Shreve, Gregory M.; Angelone, Erik (eds) (2010). *Translation and Cognition*. Amsterdam/Philadelphia: John Benjamins Publishing Company, pp. 381, EUR 95.00.

As stated by the editors in an introductory chapter, this enlightening collective volume aims to assess the state of research in the field of translation studies and cognitive sciences and to speculate on future directions, thirteen years after the publication of its predecessor, *Cognitive Processes in Translation and Interpreting*. The volume is divided into three parts: "Methodological innovation", "Research design and research issues" and "Integration of translation process research and the cognitive sciences."

The first part begins with a chapter by Erik Angelone, who presents an exploratory study on metacognitive activity when translators experience uncertainty. By using think aloud protocols and screen-recording, Angelone analyses how students and professionals manage uncertainty at critical points, focussing on both verbalized and non-verbalized indicators. The differences in behaviour between students and professionals also interest Barbara Dragsted, author of the second chapter, who shows the results of some experiments in which the coordination of reading and writing processes in translation is assessed by means of eye tracking and keyboard logging technologies. The experiment on sight translation explained in chapter 3, by Gregory M. Shreve, Isabel Lacruz and Erik Angelone, also resorts to eye-tracking, verbal data and keystroke logging to understand eye behaviour during sight translation—and analyse some general differences with bilingual reading—and find process differences between sight and written translations.

In chapter 4 Antin Fougner Rydning and Christian Michel Lachaud investigate the effect of context and translating expertise on understanding and reformulating polysemous words from English into Norwegian. Using eye behaviour and keystroke information, they study whether professionals process polysemous words in context differently, whether context affects translation variability and whether expertise improves a translation's quality in context. In the fifth chapter, Fabio Alves, Adriana Pagano, Stella Neumann, Erich Steiner and Silvia Hansen-Schirra propose an integration of product and process-based translation research. More specifically, they seek to investigate by means of both experimental psycholinguistics and corpus linguistics methods the process of (de)metaphorization. They present an exploratory study in which eye tracking, key logging and retrospective verbalization are used next to an annotated corpus to investigate two phenomena: grammatical shifts and translation units.

The last chapter in the first part is written by Sharon O'Brien, who aims to elicit whether texts written with a controlled language are easier to read and generate more acceptable and readable machine-translated outputs than non-controlled texts. Using texts with and without controlled language, she assesses the texts' readability by means of an eye tracking analysis plus a recall test. Then, a subjective evaluation and an error analysis are carried out on machine-translated versions of these texts.

The second part includes three contributions: Ricardo Muñoz Martín proposes ten principles for a cognitive translatological paradigm, based on some aspects of connectionism and of embodied, situated and distributed cognition. Using her experience in a longitudinal study, Gyde Hansen advocates for an integrative description of translation processes which draws from both the empirical research and the liberal arts paradigms, is analytic and synthetic at the same time, and resorts to the triangulation of the results of multiple investigations. Finally, taking into account some studies in which professional translators did not produce high-quality translations, Riita Jääskeläinen discusses the notions of professionalism and expertise and adopts a new perspective which allows her to reinterpret previous findings.

The topic of expertise is linked to the first contribution in the last part: K. Anders Ericsson provides a summary of how the expert-performance approach has been implemented in various areas —emphasising its acquisition by deliberate practice— and examines how to apply this perspective to interpreting. Also in the field of interpreting, Barbara Moser-Mercer explores the neuro-physiological changes that occur in the brain while acquiring and maintaining expertise. In the subsequent chapter, Diamond and Shreve present a summary of findings concerning neural and physiological correlates of translation and interpreting and explore new techniques (fMRI, fMRI-Adaptation, PET, EEG, fNIRCWS, HR).

On a different note, Stamenov, Gerganov and Popivanov discuss how prompting could help translators, and present the results of an eye tracking experiment with cognates and non-cognates. Finally, the last chapter, by Sandra L. Halverson, proposes to make use of combined experimental and corpus-based methods in research and puts as an example her investigations on the gravitational pull hypothesis.

All in all, this volume not only reports on cognitive-based experiments dealing with various topics in which multiple research methods are used; it also goes a step further and proposes how translation studies can benefit from the integration of both theoretical and methodological developments in neighbouring disciplines such as cognitive sciences. The cognitive approach to translation studies has yielded many interesting results so far but there is no doubt that this approach opens many future research possibilities, not only in written translation and interpreting (as shown in this volume) but also in almost uncharted territories such as audiovisual translation.

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