Learner-computer interaction in language education is at the center of attention in the ten empirical studies presented in this part. As encouraged by Fischer, the researchers paid particular attention to a close observation of language-learning processes, through the gathering of various types of tracking data and L2 learner output. The pedagogic contexts and the mediating technological artifacts could hardly be more different: from a crime mystery game and chats in virtual worlds via mobile technologies and blogs to tutorial grammar practice activities and glosses. However, all are united in their strong interest in finding out what students really do when they work with language-learning technologies.

Frederik Cornillie, Ruben Lagatie, Mieke Vandewaetere, Geraldine Clarebout, and Piet Desmet open this section with “Tools that Detectives Use: In Search of Learner-related Determinants for Usage of Optional Feedback in a Written Murder Mystery.” They identify individual difference factors as determinants of usage of optional metalinguistic corrective feedback in a written and task-based tutorial CALL environment for English grammar practice that contained gaming features in the context of a crime mystery. Quantitative analysis of tracking and logging data in combination with questionnaire and language test data showed that usage of optional metalinguistic corrective feedback was associated with prior explicit L2 knowledge, but no relation was found with perceived usefulness and achievement goal orientation.

In “Using Tracking Technologies to Study the Effects of Linguistic Complexity in CALL Input and SCMC Output,” Karina Collentine uses tracking technologies in her exploration of the relationship between linguistic complexity in the input in a 3D environment and subsequent learner output in synchronous computer-mediated communication. Results of quantitative and qualitative analyses suggest that linguistic complexity in the input does not necessarily give rise to linguistic complexity in subsequent learner output. Rather, for learners to produce linguistic complexity while engaged in task-based CALL in this environment, learner input must contain both certain linguistic features and generous amounts of information.

Aurélie Bayle and Bonnie L. Youngs also explore synchronous computer-mediated communication in “Patterns of Interaction between Moderators and Learners during Synchronous Oral Discussions Online in Second Life,” providing a detailed analysis of oral chat transcripts of French teacher trainees interacting
with American students of French in Second Life and Moodle. They show that the language students were less able to engage with each other when faced with more rigid questioning behavior by the moderators. Behavior such as directing questions at specific learners and requiring specific learners to perform small task steps resulted in less independent talk by the undergraduate students. By contrast, learners were more responsive to the moderator’s less directed and dominant behavior, reacting positively to her being more open and inviting.

In “Who Blogs? Understanding the Correlation of Personality and Blogging in Cross-Cultural Discussions,” Linda Carol Jones and Amalie Holland examine the relationship between blogging and learner personality traits in the context of a semester-long blogging assignment focused on cultural discussions. Their mixed methods study revealed openness and conscientiousness as the strongest predictors of interaction in CMC cross-cultural discussions, thus speaking to the role of personality in cross-cultural online discussions. They argue that knowledge of this relationship may have important implications for course and task design that seeks to foster interaction.

Glenn Stockwell’s “Tracking Learner Usage of Mobile Phones for Language Learning outside of the Classroom.” investigates language-learning behavior of Japanese learners of English, who are using both mobile technologies and PCs to access their learning materials. He analyzes server logs in terms of the amount of time spent using each platform, when and where learners engaged in the activities, and the effect of a “push mechanism” email they could opt to receive daily. The study indicates that detailed tracking of usage of mobile devices for language learning can shed important light on actual learner behavior that often conflicts with teacher expectations of learner usage.

Debra Hoven and Agnieszka Palalas report on “The Design of Effective Mobile-enabled Tasks for ESP Students: A Longitudinal Study,” presenting the findings of a Design Based Research study involving students and designers co-constructing learning materials that they derived from situated-learning activities structured as a set of complementary communicative tasks. Based on their qualitative analysis, Hoven and Palalas propose effective design principles for learning materials for English for Special Purposes students.

Franziska Lys adds to the discussion on the relationship between explicit grammar instruction and second language acquisition in “Computer-mediated Grammar Teaching and its Effect on Language Acquisition over Time.” In this article, Lys reports the results of a year-long empirical study of the effectiveness of extended online practice of L2 grammar on the overall development of L2 in learners of German. Results were mixed, on the one hand showing that prolonged online grammar practice translated into higher scores on chapter quizzes, whereas there was no effect with regard to more open-ended tasks such as compositions or oral chats. The online tracking component showed that students paid attention to how well they did in each practice exercise evidenced by the fact that they repeated an exercise until they received a fairly high score.

Trude Heift’s contribution, “Clicking for Help,” studies help access in a web-based tutorial CALL program. Beginner learners of German worked on four dif-
fferent activity types for which the system provided a context-sensitive help link on the most commonly made error in each exercise. To determine these, a learner corpus of 5000 previous users was analyzed. The help link was displayed as part of the preemptive feedback that the system provided. Study results indicate that learners’ help access varies across activity types with the most specific, informative, and relevant link being accessed most frequently. Nevertheless, the log data also indicates a fairly limited use of the help options by the learners, thus confirming previous research results.

In an experimental study, “The Effects of Gloss Types on Vocabulary Learning through Reading: Comparison of Single Translation and Multiple-choice Gloss Types,” Makoto Yoshii tracked learner lookup behavior in an effort to provide an unambiguous record of the extent to which learners made use of single translation and multiple choice L1 lexical glosses. The results showed single translation glosses to be more effective than multiple-choice glosses, a finding that stands in contrast to previous studies. Possible explanations for this unexpected finding are discussed.

This section of the book concludes with “Computer Assisted Vocabulary Learning: Framework and Tracking Users’ Data”, in which Qing Ma presents a framework for categorizing Computer Assisted Vocabulary Learning (CAVL) applications. These applications can be broadly divided into two categories: lexical programs/tasks and lexical resources/aids. The former can be divided into four sub-types, including incidental learning with lexical glosses, CMC lexical-based tasks, computerized vocabulary exercises, and dedicated CAVL programs. Lexical resources/aids provide learners with access to meaning and other lexical information and consists of three major types: open Google searches, electronic, and lexical concordancers. Ma’s framework is guided by the prominence that each application gives to vocabulary learning in terms of tool/tutor, implicit/explicit learning, meaning/form focusing, and the application’s built-in user tracking system.

These ten observational studies, through their detailed analysis and pedagogic interpretation of empirical findings, are good examples of how the design, implementation, use, and evaluation of learning technologies in language education can be understood better. They thus provide further insight into L2 learning processes and the fruitfulness of various pedagogic approaches using technologies in language learning and teaching.