



FROM THE GUEST EDITOR

This special volume of *Language Learning & Technology* is devoted to issues surrounding the design and evaluation of foreign language learning multimedia software. The papers included in it are based on presentations made by the authors at the [Invitational Symposium on Assessing & Advancing Technology Options in Language Learning \(AATOLL\)](#) at the University of Hawai'i National Foreign Language Research Center on February 26-28, 1998. The purpose of the symposium was to develop criteria for the design and evaluation of software from the perspectives of those disciplines which impinge most closely on the conceptualization and development of multimedia CALL. True to the spirit of the symposium, the contributors to this volume bring an impressive breadth of experience and background to the discussion of CALL principles that should guide the development and evaluation of foreign language learning software.

The SLA Perspective

The potential pedagogical effect of the technological tools used in foreign language instruction depends on the theoretical and methodological approaches that guide its design. In her article "[Multimedia CALL: Lessons to be Learned from Research on Instructed SLA](#)," Chapelle argues that even though much remains to be learned about second language acquisition (SLA), existing research can provide guidance to designers and evaluators of CALL. Proceeding from an interactionist perspective, Chapelle suggests that multimedia CALL should be designed in such a way that it provides optimal conditions for SLA. She advances seven hypotheses based on SLA research that could guide the development of multimedia CALL: (1) The linguistic characteristics of the target language input should be made salient for the learners. (2) Help comprehending both semantic and syntactic aspects of the input should be made available. (3) Learners should be given opportunities to produce output that is comprehensible to an audience, even though the audience in this case is the computer. (4) Learners need to notice errors in their output. (5) Learners need to have an opportunity to correct their output. (6) Learners should have the opportunity to negotiate meaning. (7) Learners need to practice linguistic tasks whose completion requires the exchange of information.

The Interface Perspective

User interface is the part of an application that communicates with the users by conveying the application's functionality to them, and translates their input into a machine-specific format. In his article "[Design and Evaluation of the User Interface of Foreign Language Multimedia Software: A Cognitive Approach](#)," Plass identifies the strengths and weaknesses of existing approaches to interface design. He finds that these approaches are either very pragmatic and lacking in a theoretical basis, or they are too theoretical to be of practical significance. Plass proposes a new contextualized three-step approach that combines the theoretical basis of a cognitive approach with the pragmatic methods of software engineering approaches as the most appropriate basis for both the design and evaluation of foreign language learning software, because it takes into account both the user and the learning task. The three steps are defined as follows: (1) Selection of the instructional activity that supports the skill to be developed (e.g., activation of prior knowledge in the case of reading). (2) Determination of the attributes of the design feature (e.g., adaptability to different levels of prior knowledge, ease of comprehension for low prior-knowledge learners, and availability of background information prior to actual reading). (3) Selection of the design feature (e.g., previewing



a movie with a voice-over in advance of reading a passage). Plass argues that although this approach is based on cognitive theories, it is also domain-specific. Its advantage is that it puts the user, the content, and the instructional activity at the center of the interface design process.

The Speech Technology Perspective

Placing interactivity at the heart of SLA has led to increased demand for intelligent, user-adaptive CALL software that offer not only comprehensible input and authentic tasks, but also effective feedback focusing the correctness and appropriateness of user response on areas in need of remediation. In their paper "[Speech Technology in Computer-Aided Language Learning: Strengths and Limitations of a New CALL Paradigm](#)," Ehsani and Knodt make a case for using automatic speech recognition and speech processing technology to add a dimension of interactivity currently missing in most CALL software, with the caveat that programs be designed in ways that work around the current limitations of speech technology. After presenting an overview of speech recognition technology and a discussion of design considerations in speech applications, the authors identify technological advances that lend themselves most readily to foreign language learning. To illustrate the potential use of speech technology, Ehsani and Knodt evaluate a number of innovative CALL applications in view of how these integrate speech technology within their overall design, and how effectively they deal with current technological limitations. At the end of their paper, the authors identify future trends and goals in voice-interactive CALL including some of the following: (a) development of open-response conversational CALL applications based on large corpora of non-native spoken and written speech; (b) development of authoring tools and Application Programming Interfaces that are easier to use; and (c) availability of more well designed CALL applications that will result in the accumulation of large amounts of data to further augment and improve the existing technology.

The fourth paper in this volume by Dorothy Chun, entitled "[Signal Analysis Software for Teaching Discourse Intonation](#)," complements the general trend towards context- and discourse-based CALL highlighted in the first three papers by concentrating on the teaching of sentence intonation. The author (a) reviews previous research on the acquisition of suprasegmental features and the potential of computer-based instructional materials to aid in improving intonation, (b) describes some of the existing software, and (c) suggests criteria for the conceptualization and design of multimedia software for the teaching of discourse-based phonology and intonation. Chun concludes by stressing the need for continued research into the acquisition of L2 prosody and application of signal analysis software for the facilitation of this aspect of phonological acquisition.

Irene Thompson
Guest Editor