

Meskill, C. (1996) Computers, Creativity and Communicative Competence: An Association Machine. *Computer Assisted Language Learning Journal*. 9,2, 115-123.

## **Computers, Creativity and Communicative Competence: An Association Machine**

Carla Meskill, University at Albany,  
State University of New York

### **INTRODUCTION**

Theory and practice in Second Language Acquisition recognize and encourage the personal qualities, intellectual abilities and life experiences that students bring to learning a new language. Assignments and activities in the language classroom consequently value and capitalize on students' creativity, especially their ability to play with the language they are learning. The project described in this paper explores the possibilities of students using the computer as an invention tool as part of their second language learning. Students of English as a second language (ESL) created associative poems and prose using computer-based tools. They were then asked to reflect on their use of these invention tools; specifically the relationship between the creative processes in which they engaged and the learning of English. The invention tools used by students to generate and reflect on the generation of words, images, and extended writings are described. Teachers' and students' reflections on their inventions and how that process interplayed with any language learning they felt had occurred are presented and discussed.

### **Background**

Learning is much more closely related to invention than to objective fact (Ulmer, 1994). For no other area of study is this statement more relevant than contemporary second language learning. In the past decades, the very definition of language has shifted from describing a static body of systematic sounds to one that sees language as the human mind's capacity for rule-governed creativity. Learning language is learning to create meaning. To create meaning, one must do language, rather than talk about it.

This shift in thinking has greatly influenced approaches to teaching and learning second language. Where mimicry and memorization of linguistic elements once predominated, classrooms now emphasize and capitalize on the human mind's innate capacity to internalize the rule systems of a language through productive, meaningful, and creative use. This translates into language classrooms that emphasize motivated interaction in the target language whereby students are guided to create meaning value by the process of active interpretation (Widdowson, 1978). Invention is a preeminent means to motivate deep, reflective, and meaning-laden work with language. Communicative classroom activities, the cornerstone of contemporary instructional methods, typically require the creative construction of meaning in the target language. Such motivated and inventive uses of the target language, it is held, can contribute greatly to the development of an individual's competence in that language (Heath, 1993; Maley and Duff, 1982; Nomura, 1982). In this paradigm, students

develop their linguistic capabilities through active, imaginative use of the target language.

That the computer can act as a catalyst and tool for creativity is widely recognized. The tools it can provide not only spark but guide and positively constrain the creative process (Laurel, 1991). The computer can, in other words, serve as an engine for divergent thinking and individual expression. As regards second language learning, the technology can be used to stimulate and guide a range of communicative-based activities, activities that require students to think critically and creatively while negotiating meaning through speech and writing. The computer also represents a place for individual reflection, the need for which purely communicative approaches tend to overlook (Tarvin & Al-Arishi, 1991).

As a tool, the computer can both stimulate and support imaginative processes and facilitate the reflective production of creative works. It is also a tool that, by its very definition, can be a personal tool that encourages reflection (Meskill, 1992). As such, the language learner and teacher can potentially make use of the computer to find forms of self expression in the target language. The kind of thoughtfulness, reflection and creative energy sparked by a computer-guided experience are affective aspects of the language acquisition process which are not always easy to accommodate in off-line language learning and teaching procedures. In other words, where current emphasis is on the learner as an individual endowed with a range of personal abilities that can be capitalized on for the purpose of learning language, opportunities for individual exploration and expression are often difficult to provide in a traditional classroom structure. In the role of an invention tool, the computer may provide that desired venue.

### **The Association Machine**

This project set out to explore the possibility of using a computer-based invention tool to enhance language acquisition processes. Underlying the design of the software tool -- the *Association Machine* -- is the belief that engaging the language learner in invention can benefit the acquisition process. The emphasis of the on-line activity is on deriving meaning from context when that context is student-generated; that is, meaning gets represented in the students' mind by the association of two words.

"Word meanings are dynamic rather than static formations" (Vygotsky, 1986:215). This is an important notion when considering vocabulary development in another language. Learners are typically expected to internalize a meaning associated with a given word through definitions and, in more recent times, a context of use. Rather than treat words as having predefined, single-associated meanings, the *Association Machine* aims to evoke the *sense* of a word in juxtaposition with another. Vygotsky adapts the view of Paulhan who postulated that the *sense* of a word is very different from its *meaning*. According to Paulhan, the sense of a word is "the sum of all psychological events aroused in our consciousness by the word. It is a dynamic, fluid, complex whole, which has several zones of unequal stability. Meaning is only one of the zones of sense, the most stable and precise zone". Rather than being static, then, sense is a "complex, mobile, protean phenomenon; it changes in different minds and situations and is almost unlimited" (244-245). In the Vygotskian sphere of inner speech the senses of words cojoin into an "influx of sense". Word senses converge with earlier senses and are part of and ultimately influence change on the senses of later words.

Second language learners come to the learning process equipped with a multitude of experiences and well developed emotional and creative histories. They are, in other words, predisposed to and quite versed at making sense out of the world and out of words. The *Association Machine* therefore approaches lexical items not as a union of word and thought, but as the *sense* that conflates from the merging of the *sense* two words inspire. It capitalizes on our human ability to unify senses so they constitute a coherent new experience.

Because simply suggesting to students that they use their imagination is rarely sufficient (Sadow, 1994), the *Association Machine* attempts at a balance between open-ended invention and guidance by providing users with a simple heuristic: engage in the invention process by associating words. The resulting activity is therefore guided yet allows for creativity, individually directed thought, production, and reflection.

The *Association Machine* is composed of three main parts: a lexicon, a writing space, and a prompt engine. When a student learning English as a second language starts the program, the prompt engine asks the student to input a starting word. The engine then selects a word at random from the lexicon, a long list of commonly used English words. The word the student provided and the randomly selected word are displayed side by side. The program then prompts the student to type in a third word by making an association between the first two words. The new, associated word is displayed next to a new random word from the lexicon, and the student is asked to make another association. The student can repeat this process as many times as he or she wishes. Part of the output of the association process, the association history, looks this:

(starting word) <=> (random word) = (association)

chocolate <=> above = cloud  
cloud <=> off = moon  
moon <=> dirt = powder  
powder <=> spiff = ball  
ball <=> parties = clickety-click  
clickety-click <=> major = headache  
headache <=> having = lightness  
lightness <=> tomb = heartache  
heartache <=> steel = strong and cold  
strong and cold <=> self = wide world  
wide world <=> decided = peace

The words the student provided during the association process appear in the writing space, a miniature word processor. The student's task now is to work directly with the text generated in the writing space, using it as a starting point for writing a poem or story:

cloud moon powder ball clickety-click headache lightness heartache strong  
and cold wide world peace

The student can also make use of the association history which lists the randomly selected words and the associated words so they can review the association process -- the evolving senses of their words in association with other words -- (above).

In the case of the above association process, a participant generated the following:

A chocolate cloud powdered over the moon,  
a ball, as strong and cold as steel,  
clickety-click, clickety-click.  
A headache for the sound,  
a heartache for itself,  
and suddenly, lightness,  
and wide world peace.

Language professionals typically find it challenging to motivate language learners to think closely and carefully about individual lexical items in the target language and their relationship to the learner's own system of experience. It seems this kind of activity may be a format in which single lexical items can be made relevant to the learner. Additionally, capitalizing on the human drive to make sense of the world, to understand by creating connections not overtly present is key to the workings of and rationale behind the software. The basis for designing this tool is the belief that by yielding associations and evocations, individual words can be used as heuristics for invention. This level of engagement with lexical items may promote growth in target language competence.

### **Pilot Trials**

Twenty-one students of English as a second language -- ten studying in an intensive pre-academic program and eleven in an adult ESL course -- used the *Association Machine* as part of their weekly language laboratory session. Members of the groups had varied levels of English proficiency, from beginning level to more advanced. Some worked individually, others selected to work in pairs. Students were instructed to associate the words the machine provided with a new word and to skip any words they were unfamiliar with or didn't care for. Before saving their poem or story, they were also asked to comment on the creative process they had just engaged in and to reflect on any benefits this process may have for their English language development. Two native speaker facilitators circulated during these sessions to provide technical help when needed.

Once students associated 3-5 words on their own, they understood how the tool is used and the process it was encouraging. Apart from questions regarding the mechanics of the software (editing text, saving, etc.), students worked independently for two hours on two separate occasions. Each of the twenty-one students submitted a diskette with at least one poem or story (many wrote more than one piece) and their reflections.

### **Outcomes**

Participants uniformly expressed great pleasure and satisfaction with the sessions and asked to be able to use the software again. With only one exception, the writing that they did revealed a high degree of inventiveness. (The exception was an intermediate-level learner who opted to use the associated words to write a business letter.) The majority of pieces are free-form poetry (no attempts at meter, rhyme, etc.).

For example, a low intermediate level student worked out the following

through his association processes:

In this lovely summer party, squirrel brought his friend Peter Pan took the moon river ship to join this party. During the party, the queen of butterfly gave everyone a dream. However the beast destroyed the party and rubbed Peter Pan's fantasy.

Others wrote similar short, highly visual stories like this:

Once upon a time, there was a big house which was more like a castle. There was a big tree which had poisonous fruit therefore no birds were nesting, nobody wanted to get closer to the tree especially on a rainy day because there was a story about the full moon day when the sky was grim and thundering all night. On that night, the neighbors heard the screaming voice, coming out from the house. That was the voice of the princess who used to be the most beautiful woman in Greek.

Poems were also a popular form for students' associations.

Before his death Picasso drew the very strange black picture about the crow. The crow sat on the tree and saw a child running under the tree.

Finally, in some cases these association processes brought about "stream of consciousness chains" that involved events:

yesterday night I was reading a book of literature. The room was dark, even though there was a lamp there. ....the story was about some characters: the mother who had chicks in the nest. They were sitting on the leaves. In a school next to the house, her husband was taking computer class in Spanish language. The machine ran good, but some parts were corroded. While he was taking this class, a friend arrived at the house, by car. He made a suggestion and recommended us to see the fins of strange fishes in the sea. We went brisk to the church, because there was a wedding and the groom was already in the altar. We walked through the hallway across the building, in front of the company, and we saw the ceremony. After this event, we went to take some money to travel, and said good-bye to workers who are carrying bags containing some accounts and bills. Jorge, our Brazilian friend went to the house and read the charts about the trip.

and feelings:

love is strong feeling which we link between people .  
life is our existence. parentage is link between family.  
unreliable people are being fired out from their jobs.  
god saved pope because he prayed.  
judge overruled john reed lawyer.  
mother is our special and most valuable diamond in the world.  
relationships are ties

Students working in pairs were observed to alternate between individual reflection and active, animated discussion with their partner over what

associated words evoked and the direction their writing was taking. On completing their writing, students were also asked to write reactions to their experiences with the *Association Machine*. While these written reflections on the process were chiefly praises for the power and enjoyment of the activity, a handful of students pointed out that they perceived the activity as one that was helpful to their English language acquisition efforts. Such comments highlighted the amount and kind of thinking the *Association Machine* prompted them to do, and how this type of thinking motivated deeper understandings as well as their creative writing. The fact that they were thinking about English words in a unique, reflective and motivated way was frequently mentioned.

### **Teacher Reactions**

Graduate students in an Applied Linguistics program whose first language is not English were also asked to use the *Association Machine*. All of them had had extensive experience teaching EFL and in thinking about second language acquisition issues. They were provided a diskette and told to work on their creations independently. They were also asked to comment on the tool and its potential role in the language learning process.

"It gives you the opportunity to try a variety of topics, even those you never thought of writing about. This is achieved by the 'weird' words which appear during the association phase.

"The words provided certainly directed my train of thoughts, and determined my choice of a third word, calling forth images and words from my own experience.

"This program helped me with the writing of two very short poems. It gave me support to produce more words, and confidence to be creative in English. It forced me to think deeply about the meaning and relationships of words - something I think is good for students learning English."

### **Prospects**

Pilot uses of the *Association Machine* indicate that a computer tool like this can serve to stimulate, guide, and support invention processes in a second language. Invention may in turn prompt internalization of the sense and nuance of target language words. This is in keeping with Stevik's proposed link between level of personal involvement and the depth of internalization of a target language (Stevik, 1976). Using invention heuristics, words become bonded conceptually and imaginatively in the learner's developing second language system. The power and meaning of words and the contexts in which their power is manifest becomes inculcated in the learner's mind. ESL student writings from and reactions to this kind of activity attest to the fact that 1) appropriate tools can exercise inventiveness in a second language; and 2) computer-based invention activity is both valuable and instructionally rewarding. Again, this is a potential role for the computer as it is providing a context for thought and writing that may not be possible off-line. The simple heuristic of association appears

to inspire not only reflective, inventive thinking, but also the confidence to explore meaning *in the target language*.

## REFERENCES

- Heath, S. (1995) Inner city life through drama: Imagining in the language classroom. *TESOL Quarterly*, 27,2:177-192.
- Laurel, B. (1991) *Computers as Theatre*. New York: Addison Wesley.
- Maley, A. and Duff A. (1982) *Drama techniques in language learning*. Cambridge: Cambridge University Press.
- Meskill, C. (1992) Off-screen talk and CALL: Role of the machine/participant. *Computer-Assisted English Language Learning Journal*, 3,1:1-9.
- Nomura, Y. (1982) *Pinch and ouch: English through drama*. Tuscon, AZ: Lingual House.
- Sadow, S. (1994) Stimulating Imagination Outside the Classroom. *The Journal of the Imagination in Language Learning*, vol. II.96-100.
- Stevick, E. (1976) *Memory, Meaning and Method*. Rowley, MA: Newbury House.
- Tarvin, W. and Al-Arishi, A. (1991) Rethinking Communicative Language Teaching: Reflection and the EFL Classroom. *TESOL Quarterly*, 25, 1, 9-27.
- Ulmer, G. (1994) *Heuretics: The logic of invention*. Baltimore, MD: Johns Hopkins University Press.
- Vygotsky, L. (1986) *Thought and Language*
- Widdowson, H.G. (1978) *Teaching Language as Communication*. Oxford: Oxford University Press.