



Book Review

Muñoz Martín, R. (Ed). (2016). *Reembedding translation process research*.

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Reembedding Translation Process Research is an important collection of articles documenting the state of the art of research into translating and interpreting processes. Some articles provide an overview of translation and cognition from a theoretical perspective, some document and explain the strengths and drawbacks of specific methodologies, and others are case studies. Essentially process research has moved from the assumption that translation can be described as a self-contained system to one where it is recognized as embodied and intimately involved with and influenced by the social, ergonomic, and affective context. Anyone interested in the relationship between translation, interpretation, and cognition will find relevant documentation and threads of research to inspire new studies.

Ricardo Muñoz Martín begins his introduction to the book with an original take on the background to process studies in translation, namely a dualist versus non-dualist framing. Because the mind and the body were seen as separate in the past, studies of translation were decontextualized. The adoption of natural science models in linguistics was responsible for explaining language in terms of systems, for example de Saussure's model of language as a system of signs. The humanistic approach to language, on the other hand, proposed metaphors, for example Newell & Simon's (1961) comparison of computers and the mind, to model an understanding of how language works.

From the historical and philosophical underpinnings of translation studies the author goes on to describe the development of process studies in translation. He credits the failure of the purely computational, universalist approach to machine translation for the impetus to support basic research in translation. He suggests that the classic translation theories of the late 1950's and the 1960's —Vinay & Darbelnet, Mounin, Nida, Catford, and Ludskanov— all contain traces of perspectives of machine translation and information processing. In the same vein, he characterizes the Leipzig School as describing translation as a special case of communication and says it focused on code-switching. For him, the School's work explored the rules for

transferring between languages rather than the production and reception of meaning. It is not clear that there would be agreement that the Paris School “did not dare to challenge the received views on mind, language, and meaning” or that the parallel with Chomsky re introspection and observation will be felicitous for all readers (pp. 6-7).

Muñoz Martín notes that the tool of think-aloud protocols introduced in the work of psychologists Ericsson and Simon gave translation scholars interested in a scientific approach to translation a method for empirical work. The technological developments that followed such as keylogging, videotaped screen captures, and eye tracking made empirical approaches more rigorous as did triangulation and multi-method approaches. He sums up translation process research as methodology-driven in the decade that followed.

The author suggests that the traditional cognitive approach has not accounted for some new topics or for contradictory results in some research studies and proposes an alternative view of translation, cognitive translatology, which, citing Wheeler (2005), assumes that translation is embodied, embedded, extended, enactive, and affective.

He then concludes with a brief introduction to the other articles in the book, categorizing their contributions in terms of insights into the brain, the reembedding of tasks into their environment, working conditions and culture, emotions and translation, working with translation memory, attention, and translation from the perspective of the audience or reception.

The second chapter in the book, *A neuroscientific toolkit for translation studies* by García, Mikulan and Ibáñez, explores the biological embeddedness of translation and interpreting through neuroimaging and electromagnetic techniques. They advocate that translation scholars need to become more familiar with these techniques to be able to explore the mental processes underlying interlingual reformulation in concert with specialists in other fields. They explain both non-invasive and invasive methods, the latter a by-product of clinical assessment. Their focus is on positron emission tomography (PET), functional magnetic resonance imaging (fMRI), electroencephalography (EEG) and direct electrostimulation. Their conclusions in brief show that, contrary to earlier assumptions, there are no dedicated areas of the brain responsible for translation and interpreting.

They outline the constraints in this kind of research: the need to isolate an independent variable for study and ensure that all other factors are comparable in terms of the subjects (level of experience, etc.) and constant (the task and the procedures). Their review of the different brain imaging studies provides conclusions of the studies and reflections on the limits of particular interpretations. The results of the three positron emission tomography studies they refer to show that interlingual reformulation is embedded in more general linguistic and executive functions. The downside of positron emission tomography is that it is expensive, requires specialized equipment and personnel, and there is potential danger for both subjects and personnel of exposure to radiation.

Functional MRI's are also expensive and require that experimental protocols take into account the specifics of brain circuitry and functional organization. To date two fMRI studies have shown that control processes in translation and interpreting are embedded in the same neural areas that support executive control in general. The authors cite other studies which have shown that expertise in translation and interpreting enhance these areas.

Electroencephalographic signals can be analysed in different ways. The literature cited by the authors makes use of averaged evoked responses, or ERPs. Such studies have looked at the translation of concrete versus abstract words and cognates versus non-cognates and found more activity for abstract cognates, which may indicate greater semantic access demand. ERPs have also been used to study directionality and unconscious translation in single language priming, meaning that comprehension of L2 may be mediated by unconscious translation into L1.

Brain networks are studied using signals from EEG, PET, fMRI and magnetoencephalography and interpreted using complex network analysis. The authors report on a study of connectivity patterns in ten professional translators reading and translating words in their first and their second languages.

So far only one study related to translation has been done using the invasive method of electrostimulation. Findings indicated that translation processes must rely on neurocognitive pathways which do not depend on the same sites as reading and naming in languages in the bilinguals tested, which shows the partial distinctiveness of translation as a skill. A second type of invasive study, intracranial recording, supported the findings of the connectivity study in that there were marked differences in intra- and inter-lobe activity between forward and backward translation and that forward translation creates more demands on executive control.

The chapter by Risku, Milosevic and Pein-Weber, *Writing versus translating: Dimensions of text production in comparison* is a case study of a freelance translator with 12 years' experience who worked on copywriting one day and translation a second day. The researchers looked at four aspects of text production in their analysis of data collected through observation and interviews. Writing required increased planning, both required phases of organization and research, and translation included file management.

Next is a chapter by Ehrensberger-Dow and Heeb dedicated to *Investigating the ergonomics of a technologized translation workplace*. The researchers in the study came from the disciplines of occupational therapy, usability research, and translation studies. They looked at the ergonomics of translators working in institutions, in commercial settings, and freelance, i.e. people who had different degrees of control over their own work and their own working environment. The main research question was how disturbances to information flow and concentration levels can affect the translation process. This article reports on the observation of one translator who works in a business with 10 or more people. The analysis confirms that disturbances and cognitive, physical, and organizational ergonomic issues can have an impact on a translator's efficiency.

Quality is viewed in three ways by Jääskeläinen in *Quality and translation process research*: the social, the process, and the product (after Abdallah: 2012). The author reviews publications in process studies from these perspectives. She points out that traditional assumptions about the work of professional translators guaranteeing quality have been wrong, and that notions of professionalism and expertise have had to be revised. In looking at social quality—who translates?—it has become clear that variation in the processing patterns of professionals comes from differences in translation cultural backgrounds and the fact that professionals tend to specialize in domains. Today there is also the phenomenon of crowdsourcing and team

translating, which change the dynamic of the participants in the production of a translation.

The quality of the translation process refers to how and with which tools translations are produced. The literature in the field which has used terms like 'successful' and 'efficient' processing is reviewed, followed by studies which have looked at the impact of technology on cognitive effort and affective or emotional factors. The quality of the processing itself has been separated from the quality of the finished product.

The question of product quality is controversial. Most models of translation quality are constructed for research or educational purposes and the assessment criteria are decided in advance. These are likely to be too complex to apply in the workplace. Looking at quality from a functional perspective means looking at assessments from different categories of users. It is still important to assess the relationship between processing quality and product quality for training purposes, but it is also important to align the question of quality with workplace practices.

Can emotion stir translation skill? Defining the impact of positive and negative emotions on translation performance by López and Ramos Caro reports on an experiment which aimed to test the impact of emotions and certain personality traits on translation performance. Building on a previous study, it looked at the effect of providing either positive or negative feedback to a group of translation students who had just translated an emotional text. They were then asked to translate a second text. Ratings for accuracy and creativity were compared for the two texts. Their data points to positive emotions engendered by positive feedback leading to more creativity. Though not statistically significant, negative emotions seemed to increase accuracy in some cases. A pre-translation test of ego-resiliency was given and in some cases resiliency seemed to reduce the effect of negative feedback.

The next article, *Match evaluation and over-editing in a translation memory environment* by Mellinger and Shreve, points out that translation memory software presents suggestions to the translator, and this changes the translator's process. An experimental task was set up in which translators were not presented with suggestions for the translation of specific segments, or were presented with fuzzy matches, or with exact matches. The results show that there are potential cognitive mismatches between the software suggestions and the translator's conception of an optimal match, and the result is a tendency to over-edit.

Cognitive efficiency in translation by Tangsgaard Hvelplund suggests that analysis of cognitive flexibility, automaticity, and processing flow can be useful in determining processing efficiency in translation. Flexibility has to do with the allocation of cognitive resources, meaning the ability to focus, to switch attention and to divide attention among tasks. Automaticity means the ability to execute a task using few cognitive resources, i.e. the development of routinized behaviour, while processing flow refers to the transition activity between the attention-demanding elements. The number of times attention shifts and the direction of these transitions make it possible to identify processing clusters and processing nexuses.

Data was collected from a group of students and a group of experts using eye tracking and keylogging to investigate the duration and variation in duration of attention units, pupil size, and the number and direction of transitions. Findings show significant differences between the cognitive efficiency of experienced translators compared to less experienced translators.

The chapter *Toward a cognitive audiovisual translatology: Subtitles and embodied cognition* by Kruger, Soto Sanfiel, Doherty, and Ibrahim investigates whether subtitles add to or detract from the immersive experience and enjoyment of watching a film. The research on cognition and film, presented in depth, shows that engagement and immersion mean such things as transportation into the narrative world, identification with characters, and perceived realism and presence.

The authors look at the effect of the presence of subtitles in the same language as the film. Students from three universities, the majority of whom had a first language other than English but were studying in English, were divided randomly to watch a video in English either with or without English subtitles. After watching the film the subjects were given a questionnaire designed to test immersion. The results indicate increased immersion and character identification but not increased enjoyment, perceived realism, or presence. The authors indicate that they are working on a second experiment in which they will use different subjects. They will administer a personality immersive tendency test to these subjects followed by EEG tests.

Cognitive aspects of community interpreting: Toward a process model by Englund, Dimitrova and Tiselius provides an overview of research into community interpreting, in particular reminding the reader that there are two aspects to the community interpreter's role, namely interpreting and management of the interactions. The reason why there is relatively little on the cognitive aspects of interpreting and that largely on simultaneous interpreting is that the interpreter, meaning more specifically the community interpreter, cannot be studied in isolation. Community interpreting has to be studied in terms of the behaviour of all participants.

The authors propose the concept of monitoring to capture how aspects of interaction are managed by the community interpreter. In addition to the monitoring that occurs in all speakers, as evidenced by repairs and corrections, community interpreters monitor their comprehension of the primary party's utterance, the relation of that utterance to the last part that was interpreted to see if it was correctly understood, and their own memory and processing capacity to see if they need to take the turn. And in speaking they monitor their own utterances in the language in question, the relation of their utterance to the primary party's utterance, and the verbal and non-verbal reactions of the primary parties.

Community interpreters not only monitor in relation to primary parties' previous utterances and reactions, but also plan ahead interactions and co-ordinate turn-taking. The authors also suggest that professional self-concept is critical in the community interpreting process. They illustrate this with excerpts from two interpreted encounters, one with an interpreting student, whose professional self-concept has not developed enough to give him the confidence to take an active role in managing turn-taking, and another involving a certified professional interpreter with eight or nine years' experience who handles turn-taking well. The authors suggest that video recordings are necessary to study cognitive aspects of community interpreting as gaze patterns and gestures are important.

To sum up, this volume is a must-read for scholars hoping to catch up on the latest research in process studies.

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