SECOND LANGUAGE ACQUISITION AND COMPUTER-MEDIATED COLLABORATIVE LEARNING

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***Abstract**: Rappoport and Sheinman present a computational model of acquiring a second language from example sentences, using a unique professional language learning corpus, and showing that substantial reliable learning can be achieved even though the corpus is very small. Leloup and Ponterio hold that much of the technology research base is centered on the investigation of computer use that facilitates or promotes those things that aid language acquisition (language learners report a positive attitude toward computer use overall when engaged in language learning tasks). Swain and Lapkin contend that, in producing the L2, a learner will on occasion become aware of a linguistic problem (brought to his/her attention either by external feedback or internal feedback).*

***Keywords:** computational model, professional language learning corpus, technology research.*

Rappoport and Sheinman present a computational model of acquiring a second language from example sentences, using a unique professional language learning corpus, and showing that substantial reliable learning can be achieved even though the corpus is very small. Their goals are to explore what can be learned from example-based, small, beginner-level input corpora tailored for SLA; model a learner having a mature conceptual system; use an L2 language knowledge model that supports sentence enumeration; identify cognitively plausible and effective SL learning algorithms; apply the model in assisting the authoring of corpora tailored for SLA. "Second Language Acquisition (SLA) is a central topic in many of the fields of activity related to human languages. SLA is studied in cognitive science and theoretical linguistics in order to gain a better understanding of our general cognitive abilities and of first language acquisition (FLA). Governments, enterprises and individuals invest heavily in foreign language learning due to business, cultural, and leisure time considerations."(Rappoport, A., Sheinman, V., 2005:45). Rappoport and Sheinman contend that a fundamental property of SLA is that learners are capable of mature understanding (it is of great importance to explore the limits of what can be learned from meager input); SL learners can make explicit judgments as to their level of confidence in the grammaticality of utterances; structured categorization is a major driving force in perception and other cognitive processes. "The model's learning algorithms are unique in their usage of a conceptual system, and its generative capacity is unique in its support for degrees of certainty. The model was tested on a unique corpus. The dominant trend in CL in the last years has been the usage of ever growing corpora. We have shown that meaningful learning can be achieved from a small corpus when the corpus has been prepared by a 'good teacher.' Automatic identification (and ordering) of corpora subsets from which learning is effective should be a fruitful research direction for CL." (Rappoport, A., Sheinman, V., 2005:50-51)

Multimodal interaction design research is concerned with two goals: achieving natural human-human forms of communication, and increasing the robustness of system interaction. (Reeves, L.M., 2004:57-59) Language production in CALL implies *negotiation*, *mediation*, and *interaction*. (Hoven, D., 1999:149-169).The role of tools (psychological as well as technical) and the concept of mediation play a fundamental role in the understanding of human thinking and learning. (Saljo, R., 1996:82). The most important psychological tool is language (understood as a semiotic resource providing signs that can be flexible) (Beguin, P., Rabardel, P., 2000: 173-190).

Swain and Lapkin contend that, in producing the L2, a learner will on occasion become aware of a linguistic problem (brought to his/her attention either by external feedback or internal feedback). "Noticing a problem 'pushes' the learner to modify his/her output. In doing so, the learner may sometimes be forced into a more syntactic processing mode than might occur in comprehension." (Swain, M., Lapkin, S., 1995:373). Long and Robinson point out that focus on form refers to how the learner's focal attentional resources are allocated. "Although there are degrees of attention, and although attention to form and attention to meaning are not always mutually exclusive, during an otherwise meaning-focused [interaction], focus on form often consists of a shift of attention to linguistic code features (by the teacher and/or one or more students) triggered by perceived problems with comprehension or production." (Long, M. H., Robinson, P., 1998:23).

Leloup and Ponterio hold that foreign language (FL) teachers have always been ahead of the curve in integrating technology in FL instruction and learning; much of the technology research base is centered on the investigation of computer use that facilitates or promotes those things that aid language acquisition; language learners report a positive attitude toward computer use overall when engaged in language learning tasks. "Language learners engaged in computer-mediated contact with others (for example, in chat rooms where writing becomes speaking) tend to produce more language than in face-to-face discussions. In addition, participation appears to be equalized across learner populations; that is, the discussion is not dominated by a small number of students, as often occurs in the regular classroom. This may be due to the reduction of social context clues and nonverbal clues that tend to inhibit participation." (Leloup, J. W., Ponterio, R., 2003:1).

Hegelheimer and Chapelle say that CALL materials may provide a mechanism for implementing theoretically-ideal conditions for second language acquisition and for conducting empirical research to investigate effects of these conditions; not only traditional classroom tasks, but CALL tasks as well, can provide conditions for learners to focus on form; for evaluating CALL materials, a theory needs to hypothesize characteristics of the linguistic environment that may be valuable for SLA. "Two related concerns should be considered about the validity of the conditions for noticing and receiving modified input. The first focuses on the way the task has been constructed to operationalize the constructs of noticing and modified input as they have been defined in interactionist theory. This is particularly important because the on-line task is different from the paper and pencil or the face-to-face tasks that have illustrated these constructs in other research. Moreover, noticing is typically discussed in relation to grammatical forms in the input rather than vocabulary even though the noticing hypothesis does not limit the hypothesized beneficial effects of noticing to morphosyntactic phenomena. Second, much of the research on noticing has manipulated the input externally, either through the materials or the teacher, but noticing is internal to the learner and therefore should be expected to equally effective whether it is motivated externally or by the learner." (Hegelheimer, V., Chapelle, C. A., 2000: 52).

Hegelheimer and Chapelle contend that isolating the relevant linguistic forms for outcome assessment cannot be accomplishment without observation of learners as they complete a task; learners' participation depends on factors such as their ability level, their interest in the reading passage, and their desire to learn the language of the reading passage; the study of on-line noticing of vocabulary in CALL materials is a way that hypotheses from SLA theory can be tested through CALL design with built-in data collection and analysis. "One might look to the SLA research that has used computer-assisted materials for developing experimental language learning tasks and for gathering performance data, but with some exceptions, the tasks used in such research appear decidedly experimental because they require participants to learn specific forms of an artificial language, for example. Even such experiments on learning rules of a natural language may require learning specific aspects of a language not of the learners' choosing for short duration determined by the researcher. Although such experiments carefully model the desired cognitive characteristics for formal learning, critical elements of learner motivation and communicative language use are likely to be missing." (Hegelheimer, V., Chapelle, C. A., 2000:41).

Knutsson et al. focus on the development and the use of writing language tools in the context of second language; it is necessary to develop a tool that supports the whole writing process; there is a psychological relation between user (learner) and object of activity (language) through the use of a tool. "We became more interested in developing new functionality for a whole second language-learning environment allowing to take account of students, teachers, and their relation with computers; instead of concentrating us on the development of a robust grammar checker for second-language writers." (Knutsson, O., 2004:3). Larsen-Freeman and Long argue that modification of the interactional structure of conversation or of written discourse during reading is a good candidate for a necessary condition for acquisition. "The role it plays in negotiation for meaning helps to make input comprehensible while still containing unknown linguistic elements, and, hence, potential intake for acquisition." (Larsen-Freeman, F., Long, M., 1991:144).

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