Book Review
Stachowiak-Szymczak, K. (2019). *Eye movements and gestures in simultaneous and consecutive interpreting.* Switzerland: Springer. ISBN: 978-3-030-19445-1

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Cognitive processes underlying interpreting performance have long been a critical orientation within interpreting studies since 1980s (Pöchhacker, 2015). As interpreting is a multimodal activity where language processing is not restricted to auditory perception and oral production, it is necessary to address the interpreting process from the perspective of bodily activities which act as "visible embodiment" in interpreting. Embodied cognition, associating sensorimotor experience with cognitive processing, is thus a promising path to the understanding of the interpreting process (Mahon & Caramazza, 2008). Stachowiak-Szymczak's pioneering book *Eye movements and gestures in simultaneous and consecutive interpreting* (2019) draws our attention to embodied cognition in interpreting studies.

This book is the first in-depth monograph stressing the role of multi-modal processing in interpreting, reflecting new trends in the field. The author devotes the first four chapters to discussing the multimodal nature of spoken language and embodiment in simultaneous and consecutive interpreting. The last two chapters present a mixed factorial study to explore how eye movements and beat gestures are modulated in interpreting. Stachowiak-Szymczak begins the book with an introduction that highlights two main issues: first, "eye movements and gestures produced in the presence of linguistic input differing in cognitive load" (p. xiii), and second, how the level of semantic congruence between linguistic auditory stimuli and non-linguistic visual input modulate the eye movements of interpreters.

Chapter 1 commences with a detailed delineation of the 'black box' as complex and cognitively demanding processes by presenting different types of interpreting models. The author tentatively classifies the models by three different approaches, namely, deductive approaches, psycholinguistic approaches and neurocognitive approaches. In the light of multitasking and multimodality in interpreting, the author points to a conclusion that some models seem to lack a component that would be directly related to visual or kinaesthetic activities, and there is a relatively recent trend toward perceiving interpreting as a multimodal process (p. 21).

The multimodal view of interpreting indicated in Chapter 1 falls within the notion of embodied language processing which is further elaborated in Chapter

2. This chapter first underlines the multimodality and multisensory processes in language processing which are "observable in the blend of auditory and visual input interpreters process" (p. 23). To demonstrate language comprehension and production can be accompanied by extralinguistic activities, the author further presents the concepts of mental representation and mental imagery. The author contends that "mental representations and images are activated at the highest, conceptual level of language processing". They can facilitate both language comprehension and production (p. 42). This chapter concludes by elaborating the theory of embodiment and how interpreting is embodied. Stachowiak-Szymczak assumes that interpreting is embodied in perception and production-related activities that accompany language processing.

Chapter 3 proceeds with the discussions on cognitive load in interpreting from the perspective of embodiment. By reviewing critical theories and research on cognitive effort and working memory in both simultaneous and consecutive interpreting cases, the author points to the fact that cognitive load constitutes a great challenge for interpreters and can be either 'global' or 'local' depending on the type of stimulus that triggers the cognitive effort (p. 46-56). This effort can in turn be reduced by the "embodied expertise" of interpreters (skills and abilities "learned" by the body, e.g., note-taking), which can be expressed in, for example, eye movements and gestures (p. 61). This chapter thus emphasizes the view that expertise embodied in eye movements and hand movements plays a significant role in reducing cognitive load, and interpreters need to gain the embodied expertise to perform interpreting as a multimodal activity.

Having laid the conceptual and theoretical foundations of embodiment in interpreting, Chapter 4 unfolds the core discussions of this volume, specifically, the role of eye movements and gestures in language processing during simultaneous and consecutive interpreting. This chapter first outlines the rationale behind discussing eye movements and gestures, and then presents detailed information of the two activities, including the basic techniques applied in research, definitions and classifications, together with their correlation with spoken language processing. Relevant studies are also reviewed to demonstrate that these bodily activities can be modulated by language-related cognitive load and semantic content.

Chapter 1-4 primarily focus on substantial introductions and reviews on the embodiment in spoken language processing. Moving from theoretical discussions, Chapter 5 empirically investigates eye movement and gestures of professional interpreters and novices to explore whether effort and spoken language processing are embodied in the visuomotor activities of interpreters. To be specific, the study investigates, first, whether the amount of cognitive load imposed upon interpreters influences the interpreter's eye movements and beat gestures; second, whether the level of congruence between the visual and auditory input influences the interpreter's eye movements; third, the differences of eye movements and beat gestures between professional interpreters and interpreting trainees. By adopting a rigorous and novel experimental design, the author manipulated two factors in language processing, namely the level of cognitive load and "the degree of congruence between what the interpreter is listening to or saying, and what the interpreter is looking at" (p. 85).

Chapter 6 discusses the main results of the experimental study in Chapter 5 and points out several implications. The results reveal that "eye movements and beat gestures change when language-related cognitive load or the congruency between visual and auditory input changes in interpreting" (p. 131), and this effect varied between professionals and trainees. The author therefore concludes that "human bodily activities accompany language processing in

interpreting" (p. 131). Visual and auditory input are integrated in language processing and in interpreting. All the implications drawn from the findings may well shed light on interpreting training. The author proposes that it is crucial to train novices in how to benefit from cross-modal input and integrate information from diverse sources in interpreting. This chapter ends with limitations and a commentary on future research avenues.

On the whole, this book presents an innovative perspective of cognitive research into interpreting by associating bodily activities (eye movement and gestures) and interpreting process, and it is sure to spark more fertile research in this area in the future. The volume distinguishes itself with three impressive features. First, it is a rare book specializing in a novel field in cognitive interpreting studies – embodied language processing in interpreting. Previous research on the interpreting process is largely based on linguistic activities in language comprehension and production, with perhaps less attention paid to extralinguistic features. This book, which associates bodily activities with language processing, delves into a specific aspect of embodied view in interpreting, in contrast with some other books such as Dimitrova & Hyltenstam (2000), Ehrensberger-Dow, Göpferich & O'Brien (2015), and Ferreira & Schwieter (2015), which either address a wide range of topics on interpreting process or focus on memory aspects and methodological issues. Second, the theoretical framework and empirical research are well combined. From a theoretical perspective, this book provides detailed descriptions of concepts in a naturally coherent way, including interpreting models, multimodality, mental representations, embodied cognition, embodied expertise, etc. Apart from a rich theoretical framework, the author further tests the conclusions through a well-designed empirical study, consequently making it an excellent source for academics in interpreting studies and neighboring disciplines.

Another striking feature lies in the combination of investigating gestures and eye movement in interpreting. There are few previous studies examining eye tracking (e.g., Seeber, 2012; Tiselius & Sneed, 2020) and gestures in interpreting. Combining the two activities, this volume makes a novel contribution by verifying if eye movements and gestures are executed in response to cognitive load and language content in the specific cases of extreme language processing.

However, although it covers two speech-accompanying visuomotor activities, this volume does not take the whole spectrum of interpreters' activities into account. It seems that more types of body movements such as note-taking could have been discussed to create a panoramic view of how interpreters respond to language-related cognitive load and semantic content. Another minor criticism is that, despite the neat layout of this book, the theoretical sections (chapters 1-4) would have benefited from a better organization. The introduction to different approaches to interpreting, which is less related to the core topic of this book, seems to take up too much space. The author seems to review previous embodiment works only in a broad sense. More specific discussions on embodiment in the particular field of interpreting might have deserved more space.

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