Translation Studies and Eye-Tracking Analysis

Warschauer Studien zur Germanistik und zur Angewandten Linguistik

Herausgegeben von Sambor Grucza und Lech Kolago
Eye-Tracking Supported Translation Studies
at the University of Warsaw
(Instead of Introduction)

Sambor Grucza, Monika Plużycka, Justyna Zając
(University of Warsaw)

The results of thoughts and discussions, and eye-tracking supported research carried out within the scope of broadly understood translation studies at the Faculty of Applied Linguistics at the University of Warsaw by a team from the Linguistics of Languages for Specific Purposes Department gave rise to this volume.

Scientific research concerning specialized languages, and textual and discursive representation of specialized knowledge constitute the primary objective of the Department. These research objectives are realized in two areas – descriptive/explicative and applicative, and concern English, German, Polish and Russian specialized languages. Descriptive/explicative tasks aim to determine the expression exponents of specific thinking and/or of speaking about what a given (investigated) representative of a given specialist community or a researched subset of its representatives does, in other words, to determine the specific language of his/her work, the object of this work and its results (see A. Bajerowska 2011; S. Grucza 2012a, 2012b, 2012e). Applicative tasks concern both, reflections on the future (development) of specialized languages, as well as thoughts on the development of (linguistic) research into specialized languages. The former attempt to first answer the question of how the researched specialized languages naturally develop, i.e. development which takes place with no external interference, and then whether there is a possibility to rationally interfere in the development of specialized languages in order to improve the specialized languages researched in this way, and to master the skill of using them, and finally the question of how one can enhance specialized discourses, i.e. the use of specialized texts, namely, to enhance specialized languages in such a way that it would enable specialists using them to fulfil their needs and/or objectives, both cognitive and communicative, the best they can (for more on that see S. Grucza 2012a). Our research includes, amongst other things, applicative research into pilot–air traffic control tower communication, carried out by Anna P. Borowska, PhD (2011, 2012) and research into business communication, carried out by Justyna Zając, PhD (2012a, 2012b, 2012c, 2012d).
The Department also researches languages/specialized texts within the field of glottodidactics and translation studies. The primary glotodidactic tasks of the Department are conducted under the aegis of the LISTiG scientific project, which aims to produce effective, linguistically-intelligent software that contains standard didactic modules covering the field of Polish-German language problems, connected to selected specialized languages (see S. Grucza 2010a, 2010b, 2010c, 2010d, 2012c, 2012e; S. Grucza et al. 2012; P. Szerszeń 2010, 2011, 2012; and A. Dickiel 2010, 2011).

Within the field of translation studies, experimentally-oriented research is carried out into pure translation studies investigating translation processes, as well as into applied linguistics, mainly into translodidactics. Experimental eye-tracking supported research into translation processes was initiated at the Linguistics of Languages for Specific Purposes Department as early as the beginning of 2011. The first eye-tracking experiments were carried out thanks to ‘eyetracking.pl’, which was so kind as to make a Tobii T120 eye-tracker available to members of the Department. The first observations and remarks relating to the experiments were published in 2011 (see S. Grucza 2012d, 2012e; M. Płużyczka 2011a, 2011b, 2012a, 2012b; E. Plewa 2011; E. Zwierzchoń-Grabowska 2011).

In 2012, the Ministry of Science and Higher Education allocated a scientific grant to Professor Sambor Grucza and Monika Płużyczka, PhD for the purpose of purchasing equipment. This enabled the purchase of an SMI RED 500 eye-tracker and the establishment of the Eye-Tracking Experimental Linguistics Laboratory (LELO). This is the first eye-tracking laboratory in the history of Polish Linguistics, which aims to carry out systematic glottodidactic and translation studies-oriented experimental research. The laboratory research team under scientific supervision by professor Sambor Grucza includes Monika Płużyczka, PhD (research supervision), Justyna Zając, PhD, Ewa Zwierzchoń-Grabowska, PhD, Anna Kudłaj M.A. and Marta Najman, M.A. It should be added that eye-tracking research at the Faculty of Linguistics is also carried out by A. Szarkowska, Ph.D., whose main research interest is audio-visual translation, in particular audio-description.

The primary task of LELO is to carry out research within experimental eye-tracking supported linguistics, in particular within eye-tracking supported translation studies and glottodidactics, verifying and complementing their previous findings. Currently, two areas of interest within specialized text translation studies are being subjected to experimental eye-tracking supported research: (1) the process of sight translation of specialized texts, and (2) the process of audio-visual translation. Within the field of glottodidactics regarding specialized texts, experimental eye-tracking supported research should focus on:
(1) the process of specialized text reading, and (2) the process of reconstructing/creating specialized knowledge. All the tasks undertaken concern both descriptive translation studies and translodidactics equally.

This publication presents the results of our research and scientific experiments. However, this is not our only goal, since this publication aims, on the one hand to outline the theoretical foundations on which our experimental research is based, while on the other hand, to present a slightly broader range of questions to be asked/answered by eye-tracking supported translation studies. Therefore, the texts have been arranged into two thematic, though not formally distinct parts. The first part includes texts dedicated to the theoretical foundations of translation studies-oriented eye-tracking research, while the other includes texts discussing the results of the experiments that were carried out.

The first part opens the paper by Sambor Grucza, *Heat Maps, Gaze Plots... and What Next? The Access to Translation Competences and Translation Process*. It comprises two main parts. The first part of the paper concentrates on the translation competences and it draws a distinction between idiocompetences and polycompetences. This division is followed by differentiation between two types of translation studies, which allows to focus on the studies of real translation competences and the objectives of real translation studies. The second part elaborates on the term ‘text’ in relation to the translation competences, translation studies and the possibility to reconstruct translation competence by means of text analysis. Since the translation competence is embedded in human brain, these deliberations are followed by presenting the aspects of cognition and the concept of equipment-based cognition and its limitations, culminating in the eye-tracking method as the most effective research method of translation process.

**Jerzy Żmudzki**’s paper *Problems, Objectives and Challenges of the Polish Translation Studies and Theory* undertakes all the issues addressed in its title, brings up the remarks, fears and difficulties of the academic translators’ society. The article begins with the description of distinguishable phases of the translation theory development in Poland, followed by references to the illustrious publications. The paper lists Polish universities conducting extensive research in the field of translation and interpreting, and mentions the types of problems that are yet to be overcome by the scholars, for instance institutionalisation and institutional diversity, involvement in various conferences and organisations, terminological diversity in separate departments and unilateral understanding of the theory of translation. The article also covers the challenges concerning translation didactics. The paper finishes with the description of the issues affecting the state exam for sworn translators.
The paper *Knowledge – Transference – Translation* by Marta Malachowicz focuses on presenting three title concepts and relations existing between them. The article underlines the importance of the correct understanding of these terms and cautions the reader against confusing their academic meaning with the literal sense. The definitions of knowledge, transference and translation are discussed within the anthropocentric approach to language and communication, which means putting human beings in the central position and concentrating on the abilities and potentials of their brains. The most emphasized issues are the transference and transference acts that are the starting point of the knowledge popularization process and are immensely important for communication. Transference of knowledge that is specific for a new domain is usually accompanied by transference of new expressional means from source language to target language, which is of great importance especially for the translators of specialist texts.

The article *Eye-Tracking Methods and Measures* by Paweł Soluch and Adam Tarnowski complexly covers the topic of eyeball movements which can be described as the commonest potentially intentional human behaviour. The observations during reading have been carried out by scholars for centuries, yet nowadays due to the technological development it is possible to introduce far more accurate and advanced eye-tracking devices. The paper describes thoroughly the perception process, differentiates types of eye movements, then moves on to the mechanisms that ensure the stability of perception and comments on modern methods of measurement of eyeball movement. The article underlines that eye-trackers have already been applied to various areas of life and science, like linguistics, psychology or law, just to name a few. The current studies in the field of eye-tracking concentrate mostly on the cognitive processes behind the eye movement. Eye-tracking research has been experiencing a growing interest, yet the topic demands even more attention and exploration as a vast and fertile branch of knowledge.

The aim of the article of Ewa Zwierchoń-Grabowska, *Could Eye-Tracking Help to Reconstruct the Translation Processes?*, is to present the possibilities of application of eye-tracking methodology to the research of interlanguage translation. The development of non-invasive methods for measuring eye motion and computer technologies allows researchers to record and analyze a huge volume of data that eye movement generates. Thus, eye-tracking research expands intensively. The first part of the article presents selected types of interlanguage translation and the possibilities of their testing with a video eye-tracker. The second part of the article focuses on participants in video eye-tracking research.
The second part of the book begins with the article by Monika Płużyczka *Eye-Tracking Supported Research Into Sight Translation. Lapsological Conclusions*. It presents the significance of eye-tracking experimental research in translation studies and translation didactics. The main parts of the article describe and comment on an experiment conducted among a group of a professional interpreter and sixteen students, who were to sight translate a short text from Polish (mother tongue) into Russian (first or second foreign language). The study aimed to analyse the cognitive possibilities of eye-tracking research in translation studies, to observe the process of translation and to formulate conclusions concerning the translodidactic relevance of eye-tracking research. The results of the experiment are described thoroughly and are coupled with corresponding heatmaps and gaze plots. The article ends with the conclusions regarding usefulness of eye-tracking research for translation didactics.

The article *Proactive Use of Eye Tracking in the Translational Workflow* by Silvia Hansen-Schirra and Christoph Rösener describes new ideas and proposals related to the use of gaze-assisted interaction in modern translation. The paper discusses software applications used in the translational workflow, taking into consideration the distinction between three stages of the translation process – before, during and after translation – and possible modifications that aim to improve this interactions. In the following part an interpretation of some-eye tracking data recorded during translation process is presented, as well as scenarios of applying different terminology workflow, namely: bilingual word clouds, translation memory systems (SDL Trados Studio and OmegaT) and corpus data. Each method is analyzed from the efficiency perspective and ability to make text processing more productive. The studies discussed in the article may help in further improvements of the translation practice and the translational workflow.

Agnieszka Szarkowska, Izabela Krejtz, Krzysztof Krejtz and Andrew Duchowski present in their paper *Harnessing the Potential of Eye-Tracking for Media Accessibility* an overview of eye-tracking research studies in the area of media accessibility. The paper begins with a description of eye-tracking methodology and studies that use eye movement behaviour to investigate cognitive processes. The main part of the article presents four studies carried out by its authors: the first one concentrates on providing subtitles for the deaf and hard of hearing, and is a part of the DTV4ALL project; the second study deals with subtitles on digital television for the same group of recipients; the third and the fourth studies undertake the issue of audio description for the blind and partially sighted in education and in art respectively. The results of the research can be implemented in the audiovisual translation professional market practices and in education.
The second experimental part discussing the results of the experiments that were carried out ends with the article *Eye-Tracking Research of Business Email Reception* by **Justyna Zając**. The author compares selected results from the qualitative study of business email discourse conducted within a particular global project team, with eye-tracking data from emailers’ actual reactions. The findings discussed concern the initiating of business email discourse and business email titles. The first part of her paper presents some aspects of current business practice (project management, geocentric approach to staffing) and the main linguistics characteristics of business (email) discourse in international settings. The second part describes the study (data, methods, data donor), and focuses on discussing the results of the receipt of business email that initiates specialist discourse, and business email titles. The article finishes with suggestions for possible future studies on business email discourse.

**References**


