Chapter XI

Supporting the Reflective Language Learner with Computer Keystroke Logging

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ABSTRACT

In this chapter an instructional format, Peer-Based Intervention (PBI) using computer keystroke logging is investigated as a computer technology to enhance language acquisition. In PBI, a process-oriented approach is taken, in which noticing, reflection and language awareness are central concepts of language learning. The method aims to promote learning through individualized reflection and social interaction. A retrospective focus on the evolution of a foreign language text is used as a basis for reflection and discussion. This period of reflection and discussion opens up paths for both individual and peer-based noticing and learning.

INTRODUCTION

Trupp (2005) wrote that reflective learners focus on their patterns, habits and preferences as students and as writers, learn what works well for them and develop strategies for addressing or overcoming the parts of writing or analyzing literature that frustrate or puzzle them. Learning
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to learn, a key skill of life-long learning, lies at the core of the reflective learner who is someone who explores their experiences of learning to better understand how they learn with a view ultimately to improve their further learning. The reflective learner generally is self-aware and self-critical; honest about themselves, and open to criticism and feedback. He or she is also objective in weighing up evidence; open to and prepared to try different approaches; curious to discover other approaches; motivated to improve and more able to carry through independent learning. These are skills and attitude that are helpful when learning a second or foreign language.

In this chapter we consider a new computer-based learning method that assists reflective learning in those who are and those who are not natural reflective language learners. The method is based around Computer Keystroke Logging which is an exciting development in writing research methodology that allows a document’s evolution to be logged and then replayed as if the document was being written for the first time (see Sullivan & Lindgren, 2006). Computer keystroke logging software, such as JEdit (Cederlund & Severinson Eklundh, n.d.), ScriptLog (Strömqvist & Malmsten, 1998), and InputLog (Leijten & Van Waes, 2004), allows the revisions and pauses made by authors during the writing of texts to be analyzed. This kind of software thus affords more than the ability to replay a sequence of recorded keystrokes. Researchers, such as Kollberg (1998) and Ransdell, (1990) who have used and/or developed computer keystroke logging software programs, have pointed at the potential advantages of using keystroke logging as an awareness-raising and reflection-promoting learning tool. The replay function and the log files can be used as tools to reflect on writing processes and may “provide insight for the composition instructors and students” (Ransdell, 1990, p. 143). Sullivan, Kollberg, and Pålson (1998) used keystroke logging to study the composition processes of young EFL writers and suggest that the methodology can assist L2 teachers by providing information about students’ “areas of insecurity and security” (p. 22). Thus, it has been claimed and shown that the use of computer keystroke logging can result in teaching that is better targeted towards individual students.

This chapter presents and describes computer keystroke logging with the objective of demonstrating how it can effectively be used to support reflective learning. The chapter begins by giving the reader the necessary background in computer keystroke logging and how awareness can be enhanced through reflection before turning to the core focus of the chapter, which is to demonstrate how a novel computer-based learning approach, known as “Peer-Based Intervention using computer keystroke logging,” can successfully be used to support reflective language learning. The pedagogical applications are demonstrated through data from a research study that has used keystroke logging in a Swedish High school English as a Foreign Language (EFL) classroom to promote individualization of learning and the development of reflection as an approach to encourage the development of life-long reflective learning.

**COMPUTER KEYSTROKE LOGGING**

Computer keystroke logging provides information about writers’ online cognitive processes by recording and analyzing the step-by-step creation of computer-written texts. Keystroke-logging software accurately records every keystroke and keyboard action that a writer produces including the exact moment of occurrence of a keystroke and the duration between keystrokes. The data is stored in a log file and analyses can be generated that provide detailed information about aspects such as the length and distribution of pauses that a writer makes during writing and the changes he or she makes to the text. This information provides an indirect means of observing and analyzing...
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