REVIEW OF *COMPUTER APPLICATIONS IN SECOND LANGUAGE ACQUISITION*

Computer Applications in Second Language Acquisition
Cambridge Applied Linguistics Series
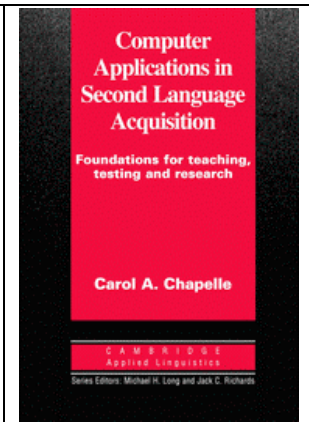
Carol A. Chapelle

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Reviewed by Stephen A. Bird

Computer Applications in Second Language Acquisition is one of the latest offerings in the Cambridge University Press *Applied Linguistics Series.* It presents a detailed review of computer technology's contribution to the teaching and learning of second languages, as well as theory-based rubrics for assessing second language teaching, testing, and research materials and methods.

The volume reflects the rapid expansion of computer applications in second language acquisition (abbreviated by Chapelle as CASLA) and related fields of inquiry such as computer-assisted language learning (CALL), computer-assisted second language acquisition research (CASLR), and computer-assisted language testing (CALT), which have become immensely important domains. Chapelle's book assumes from the outset that "anyone concerned with second language teaching and learning in the 21st century needs to grasp the nature of the unique technology-mediated tasks learners can engage in for language acquisition and how such tasks can be used for assessment" (p. 2). Her book aims to provide some of that understanding, and does so quite well.

Chapters 1 and 2 present a detailed history of the use of computers in second language acquisition (SLA) research and practice since the 1950's, the impact of which has been pervasive and profound. The advent of local area networks and then the World Wide Web has generated an amazing increase in the amount of target language available to students, as well as greater opportunites to communicate with native speakers. The detailed electronic records of student communication that are now possible allow scholars and teachers to access accurate, reliable data from which to evaluate learning performance under various conditions. And of course, teacher-researchers now have ready access to statistical software packages allowing efficient data analysis. Chapelle makes it clear that there is really no area of applied linguistics that has not been dramatically affected by the advances in computer technology of the last 20 years.

However, Chapelle questions the extent to which computer technology has benefited SLA, a field where the aim, she argues, is centered on improving learners' L2 communicative ability (p. 41). Related fields such as corpus linguistics, artificial intelligence, computational linguistics, and educational technology have exploited technology effectively and can make huge contributions to SLA (see, e.g., the LLT special issue on corpus linguistics). However, unlike these research domains, CASLA's research questions and methodology are focused on identifying "theoretically and empirically based criteria for choosing among the potential design options and methods for evaluating their effectiveness for promoting learners' communicative ability" (p. 42), meaning that CASLA has a unique research agenda.

Chapter 3 raises the possibility of developing "a theory concerning ideal cognitive and socio-affective conditions for instructed SLA" (p. 45). The ideal conditions for learning discussed in this chapter are fairly vague and not particularly new. For example, Chapelle proposes that the teacher (or computer programmer/materials developer) select "a range of structures" because some SLA research suggests "learners will acquire particular structures when they are ready to" (p.46). However, she cautions that teachers should also be aware that "learners need to be exposed to language which is within their grasp" on the grounds that "language far beyond or beneath learners' abilities or needs is not useful for acquisition." Admittedly, it is impossible to provide specific, concrete recommendations to cover all learning contexts, but the advice offered here reads rather like formalized common sense and provides little in the way of practical guidance. As the chapter stresses, the ideal conditions for SLA are so complex and context-dependent that it is impossible to offer anything more precise than statements such as "motivated students will learn more quickly." But if this limitation is real, one wonders what the purpose of these rubrics and theories is. How near are we to Chapelle's stated aim of constructing a theory of ideal conditions for second language learning that can help in the design and evaluation of computer-based learning?

In fact, Chapelle's book may reflect the limit of theory construction in applied linguistics as a field. Little of the theoretical content here looks like much of an advance over work produced in the late 1980's. For the most part, the recommendations offered here can be reasonably characterized as fairly general, useful statements that inexperienced teachers can consult as a starting point for evaluating and developing materials and methods. But to call them *theories* in a scientific, experimental sense -- that is, as statements that allow testable predictions about optimum conditions for learning -- seems to be a bit misleading given their lack of specificity.

Nonetheless, Chapelle is optimistic about the future of SLA theory. Chapters 4 and 5 suggest some directions forward if computer technology is harnessed appropriately. Chapter 4 addresses computer technology's impact on language testing, arguably the domain where computers have had their most powerful impact (see the recent LLT special issue on computer-assisted language testing) Chapelle provides a comprehensive discussion of the relevant issues, focusing on what she refers to as a "usefulness analysis" (p. 148) of test materials. The criteria included are extensive, and address questions of validity, reliability, practicality, and authenticity. As in the case of materials evaluation in Chapter 2, these criteria are more subjective and context-dependent than they might appear at first. For example, the chapter stresses that many of the criteria, such as validity, are not easy to determine and that teachers thus need to evaluate usefulness on a case-by-case basis. Considering the number of usefulness criteria presented, one cannot help but feel that this chapter is more of a problem statement than a useable solution to the task of constructing or evaluating a valid and reliable test of language learning. This is not a criticism of Chapelle's book; it is actually to her credit that the chapter lays out the many tricky dimensions of language testing. But it would be misleading to say that this makes the job of constructing and evaluating a valid and reliable computerized test much easier.

The fact that test tasks can now be constructed on computer platforms means that detailed information about student performance can in principle be recorded and analyzed, thus potentially yielding far more valid and reliable data on which to develop robust, testable theories. One of the chronic problems in SLA research is that studies are often too short-lived for learning outcomes to be assessed properly or predictions to be tested in a convincing way. If testing regimes allow an automated system to track student results on tests over time, a far more robust set of data is available to teachers and researchers. With this sort of power, one can run many more repeated-measures tests over long periods of time, recording numerous factors -- error rates, reaction times, and so on -- collecting in an automated fashion far more data than has been possible thus far in most SLA research. Unfortunately, Chapter 4 is somewhat scant on examples of this sort of investigation. Chapelle describes a few studies but concludes that "in short, examination of CALT in 2000 demonstrates that many … questions … about how to improve both theory and practice in language testing through the use of computers still remain" (p.130). And the limited number of examples of CALT tests presented in the chapter leave the reader with no clear idea of the form these advances will take.

Chapter 5 examines the contribution of computers to CASLR, and again provides a list of criteria for evaluating research methods. This chapter is perhaps the least convincing of the book, particularly in terms of the amount of research reviewed. There is an over reliance on just a few studies when providing examples of computer-assisted SLA. For example, DeKeyser's (1995) study of implicit and explicit learning using an artificial grammar is cited repeatedly, although artificial grammar learning is an extensively researched terrain in experimental psychology (see Reber, 1967, for an early example; see Tunney & Altmann, 2001, for a recent study and literature review). The fact that the chapter does not cite any work -- not even a review -- from outside of SLA journals is lamentable and leaves the chapter looking fairly thin in its coverage of important research.

The final chapter sketches some future directions for CALL, CALT and CASLR. Chapelle stresses the importance of developing software that cuts across all of these fields - for example, materials that allow authentic learning to take place while automatically recording a wide range of data relevant to testing CALT and CASLR. Computer technology offers potential in this regard but is yet to be fully exploited. And, consistent with the rest of the book, the final chapter offers a rough guide to what those materials should do but few specific recommendations. Nevertheless, Chapelle concludes that innovations in CASLA have the potential to allow CALL, CALT, and CASLR to gain deeper understanding of SLA, and hence, to improve second language instruction.

In general, Computer Applications in Second Language Acquisition provides a very readable overview of the issues to consider in developing and employing CALL, CALT and CASLR. Chapelle makes it clear that there is yet much to be done but, as an early contribution to what is a promising area of SLA work, this volume is a good beginning.

ABOUT THE REVIEWER

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