(s) to teach/learn the target language, at least in the early stages, to relieve tension and fear, and facilitate acquisition.

The first year of the SCRATCH 1.4 project in the Applied Linguistics classroom was exploratory and collaborative, with each group of 3 or 4 students submitting one project. In the second through the fifth Fall semesters, every student was required to program his or her own project, although students were encouraged to work in groups to help each other out, or for "knowers" to help others. In the second year, a student from the previous year was invited to speak to the class, give advice, and answer questions about the program. This knower-helping-novices approach apparently helped students a lot. From Fall 2013, students used the newest version of Scratch (2.0) to plan, prepare and submit their individual projects.

In the course of five semesters, criteria for evaluating students' projects have been developed (Quan 2013, 2014). They involve examining how the individual projects tie in with the theories of foreign language acquisition and communicative learning methods, or with other content areas for non-education majors.

At the end of the semester, students had to submit CD or thumb drive copies of their projects. Additionally, just as the teacher assessed students' individual projects, students were, in turn, required to submit narrative summaries to evaluate / assess their learning experience with the SCRATCH program and its possible usefulness/value in the foreign language class and other content areas. Education majors had to submit a lesson plan integrating their SCRATCH project into the learning objectives for their students. The most important question they were asked to address was, as present and future teachers, would they use SCRATCH in their classrooms? Most of them, replied in the affirmative.

Below are two tables enumerating students' positive and negative comments about their overall experience with their projects. In the first table, students of Fall 2010, 2011, and 2012 describe their experience with the SCRATCH 1.4 program. In the second, students of Fall 2013 and 2014 comment on their experience with the new SCRATCH 2.0 version.

**UOG Applied Linguistics Students' Evaluations of SCRATCH 1.4
2010-2012**

POSITIVE COMMENTS	NEGATIVE COMMENTS
1. Fun!	1. Very time-consuming
2. Great learning experience	2. Not easy to use/learn in the beginning
3. A useful tool for educators who want a different teaching method in the classroom	3. Hard to coordinate sounds, movements
4. A creative alternative to Powerpoint, lectures, chalkboards, with the teacher talking all the time!	4. Takes a few days to learn and feel comfortable with the program
5. Allows teachers to be very creative	5. UTube videos and tutorials were too basic
6. Middle and high school students can use SCRATCH to do presentations, have fun, create games themselves	6. Commands are hard to learn; challenging for teachers who are not programming-savvy!
7. No limit as to what it can do	7. Takes a lot of patience and time that teachers may not have
8. A useful tool for ESL/EFL students as well as native speakers of English	8. What if classrooms don't have computers?
9. Teachers placed on the cutting edge of technology!	9. What if students don't have computers at home?

**UOG Applied Linguistics Students' Evaluations of SCRATCH 1.4
2013 - 2014**

POSITIVE COMMENTS	NEGATIVE COMMENTS
1. Fun! Interactive! Keeps kids engaged!	1. Time consuming; Very tedious (2014)
2. An inspiring tool – promotes learning	2. Confusing and intimidating in the beginning, esp. for those starting from scratch
3. Versatile tool for teaching anything, not just ESL/foreign language	3. Must coordinate sounds, movements, bubbles/conversations to minimize overlaps/interference
4. Availability of tutorials, as well as a sprite library for resources	4. Takes a few hours to a few days to learn and feel comfortable with the program
5. Ease of recording audio material	5. Even minor editing means watching the entire presentation from the beginning, for timing & aesthetics
6. A good tool for incorporating technology into the classroom	6. Hard to coordinate sprites, backgrounds, functions, sounds
7. Scratch 2.0 has tutorials for every one of its 10 steps posted on website	7. Program lacks a conventional playback method; “snapping” feature was annoying
8. A great teaching tool for teaching anything; a useful program for teaching students <u>and teachers</u> of all ages	8. Problems with the Costumes tabs: enlarges the character; must restart program to fix problem – a waste of time!
9. Can integrate any outside photo/drawing into the program	9. Speech bubbles of characters can cover other characters in the program. Can this be prevented?
10. Availability of sample programs from the website and YouTube to help w/ programming & ideas	10. A minor change in the program entails playing the entire program to coordinate timing
11. Problems, questions, and difficulties not addressed by the Scratch website are Googleable	11. Program’s tutorial voice sounded bored and boring
12. A bonding experience with other SCRATCH users.	12. Program is time-consuming for teachers with deadlines.
13. Program can give immediate	13. As scripts expand, program becomes

virtual feedback	slower to navigate; must be broken into sets
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14. It enables kids & adults to learn programming	14. Not everyone is interested in programming
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15. A useful bridge to other programming languages

16. An innovative way to teach digital literacy
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17. A new teaching style for teachers, a new learning style for students.
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Applied Linguistics Instructor Observations

1. For students, the process of designing the SCRATCH project is not linear. Based on five years' observation, the steps for many student teachers appear to be: a) Downloading Scratch b) Tinkering with the program for familiarization c) Looking at tutorials for guidance; d) Manipulating very simple programs; e) Planning, designing their personal project: topic, content, characters, layout, backgrounds; f) Looking for possible tutorials and other sample programs from the Scratch website, YouTube, or Google that loosely match what they aim to do; g) Writing the program; h) Editing, correcting, modifying, simplifying, adding on; i) Going back and forth (b through h); j) changing the program if necessary and starting over; k) testing the program many times.

2. SCRATCH project comprises 30-40% of the final grade in LN400/500. Should assessment be based solely on the finished product regardless of student's previous programming background experience or lack thereof? OR should the instructor be more understanding: more demanding of those with the background, and more forgiving of those without? After 5 semesters, instructor can recognize projects that were done last-minute, and hurriedly, regardless of background.

3. Collaborative work works! Each student had his/her own individual project, but it helped to work collaboratively when learning the rudiments of SCRATCH programming. It helped to have a "knower" from a previous semester answer students' questions about their own personal project.

4. Extra pressure made for better work: the University of Guam Language Arts Conference presentations prodded students to work faster, and better.

5. In the 5 semesters that SCRATCH was required, students' projects were determined by their fields of specialization or interest. Education majors had no choice but do a SCRATCH project with lesson plan; literature, linguistics, anthropology and other majors designed projects related to their fields.

6. Several of my adult students claimed that when stuck, their high school-age children helped them with their projects! Is it easier for kids to learn SCRATCH than

adults? In Fall 2014, one student commented that the project was very tedious; three other students echoed the same sentiment in their papers, using the same word!

7. Among issues to be addressed are copyrighted materials. If teachers use Disney or Star Wars characters in their projects, for example, what do copyright laws require? What are the possible negative consequences if they were to post these projects online, for example? Do they have to invent their own characters instead of borrowing characters the audience is already familiar with, like Princess Leah, R2D2, Hello Kitty, or Dora the Explorer?

8. The most promising value of SCRATCH in applied linguistics lies in its versatility. It allows teachers to LOCALIZE and personalize the teaching material. Instead of “imported” predesigned non-local based exercises and activities, teachers can tailor lessons to fit the students’ learning styles and cultural backgrounds/settings. This just may lead to more effective learning!

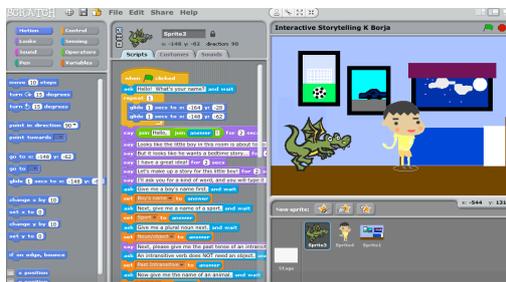
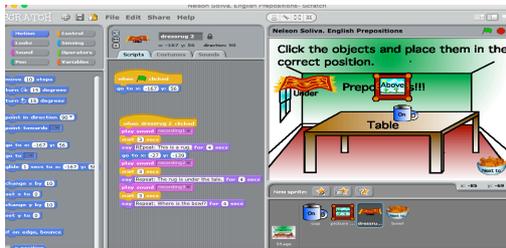
9. As with any kind of writing, students must constantly keep the Audience and the Purpose of their projects in mind .

Conclusion

Applied Linguistics students at the University of Guam will continue using SCRATCH in their projects and will continue presenting them at the university’s annual language arts conference, if possible. The versatility and the timely upgrading of the program to make it more user-friendly for children and adults place it in the cutting edge of basic programming and teaching. SCRATCH is one of the tools that teachers can use to enhance and reinforce language learning as well as learning in the other content areas. Its simplicity is its strength because it makes the program accessible to those without any previous background in programming. Its “cartoon” characters make it (and therefore also the process of programming) less intimidating to children and adults alike. For applied linguistics students, the SCRATCH project promises to hone their critical thinking, imaginative, and creative skills in teaching and learning.

Appendix A

Sample Screen Shots of Students' Work



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