Cooperative Computer-Assisted Language Learning: Is It Living Up To Its Promise?

To date, little work has been done on the cooperative use of computers by language learners. Yet, research in the fields of peer learning, second language acquisition, and computer-assisted learning suggests that cooperative computer-assisted language learning (CALL) can provide a potentially productive learning environment. A study involving first-year university students at the University of Calgary suggests that, while the computer appears to have a somewhat limiting effect on student interaction, it does encourage students to talk.

Many language teachers support the view that the computer is a deaf and dumb machine and should, therefore, be left to do what it does well, namely, manipulate the written language through drill-and-practice, problem solving, text reconstruction, games, and simulations. This seems reasonable since, at the present time, interactive audio-devices are not practical for large-scale use, and even if they were, little or no courseware has been developed for them.

Futhermore, most software authors have neglected the social context of language learning by designing single-user software that does not attempt to be communicative; hence, very few software programs exist that exploit the richness of group interaction patterns.

Research on Group Interaction

Extensive research on cooperative peer learning points toward the richness and diversification of interaction patterns. Barnes and Todd (1977) have noted more roles—including the teaching role—are present in small groups than in lessons directed by the teacher. Long and Porter write convincingly that teacher-fronted, "lockstep" instruction favors a "highly conventionalized variety of conversation, only rarely found outside courtrooms, wedding ceremonies, and classrooms (1985:209).

Unlike "lockstep" instruction, group work allows students to negotiate meaning, to hypothesize about languages, and to increase their ability to communicate by assuming roles that previously were the teacher's exclusive domain.

Within the parameters of group work, students can suggest, clarify, disagree, initiate, judge, manage, and teach. Such variety of language practice cannot be overlooked, especially in view of the fact that the level of accuracy in unsupervised groups has been found to be as high as that in the teacher-monitored, lockstep class (Long & Porter, 1985).

A number of studies have also been done specifically on the act of verbalizing, especially when it involves explaining something to someone else (Webb, 1985). Explaining often leads to cognitive restructuring. Other kinds of verbal explaining lead students to experience conceptual conflict with other students—conceptual conflicts that lead students to re-examine their own understanding and seek resolution of opposing points of

view. Some theorists conclude that learning is deeper when students have developed such resolution of opposing viewpoints.

If we apply these findings to a second language setting, we have a potentially productive learning environment.

Peer learning and computer-assisted learning (CAL) have much in common. Both provide non-threatening contexts to allow students to make errors without being criticized, to negotiate meaning, and to try out hypotheses. This lowering of the affective barrier is central to effective second language learning. In general, research points ever so cautiously to the social and cognitive benefits of cooperative computer-assisted learning (Dickson & Vereen, 1983; Johnson, Johnson, & Stanne, 1985).

While the literature in fields of peer learning, second language acquisition and CAL abounds, little work has been done specifically on the cooperative use of computers by language learners.

Sanders and Kenner (1983) noted the social dimensions of CAL among English as a Second Language (ESL) students. Piper (1986) found that conversation in the computer-assisted learning situation was not high and suggested that the nature of the task is an important factor, as is the amount of text appearing on the screen.

Only recently have researchers—such as Catherine Doughty—in second language acquisition begun testing learning hypotheses in a CAL context. In the majority of these studies, researchers attempt to quantify the discourse produced by students engaged in computer activities, that is, to count the number of words per minute, the number of turns per minute, etc.

Richard Young (1986) used this approach in a study of advanced ESL learners working in groups of four to five. Young found a significant difference in the kind of conversation generated by software programs requiring negotiated outcomes (right/wrong answers).

It was this lack of information about the quality of the interaction that occurs when language learners work cooperatively on a computer activity that led the author to undertake a nonquantitative study using first-year university French as a Second Language (FSL) students, all of whom were Anglophones (Klinck & Mydlarski, 1986).

Procedures

The premise of this study was that the computer has the ability to generate small group interaction. Eight hours of conversation were audio-taped in the presence of an observer who later transcribed the tapes. The method used was discourse analysis in which specific sequences were isolated to give a general impression of interaction patterns.

A variety of courseware was used, ranging from manipulative drills to semi-communicative games. The software used in the Klinck & Mydlarski study was as follows: LA BANQUIRE DE JONQUIERE (Dolbec, J., Labelle, F., & McCreesh, B. (1985). Hercule Robot and other stories: adapting the adventure game to computer-assisted learning. Medium, 9, 127-139); CLEF (Holmes, G., & Kidd, M. (1982) The CLEF project: learning French on colour micros. Proceedings of the ADCIS Conference. New York: Gessler Educational Software (IBM PC, Commodore 64); FEMME INDIENNE (Beauchamp, R. (1984) Que se passe-t-il dans les écoles françaises et d'immersion du Manitoba concernant l'informatique? Contact, 3, 12-13); PROMPT (Mydlarski, D., & Paramskas, D. (1984) PROMPT: a template system for second language reading comprehension. CALICO Journal, 1, 3-7); and, WORD PATTERNS (1986) New York: Gessler Educational Software (IBM PC).

An initial analysis focused on the decision-making process used by students as they selected or developed answers to enter into the computer (Mydlarski, 1986). However, for the purposes of this discussion, the findings of a more general nature will be discussed, since these may be of interest to re-

searchers, teachers, and courseware developers.

Results

Although the subjects were extremely "on task," that is, making virtually no social statements and using their second language throughout, we observed only a limited range of language use, namely, word searches, clarification of vocabulary, meta-language conversation about form, spelling, location or accent keys, etc.

In most instances, students did not make extensive use of the on-line help features, relying instead on group knowledge. They frequently tried out the possible answers orally to see if the sentence "sounded right." Students were relying on their ear and their understanding of the French language.

Program developers may not be aware that manipulative computer exercises in language learning may, in fact, require a level of proficiency sufficient for the "does it sound right" kind of understanding. The fact that we found it to be true in this study suggests a need for increased amounts of oral input (i.e., teacher to student, language laboratory practice) prior to doing language exercises on the computer.

Once the students in this study solved the problem, no further discussion of the answers took place. This situation is not as unusual as it may appear. In the classroom, when the teacher has announced the right answer to a question that is not open-ended, students normally do not contradict or question the teacher either. In effect, the computer with its right answers has, indeed, replaced the teacher in this instance. It appears that no matter where they are, students consider it unnecessary to discuss right answers; they do not engage in justifying answers by referring to their own knowledge. This situation could raise concerns about what long-range effects—if any—such unquestioned acceptance has on creativity.

We were also interested in the kinds of corrections that occurred in the student interactions. Here, there were relatively few, and those that occurred seemed limited to self-corrections, although some other-corrections transpired as well.

Discussion

It is of particular interest to look at the role of the computer. The computer's questions were not open-ended and, therefore, did not lead to discussion. Even in the adventure game where students had a wide range of possible answers, the computer accepted only those that had been predetermined by a group of experts; unfortunately, this made the expert system restrictive and frustrated the students. For the first time in all the exercises, the use of English became as frequent as did comments against the game and the computer.

On the whole, the computer has a somewhat negative effect upon the interactions of students in a peer learning situation. In part, this may have been due to the fact that students knew they were participating in an experiment; the fact that the student's topic was exclusively determined by the computer could also have been responsible for the negative effect, since in recent studies by Klinck (1983) we find that if the task is not pre-defined, there is a greater variety of language and a high incidence of self and other-correction during the talk time.

Our premise that the computer can generate interaction is, in fact, true. However, it remains for future studies to examine the rather limited use of language in pre-determined types of exercises as compared to peer group learning situations and open-ended computer programs requiring negotiation, decision making, etc. Only further research can help us more clearly understand the role of the computer in language learning.

Notwithstanding the concerns raised about computers and language learning, many teachers are implementing existing computer-assisted language learning materials and

finding them helpful in the development of oral as well as written skills.

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