

## BRIEF REPORTS AND SUMMARIES

The *TESOL Quarterly* invites readers to submit short reports and updates on their work. These summaries may address any areas of interest to *Quarterly* readers. Authors' addresses are printed with these reports to enable interested readers to contact the authors for more details.

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### ***The Effects of Choice and Control in Computer-Assisted Language Learning in Teaching Supplementary Grammar to Intermediate Students of ESL and to Remedial English Students at the College Entry Level***

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■ Several studies in the past fifteen years have measured the effectiveness of computer-assisted instruction (CAI), and many of these studies have been reviewed (see Vinsonhaler and Bass [1972]; Jamison, Suppes, and Wells [1974]; Edwards, Norton, Taylor, Weiss, and Dusseldorp [1975]; Kulik, Kulik, and Cohen [1980]; and Kearsley and Seidel [1983]). These surveys generally conclude that CAI is equal to or better than instruction with traditional media, and that this parity is accompanied by reductions in the time needed for instruction and by moderately favorable student attitudes toward computers.

Nevertheless, there are many omissions in the studies surveyed above. For one thing, few were done at the college level. Kulik et al. (1980) were able to find only 59 studies at the college level meeting certain research criteria. Another omission is lack of attention to cognitive and affective variables in almost all of the studies in CAI which have been done to date. Boettcher, Alderson, and Saccucci (1981) find only two studies besides their own specifically addressing cognition with regard to CAI—a crucial omission if one contends that CAI is an appropriate vehicle for cognitively based approaches to teaching. There are also omissions in the research concerning certain experimental settings. Kulik et al. (1980) found that no studies whatsoever had been done at the college level using CAI lessons that were stand-alone units (i.e., not part of a larger course of study) and which were meant to supplement work done in class. Only 8 of the 59 studies surveyed were stand-alone units meant to replace a teacher, and only 3 of these were tutorials. None of these 8 studies dealt with language.

A final omission in the research is an examination of variables within the CAI lessons themselves. Jamison et al. (1974) cite only two studies, one in programmed instruction (PI) and the other in CAI, comparing variables

within separate lessons. Boettcher et al. (1981) claim their work to be unique because it goes so far as to compare a PI lesson with a CAI lesson whose contents were essentially the same, the independent variable being PI vs. CAI. Kearsley and Seidel (1983) single out individualized instruction and the effects of graphics, speech, animation, and humor in CAI as areas about which we know little. There are of course many more such areas in which little or no research has been done, one of them being choice and control, the subject of the present project.

This research project had three major purposes: 1) to show that an ESL instructor could create viable educational software using a courseware authoring language (PILOT) learned from scratch, 2) to create software that would be a credit both to ESL and to CAI, and 3) to learn something about what makes CAI effective (i.e., about variables within CAI itself). It was assumed that in accomplishing these goals, use could be made of theories concerning clarifying educational environments (Moore and Anderson 1975), the berry-bush metaphor of communication (Scollon and Scollon 1982), the microworld concepts of Papert (1980) and Higgins (1983), and games (Stowbridge and Kugel 1983).

Two CAI lessons were created, both teaching the use of gerund and infinitive complements with the matrix verbs *stop*, *remember*, *forget*, and *regret*. The lessons varied only in that one lesson (PDL) allowed the students to exercise the independent variables of choice and control by permitting them to manipulate game paddles and thus regulate their progress through and placement in the lesson. The other lesson (REG) was pre-programmed to convey students through it the same way each time, independently of what students might have wanted to do.

Four hypotheses were tested: H1) that both CAI lessons would be effective in teaching, H2) that the PDL lesson would teach more effectively than the REG lesson, H3) that the use of CAI would result in favorable attitudes, H4) that students working the PDL lesson would have more favorable attitudes than students working the REG lesson.

Two experiments were carried out, one with non-native English-speaking ESL students (NNS), and the other with native English-speaking remedial English students (NS). In each case, subjects were given a pre-test, either the PDL or REG lesson (and, with the NNS, a control lesson), and then a post-test. After applying t-tests to compare means of pre- and post-tests, H1 was accepted only for the NS students, and H2 was rejected in each case ( $p > .05$ ); however, the PDL lessons were shown to be more effective than the REG lessons with the NNSs ( $p < .10$ ). H3 and H4 were both accepted on the basis of qualitative data gathered through a follow-up questionnaire which solicited the subjects' reactions to, among other things, the game paddles, the computer, and their perceived degree of choice and control in working the lessons.

The results indicate that CAI is an effective means of instruction for native speakers and that it can be effective also for non-native speakers, especially if choice and control are allowed by the programmer. In the present study, this was perhaps because the non-native speakers seemed to appreciate the opportunity to explore and make inductions concerning the cognitive aspects of the linguistic puzzle presented to them. The native English speakers in this

survey appeared, on the other hand, to be deepening their awareness of a linguistic feature they had previously encountered, and the mode of presentation seemed not to be as crucial to this process. Although the variables of choice and control were not shown empirically to enhance the efficacy of the CAI lessons, the researcher feels that these and other variables within CAI warrant closer attention in future research. (M.A. Thesis, University of Hawaii, 1983)

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