

Summerschool Writing Process Research:
Keystroke logging and Eye tracking

Antwerp, 7-8-9 September 2011

Abstracts of trainees

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Organisation

Mariëlle Leijten & Luuk Van Waes



Fonds Wetenschappelijk Onderzoek
Research Foundation – Flanders



Explanation of the legend used

Theme	General theme of the research project
Keywords	topics that would be of interest during the summerschool
Prior knowledge	level of expertise in analysing writing process data

* Topics that might be of interest for the group (provide examples)

Wael Hamed Alharbi University of Essex	Theme	EFL Writing
	Keywords	Eyetracking Process data Revisions
	Prior knowledge	No

UK

We are working on a project to compare successful EFL writers with less successful ones and try to find out if we can teach and train those less successful writers to become better writers by teaching them revision strategies and techniques. In order to teach them the techniques, we first need to define these techniques and come up with a list of all the successful revision techniques used by our successful writers.

To do so, we will use a relatively new and sophisticated data collection tool in writing research and combine it with one of the already used ones to see if we can get a clearer picture of the writing process. We therefore decided to combine Keystroke Logging and Eye-Tracking.

By giving to our successful writers a written composition where all the errors are highlighted and then asking them to try to improve that composition by correcting those errors and trying to make the passage reads better, we believe that we may be able to come up with a number of revision strategies based on the analysis of their gazes and where they most frequently look in the composition when they write or revise. We will see then if the less successful writers will ever improve when they are shown the successful writers' tracked gazes while they were working on improving that composition.

After training the less successful writers, we will then ask them to work on improving a different composition with similar type of errors and see if they have improved. If their revision activity improved, we will compare their new tracked gazes with their old tracked ones before training to see if their gazes have changed over time and became similar to those of the successful writers. If that's the case, we can then argue that teaching novice writers the gazes of experienced writers may help the novices to become more successful writers.

Veerle Baaijen University of Groningen	Theme	General writing processes (planning)
	Keywords	Pauses Revisions Fluency
	Prior knowledge	Yes

The Netherlands

For my PhD research, I have conducted an experiment investigating whether the development of ideas varied as a function of planning and self-monitoring and investigated both knowledge change and the processes responsible for it.

42 high and 42 low self-monitors were asked to write an article for the university newspaper. Half the participants were asked to make an outline before writing while the other half were asked to sum up their overall opinion in a single sentence. The latter was defined as synthetic planning. To assess the development of understanding, participants were asked to list ideas and to rate their understanding of the topic both before and after writing. In order to investigate the processes responsible for development of understanding through writing, keystrokes were collected during writing using Inputlog. Currently, detailed analyses of the keystroke logging data are in progress. In order to prepare the data I have (i) developed coding files in which the process logs from each participant are merged together with their product data; (ii) I have annotated the recursive nature of the writing process; (iii) I have coded how fluently the writer

produced the sentences by looking at production bursts, revision bursts, and insertion bursts; and finally (iv) I have distinguished between linear and non-linear continuations at different pause locations with non-linear continuations defined as events rather than pauses. Events can be distinguished from the linear continuations on the basis that they include other material or operations before the continuation of text production.

* fluency measures, definition of bursts

Tim Beyer
University of Puget
Sound, Tacoma,
Washington

Theme	Learning to write (code switching)
Keywords	writing strategies
Prior knowledge	No

USA

Although African American English (AAE) and Standard American English (SAE) share many linguistic features, these varieties of English also contain systematic differences. Because SAE is currently the mainstream variety used in American schools, much research focuses on how young AAE-speaking students interpret these differences. This research has identified two main patterns: 1) AAE-speaking students do experience difficulties interpreting SAE, and 2) such difficulties are inversely related with the ability to code-switch from AAE to SAE. While these patterns are interesting, they are based on how AAE-speaking students comprehend spoken SAE. This focus is limiting because while most children are taught via *spoken* SAE in American classrooms, they are assessed via *written* SAE on standardized tests. Indeed, because AAE is primarily an oral, not a written, linguistic system, children do not encounter a standardized model for written AAE. Thus, learning to write in SAE may serve as a unique window to increase code-switching abilities and foster bidialectalism. Despite this, little is known how AAE-speaking students learn to write in SAE, and the few studies that have investigated this question have used off-line measures. Thus, an important question is how AAE-speaking students learn to write SAE in real-time. Likely, AAE-speaking students engage in qualitatively different writing process strategies than their language majority peers, whose written and spoken language variety matches to a greater extent. Understanding how these strategies play out on-line may help to contextualize the existing off-line findings and offer insights into how to foster bidialectalism in these language minority students.

Orkun Canbay
Izmir University

Theme	L2-writing
Keywords	Merging data Pauses Revisions Text quality
Prior knowledge	No

Turkey

This study focuses on the relationship between working memory and the components of writing process in L2 from a psycholinguistic perspective. Two computer programs will be used in the study. The one that will be used in order to see the writing process in detail will be InputLog. The other will be SuperLab experimental software, which will be used in order to check the working memory capacity of the participants. The overall scores and the statistical data will be used to see the correlation between working memory and the components of L2 writing process and the quality of the text. The participants (n = 25) will be the group of students studying at a Turkish University. All will be monolingual native speakers of Turkish who have been studying English at university level in English language teaching department in freshman year.

The study specifically seeks to answer the following research questions:

- 1) What is the relation between working memory and the online writing variables of pauses, revisions, text length, and text quality?
 - a) Do the number of pauses increase as the writer's working memory level increases?
 - b) Do the number of revisions increase as the writer's working memory level increases?
 - c) Does the length of the text increase as the writer's working memory level
-

-
- increases?
- 2) What is the relation between working memory and the text quality?
- a) Does the quality of the text increase as the writer's working memory level increases?

* SuperLab

Luis Castillo
Universitat Autònoma
de Barcelona

Theme	Translation & quality
Keywords	longitudinal data
Prior knowledge	No

Spain

The main objective of this research is to study the acceptability of translations (translation quality) within the process of translation competence acquisition. As part of the second phase of PACTE's research project, consisting of a longitudinal study of the acquisition of translation competence in trainee translators, this research on acceptability will focus on the evolution of the quality of the translations of the subjects. Furthermore this study will attempt to describe the processes of interiorization of the acceptability criteria.

Sathena Chan
Centre for Research in
English Language
Learning and
Assessment (CRELLA),
University of
Bedfordshire

Theme	General writing processes (academic writing)
Keywords	Eyetracking Process data Retrospective interview
Prior knowledge	No

UK

My PhD research, drawing on Weir's (2005; Shaw and Weir, 2007) socio-cognitive framework, examines to what extent a range of EAP reading-into-writing test tasks are comparable with actual real-life academic writing tasks in the Business School in one UK University in terms of cognitive validity. Previous studies, e.g. Moore and Morton (2005), have attempted to investigate cognitive demands of academic writing tasks by analysing the rhetorical functions presented in the wording of the assignment. However, the cognitive processes students actually engage in while completing the writing tasks are not necessarily the same processes that were predicted by test developers. My research aims at investigating the actual writing process employed by test takers on EAP reading-into-writing test tasks and those employed by students on real-life academic writing tasks. To gain insights into the issue from a range of perspectives, the research methods involve two scales of investigation. For the large-scale investigation, a cognitive writing process questionnaire, which was piloted with 90 students, has been developed to investigate the writing process employed on test tasks and on academic writing tasks. For the focus group investigation, keystroke logging and eye-tracking supplemented with retrospective stimulated recall will be used to investigate the writing process on a range of reading-into-writing test tasks. The validation of underlying constructs is a critically important area in current language testing research, and this work would add to the knowledge of the underlying processes used in the reading-into-writing task type.

* cognitive writing process questionnaire

Jan Craenen
Artesis University
College

Theme	Live subtitling via speech recognition
Keywords	Speech recognition Revisions Fluency
Prior knowledge	No

Belgium

Everyone in Flanders is familiar with the phenomenon of Dutch subtitles when foreign language programmes are broadcast on Television. Somewhat less known with the larger audience is the fact that Dutch programmes are also being provided with Dutch subtitles through the teletext service. These subtitles are normally produced on forehand, but more and more frequently are Dutch spoken live programmes being subtitled as they are being broadcast. This thanks to the use of voice recognition-software, linked to the standard subtitling software available at the public broadcaster.

Until now, however, broadcasts in other languages than Dutch are not being subtitled. That is why an experiment was set up within the Flemish public television studios, during which three excerpts from non-Dutch broadcasts were subtitled, live, as they were being broadcast during a simulated broadcasting session. The analysis of the results shows that it is indeed possible to provide live subtitles for foreign-language broadcasts with the existing techniques and equipment provided one delays the actual broadcast with 20 to 30 seconds.

Milou de Smet
Open University,
Heerlen

The Netherlands

Theme	General writing processes (outlining)
Keywords	Pauses Revisions Fluency
Prior knowledge	Moderate

This research project focuses on the use of electronic outline tools as a cognitive strategy to improve students' writing skills. In this research we not only focus on students' final writing products but also on students' writing processes and the mental effort invested while writing. We examine how outlining influences the organization of the writing process and what type of writing strategies are most beneficial for students' writing. In our first study we found that a short outline instruction of 10 minutes was sufficient for students to use the tool for their writing tasks. Using the electronic outline tool to plan their text in advance, improved text structure and decreased students' perceived mental effort while writing. Results from our second study suggest that outlining is only beneficial for complex writing tasks. Moreover, it shows that outlining may only be effective when used as a pre-planning strategy and less as an online-planning strategy. However, it is less clear how students use the outline and the tool while writing. In our upcoming study, we want to investigate how students organise their writing process when using an electronic outline tool, as compared to using no outline strategy. Key stroke logging and eye tracking tools can provide insights in students' organisation of the writing process and could therefore provide an answer to our future research questions. In addition, analyses of pausing and revision behaviour via key stroke logging and eye tracking are important indicators of expended mental effort during the writing task.

Filipe de Souza
Shantou University -
English Language
Center, Shantou,
Guangdong

China

Theme	L2 journalism writing
Keywords	Merging Revisions Thinking-aloud
Prior knowledge	No

My research explores real-time text negotiation strategies—self-initiated problems and self-generated solutions—employed by second language writers in a Chinese university's English journalism program. The study pays special attention to identifying the relationship between the recursive nature of cognitive processes during the writing event and the problem-solving tools employed by the writer in the act of composition. Within this framework, the study hopes to describe relevant text negotiation strategies to develop a writing pedagogy that addresses the challenges faced by writers in a second language journalism program. Using both screen-capture software, a keystroke logging program, semi-think-aloud procedure as well as retrospective interviews, the study is able to piece together the cognitive as well as social real-time sequence of the writing process.

Stephen Doherty
Dublin City University

Ireland

Theme	Machine translation processes
Keywords	Readability measures Quality Machine-perspective
Prior knowledge	Yes

Our research involves aspects of psycholinguistics and cognitive psychology in the examination of the readability and comprehensibility of machine translated text. In terms of eye tracking, we examine gaze behaviour and pupil data. These data are correlated with readability indices, recall testing and evaluation of the machine translated text via participant questionnaires, industry quality assessment, and automated means of translation quality measures. With regard to reading and writing research, we have been interested in reader type, task performance, motivation, recall, and the relationships of these variables with each other and the factors listed above. We have also applied eye tracking as a means of reading ease of machine translated text which has not yet, to our knowledge, been tested elsewhere. A great deal of our earlier work established the validity of such a method, and led to a more recent study involving a larger sample and with the application of two conditions whereby the text was 'controlled' in terms of linguistic elements prior to being machine translated, thus resulting, in theory, to improved levels of readability and comprehensibility in terms of eye tracking metrics, participant measures, and automatic metrics. Other related and upcoming work involves expanding upon these methods and findings to work in a larger translation workflow [authoring, translation memories, machine translation, post-editing] with a view to established a guide for readability for industrial and academics authors [e.g. technical support software].

* readability indices

Mathias Fürer
Zurich University of
Applied Sciences,
University of Berne

Switzerland

Theme	General writing processes (models)
Keywords	Pauses Revisions Time series
Prior knowledge	Yes

Thus far, writing has been described in the research literature as an interplay of situations, strategies, and phases - with phases being identifiable temporal procedural units with typical dominant writing actions such as "formulating" or "source reading". Phases are recognized as essential for the success of writing processes. At the same time, most scientific approaches to writing base their phase concepts and phase descriptions on introspection or single case studies. The methodology for a rigorous, objectively verifiable analysis of the structure of writing processes and therefore for an empirically testable explanation of the nature and interplay of phases in writing processes has not yet been developed. This is exactly what the research project outlined here aims to do: to explore and to model writing phases based on statistical methodology and thus to provide a solid foundation for good practice models of writing processes - a conditio sine qua non for systematic education in writing. The data are available in a so-called time series format which allows the use of particular statistical techniques beyond those normally associated with corpus linguistics. The dynamics of writing activities such as insertions or deletions can be analyzed and related to background conditions such as the writing task and the experience of the writers. Expected results will allow us a) to deduce empirically- and theoretically-based models of good practice in writing processes in specific settings and therefore b) to systematically evaluate competence and progress in (professional) writing.

* modelling of writing process data

Teresa Guasch
Universitat Oberta de
Catalunya

Spain

Theme	Teacher and student feedback
Keywords	Revisions Quality Cognitive performance
Prior knowledge	no

The research project that I am developing is about teacher feedback and peer feedback in the writing process in an online environment, based on asynchronous and written communication. In this environment writing is the only evidence that teachers have about students' learning.

The project intends to elucidate how feedback affects the writing product and the writing process. Moreover, we are interested in students' cognitive performance in order to explain how students process feedback or peer feedback when they work collaboratively.

Our data are:

- Writing performance. For the analysis we use the categories proposed by Reznitskaya et al. (2008) based on assessing the quality of jointly-constructed arguments: textual; hypothetical, abstract, and contextualised.
- Teacher feedback and peer feedback. The unit of analysis is an episode made up of the teacher's intervention and the student response to the feedback received. We assess the repercussions that both the teacher feedback and the student response have in improving the text being revised.
- Students learning.

We have some difficulties in analysing all the data, and specifically answering the question about cognitive performance. The content of the program, specifically the keystroke logging and eye tracking, will enable me to learn other methods to analyse how students process the feedback and new techniques to statistically analyse writing process data.

Stefan Heß
University of Potsdam

Germany

Theme	Sentence production
Keywords	Eyetracking Pauses
Prior knowledge	Yes

Currently, as a student assistant to Professor Dr Guido Nottbusch, I am involved in a reanalysis of results from a study published lately [Nottbusch, 2010]. In this study, participants were asked to describe pictured events in a type-written sentence, containing one of two different syntactic structures (subordinated vs. coordinated subject noun phrases). According to the hypothesis, the larger subordinated structure (one noun phrase including a second, subordinated, one) should be cognitively more costly and will be planned before the start of the production, whereas the coordinated structure, consisting of two syntactically equal noun phrases, can be planned locally in an incremental fashion. The hypothesis was confirmed by the analysis of the word-initial keystroke latencies as well as the eyemovements towards the stimulus, indicating a stronger tendency to incremental planning in case of the coordinated structure.

Though, keystroke and eye-movement data were analysed in parallel but in separate statistical tests, i. e. the fixation on the areas of interest were analysed with respect to the word that is currently written. For the reanalysis, we tried to find a way to combine both measurements in mixed models.

* mixed modeling

Laurent Heurley
University of Picardy
Jules Verne, Amiens

France

Theme	Writing on digital devices (sms)
Keywords	Eyetracking Measures Rules
Prior knowledge	No

My research is focused on procedural text writing, and more specifically on procedural SMS writing (i.e., instructions communicated by SMS).

At a theoretical level my purpose is to study the effect of some constraints (e.g., screen and keyboard constraints, time constraints, etc.) related to modern writing devices (e.g., mobile phones) on the dynamics of writing processes.

At a methodological level, I am developing a research tool (EXPE-SMS) specifically designed to study on-line processes in SMS writing. This tool, which simulates a mobile phone, is designed to record chronometric data and manipulate variables such as the size of the screen and the SMS length (i.e. number of characters allowed). As all keystroke logging systems, EXPE-SMS records writer's actions (i.e., mouse clicks). One of my research projects is to improve this tool by adding new functionalities and to combine it with an eye-tracking system in order to study reading processes in SMS planning and revision.

* EXPE-SMS

Andrea Hunziker Heeb
University of
Hildesheim

Switzerland

Theme	Translation (L2)
Keywords	Eyetracking Pauses Revisions Camtasia Quality
Prior knowledge	Yes

L2 translation, that is translation out of one's so-called native language, is still widely deemed unprofessional by language service providers, professional associations and translation researchers as it is assumed to produce poor results. In my PhD project some details of this general assumption on L2 translation will be tested. To this end, I will compare translation processes and products from professional translators who translate both into their L2 (English) as well as into their L1 (German) to those from professionals who exclusively work into their L1.

One sub-assumption is that L2 translators have different and more translation problems than L1 translators do. To test this, I will identify, count and categorise the translation problems that translators encounter in a short translation task. To categorise the problems I will analyse the recordings of the translators' online research processes, which also show their eye movements.

Another sub-assumption is that it takes more cognitive effort to translate into L2 than into L1. To test it, I will determine the cognitive effort of each translation task and maybe also of selected translation problems by exploiting eye-tracking data.

From the longitudinal study "Capturing Translation Processes" I already have data from a L1 translation task performed by 6 translators in our institute's usability laboratory. Data collection methods include eye-tracking (Tobii), key-stroke logging (Inputlog), screen recording (Camtasia) and retrospective verbal protocols. I also have screen recordings and retrospective verbal protocols from workplace processes, which I would like to analyse and use to complement quantitative results.

María Sollparraguirre
Universidad Nacional
del Comahue

Argentina

Theme	Genres in writing
Keywords	Eyetracking Pauses Revisions
Prior knowledge	No

My doctoral study aims at exploring linguistic distances in school children's written language, by considering sociocultural and developmental/educational factors. Participants are 63 school children from middle class or marginalized social groups, in urban or rural areas, attending third grade or seventh grade in elementary education. I am currently analyzing children's written productions -with paper and pencil- responding to demands involving different textual genres: descriptive, narrative and argumentative/explanatory. Specifically, describing their neighbourhood, telling a story and writing a letter requesting something to a civil authority. Current analyses are directed to lexical-grammatical and discursive levels.

Related to this doctoral research, and considering the new educational formal environments supported by the very recent introduction of netbooks in public schools in Argentina, I am planning to integrate Keystroke Logging and, if possible, also Eye Tracking methods in a complementary case study with two children attending seventh year of each of the already participating elementary schools (i.e., eight children altogether): a) private school located in a residential neighborhood; b) state school located in the city periphery; c) rural state school located in the city outskirts; d) rural state boarding school. Children will be requested the same written tasks already used in the doctoral study, but adapted to a digital medium. We hope that this exploratory case study will show us new directions for the study of linguistic variations among children of different sociocultural backgrounds, by integrating the analysis of the strategies used, the revisions performed, the moments of pausing and writing, as they compose texts in different genres.

Ingri Jølbo
University of Oslo

Norway

Theme	L2 writing (intercultural literacy)
Keywords	Pauses Revisions Quality Video
Prior knowledge	No

The aim of my PHD-project is to investigate writing-processes in a second-language-context. The focus will be on digital writing for L2-students in the subjects Norwegian, Biology and Science and Social Science. Students (age approximately 16-20 years) with little school experience will be the main objects for the investigation, and they will be filmed during their writing, using a head camera device.

The theoretical framework is sociocultural learning theories, where text is seen as a form of social and cultural practice. In this view, the student's cultural background and their experiences with literacy, will play a major part in the way they write, how they define themselves as writers and how they characterize a good text. The student's writing skills are an important indicator of the student's proficiency in their new language. These skills can be difficult to evaluate for the teacher, as there are different understandings of what makes a text good. Conceptions of the texts' qualities depend on the literacy experiences of the writer – and the teacher. The views offered by intercultural literacy theory will also be used in the project as a way to understand the collected data.

My PHD-project will start in August 2011, and I have not yet started collecting the data.

Peter Jud
Zurich University of
Applied Sciences

Switzerland

Theme	Translation processes
Keywords	Eyetracking Combining data collection methods Thinking Aloud Interviews/Surveys
Prior knowledge	Yes

The present research is part of the Capturing Translation Processes (CTP) longitudinal project at ZHAW in Switzerland. The competence model by the PACTE group, which consists of several different subcompetences (e.g. instrumental, bilingual, extra-linguistic, strategic) making up translation competence, is the underlying model of the project. Research competence or information literacy has been suggested to be one of the key competences of professional translators and is of special interest. Didactic and cognitive translation research is increasingly investigating how translators handle the rapidly growing offers of information and research tools while balancing the demands on their cognitive resources. The data provided by this and similar projects in other countries (e.g. PACTE, TransComp) are contributing not only to validating and extending current competence models but also to heightened appreciation of the acquisition of translation competence. In our project, undergraduates, MA students and professionals with different language combinations translating into their first language (L1) or other working languages (L2) have been monitored since 2007. Data collection methods include background interviews, structured online surveys, screen recording, retrospective verbal protocol, keystroke logging with InputLog and eye tracking. By triangulating the data obtained - and establishing ways to use quantitative eye tracking data – we are trying to gain further insight into problem awareness, research practices, reception of information and cognitive processes of problem-solving tasks within translation processes. The preliminary results have been so convincing that the evaluation of translation processes is already being incorporated into the assessment criteria in translation courses at our institution.

* measures of translation competence

Albrecht Klemm
University of Leipzig

Germany

Theme	Revision processes
Keywords	Pauses Revisions Multiple sources Questionnaire
Prior knowledge	Yes

In my dissertation project, I investigate the effectiveness of form-focused written teacher feedback on the short term acquisition of formal aspects of the text production. In an experimental setting, twenty four students of German as a Foreign Language were asked to revise an essay that had been corrected and assessed as part of an L2 composition class for non-native speakers at the University of Leipzig. Errors were corrected by underlining the error and providing metalinguistic information in form of proof correction symbols. They were then asked to rewrite the text on the computer while the keystroke logging software Inputlog was running in the background. A retrospective questionnaire obtained information about difficulties that students faced when revising corrected errors. In a follow-up study five students from the initial data collection first wrote a text on the computer that was corrected by the researcher. They then revised their respective essays on the computer while thinking aloud. The revision process was captured by the screen recording device Camtasia, and a webcam recorded the faces of the L2 writers.

After having collected my data, I am currently working on the analysis. Based on the approach of the error-annotated learner corpus of German as a foreign language FALKO (see Lüdeling/Walter 2009) the texts are prepared in EXMARaLDA that offers a multi-layer stand-off annotation. Writing process data from the initial data collection are analyzed with regard to pauses and the use of internet resources.

* EXMARaLDA

Petra Klimant
University of
Hildesheim

Germany

Theme	Translation processes
Keywords	Merging data Thinking aloud Quality Questionnaire
Prior knowledge	Moderate

Mental fatigue is assumed to prompt translators to drop their attention, and these drops may lead to lower the quality of their renditions. The results of this project might be helpful not only in translation process research, but also in second language writing research. They might have an influence on the way working turns are organized, the way research data are collected, and the way writing is trained.

In my pilot study, different quantitative and qualitative methods were combined: Non-professional and professional translators completed a questionnaire before and after translating three randomized texts on three different days from Spanish into German with the keystroke logging software Translog. Translation quality was double-blindly, randomly and holistically assessed by a panel of three evaluators. A second, unrelated panel of evaluators then independently analyzed and marked “problematic text segments”, i.e., language sequences where evaluators think interference is at work. Based on those marked segments, I will determine the saliency of linguistic interferences by frequency, and will later try and discern their effects on translation quality.

Data from different sources will be cross-referenced in the following fashions: (a) holistic assessment and problematic text segments marks; (b) log files and translation assessments; (c) prespective and retrospective protocols; (d) log files and pre/retrospective protocols; and (e) translation assessments and pre/retrospective protocols. I hope to find correlations between the subjects’ level of resistance against attention decay in task-related activities and their degree of translation expertise.

Markus Linnemann
Germany

Theme	
Keywords	
Prior knowledge	

Olesia Lupu
Alexandru Ioan Cuza
University, Iasi

Theme	Writing and reading
Keywords	Eyetracking
Prior knowledge	No

Romania

The research aims to describe an integrated methodology which combines critical reading activities with writing tasks, thus providing guided gradual instruction of both marketing/management concepts and literature review writing skills. The methodology helps in creating a learner-responsible autonomous learning classroom environment. Learners are required to read critically articles and then produce a literature review within a tutorial targeted at developing literature review writing skills in their field of study (marketing/management). The researcher sustains the idea that the integrated approach can be successfully implemented to develop language, content learning and literature review writing transferable skills.

Lieve Macken
University College
Ghent

Theme	Machine translation and technological devices
Keywords	Merging data Multiple sources Working memory
Prior knowledge	Moderate

Belgium

The aim of my research project is to study how human translators interact with different kinds of technological aids and how this interaction affects the translation process. An in-depth study of human-machine interaction will be carried out in two settings: unassisted translation and post-editing MT output.

Keystroke-recording software will be used to study the translational and post-editing behaviour of both novice and expert translators. We are particularly interested in the units on which translators operate, the translation problems that were encountered and the external resources (on-line dictionaries, Internet queries, and the like) that were

used.

We will align source and target text segments and map the aligned segments onto the translation units identified by the key-logging data in order to study the correlation of translation divergences and cognitive load.

We will make use of state-of-the-art natural language processing techniques to enrich the source and target sentences with various types of lexical information and use regression analysis techniques to study the relationship and predictive power of various low-level features (word frequency, terms, named entities, multiword expressions) and observed translation problems.

The research will lead to several important new insights in the translation process and problem solving techniques adopted by expert translators and novice translators. The comparison of unassisted and computer-assisted translation will lead to a deeper understanding of the human-machine interaction processes, which is crucial to advance the state-of-the-art in computer-assisted translation.

* analyses on lexical level, regression analyses

Cerstin Mahlow
University of Basel

Switzerland

Theme	Writing aids in word processors
Keywords	Coding Linguistic information
Prior knowledge	Moderate

In the LingUred project (www.lingured.info), we investigate how authoring aids in word processors could benefit from natural language processing methods and resources. During our research we noticed that only little research is available on how writers actually use their word processors with respect to available functions and user interfaces. To apply current methods and resources from the field of computational linguistics we need to now the needs of writers, how they use their favorite tools, where they make errors, what is hindering them from good writing, etc.

Keystroke logging in real world settings combined with text processing techniques could help to answer questions like:

- Do writers develop specific chains of keystrokes and/or built-in functions to execute a certain operation, e.g., replacing one word by another, replacing a noun phrase by a pronoun or vice versa, splitting or merging sentences? Or do they find ad-hoc solutions?
- Which sequences of built-in functions of a given word processor have a high likelihood to cause slips in general?
- Do experienced writers share certain “optimal” sequences of built-in functions to achieve similar revising goals?
- Are there certain classes of writers with respect to handling a given word processor, e.g., preferences for keyboard shortcuts over using the mouse for calling functions from the menu?
- Does experience affect writers’ use of word processors?
- What effect do devices like the iPad have on the writing of touch typists and keyboard gazers?

Guido Nottbusch
University of Potsdam

Germany

Theme	Sentence production
Keywords	Eyetracking Pauses Revisions
Prior knowledge	Yes

Promotor of Stefan Hess

Melissa Patchan
University of Antwerp

Belgium

Theme	Revisions
Keywords	Eyetracking Pauses Revisions Fluency Feedback
Prior knowledge	Moderate

Providing specific feedback is common among pragmatic suggestions for what types of feedback are most likely to help writers. While empirical research has supported this suggestion, it is still unclear why specific feedback is so helpful. The goal of the current study is to understand how the degree of specificity in feedback affects reading and revision behaviors. Twenty-one participants revised 25 short paragraphs that consisted of three sentences. In these paragraphs, important information was missing. The participants received feedback that either indicated only what was missing (i.e., vague feedback) or also suggested where to insert the missing information (i.e., specific feedback). Both keystroke logging data and eye-tracking data were collected. More specifically, we are interested in how the specificity of the feedback affects the 1) time spent on each cognitive process (i.e., preparation, production, and total process), 2) fixation frequency and duration, and 3) saccade frequency and distance. We expect to see that writers will spend more time revising when dealing with vague feedback because they will need to reread the text produced so far more often in order to figure out how to best integrate the new information. Such a result could imply that because implementing vague feedback is more effortful, writers would likely get frustrated, resulting in them giving up and ignoring that type of feedback.

* construction of material (combining Eyetracking and Inputlog)

Iryna Radziyonava
School of Translation,
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Germany

Theme	Translation processes
Keywords	Eyetracking Pauses Revisions Micro and macro-analyses
Prior knowledge	No

The subject of my doctoral dissertation is an empirically based study of the translation competence acquisition in German, Italian and Russian languages. The groups of participants for the two series of experiments (Italian-German and Russian-German) consist of first year students and last year students to allow the contrastive analysis of their translation strategies as well as their translation competence. The texts to be translated contain specific features that become a problem for translators. Based on the combination of three methods keystroke logging, eye tracking (plus screen recording) and retrospective interviews I intend to track the development of the translation competence regarding these specific linguistic and textual features. For my research I employ the Tobii eye tracker TX300 and the Tobii Studio software as well as Translog 2006. What I expect from the training school is an example or a systematic concept of data evaluation: how to sort out the information concerning certain textual features / expressions (the relation between the macro and micro units), how to interpret pauses, revisions etc., how to combine the data obtained through keystroke logging with the eye tracking data, how to analyze both writing and eye tracking data statistically and how to present the obtained results.

Rosa Rautenberg
RWTH Aachen
University

Germany

Theme	Translation processes of professionals and experts
Keywords	Eyetracking Combining research methods
Prior knowledge	No

My research falls into the field of translation studies. In this bilingual context, it is concerned with gaining insight into cognitive processes during translations. I am investigating differences when translating a highly specialized text (esp. from natural

sciences and engineering) between professional translators and experts in the respective field who are not translators. It is investigated how register specific content as well as selected grammatical constructions (in particular grammatical metaphors, a notion established by M.A.K. Halliday in Systemic Functional Linguistics) are translated by the two groups of subjects.

In order to gain insights into the cognitive processes during translation different research methods including keystroke logging (using Translog) and eye-tracking are triangulated. It will be of particular interest within the project to improve methods of how to quantitatively analyse keystroke logging data and to build a corpus to better compare findings from (bilingual) keystroke logging experiments.

* building a corpus

Isabelle Robert
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Theme	Translation revision procedures
Keywords	Revisions Thinking aloud Quality
Prior knowledge	Yes

Belgium

In 2006, the European Committee for Standardisation published a European norm for translation services (EN 15038) in which translation revision has henceforth become compulsory. However, the European standard is not clear as to how this revision process should be carried out.

Little empirical research has been specifically dedicated to translation revision procedures (with the exception of Künzli 2005, 2006, 2007, 2008), although the subject is dealt with in some publications on translation revision, such as course books (Mossop, 2001; Horguelin and Brunette, 1998). My research focuses on the impact of translation revision procedures on the revision product and process.

As far as the methodology is concerned, sixteen professional revisers were asked to review four comparable French texts translated from Dutch and to use a different translation revision procedure for each of them. The four procedures they had to use were selected on the basis of a previous explorative study (Robert, 2008). The analysis of the revision as a product is based on the number and type of amendments made in the final version. The analysis of the revision as a process is based on data collected through a key-logging tool (Inputlog developed by Luuk Van Waes and Marielle Leijten at the University of Antwerp) on the one hand, and through Think Aloud Protocols on the other hand.

First results show that the revision procedure does have an impact on the revision product and process, as hypothesised.

Dianne Samuelson
 Harvard University
 Graduate School of
 Education

Theme	Writing modes
Keywords	Pauses Revisions Fluency Quality Working memory
Prior knowledge	Moderate

USA

Educational technology is widely used as an accommodation for students with learning disabilities. In particular, the use of a word processor is believed to enhance resource-limited working memory (McCutchen, 2000; Vanderberg & Swanson, 2007) and, thus, facilitate the writing process. However, recent research (Van Waes & Schellens, 2003) suggests that use of a keyboard influences both the writing process and performance in a potentially negative manner by making the process more fragmented and recursive, with a product composed of shallower rhetorical structures.

My current research explores the role writing modality (manual vs. electronic) has upon writing processes and the underlying neuro-cognitive basis of that potential influence. I'm examining the affect of modality upon writing behaviors and performances, as mediated by working memory, for university students' (n=54) with and without learning

disabilities. Using ScriptLog and Eye & Pen, tablet and keyboard data were collected on revision and pause patterns to quantify cognitive task demands. Performance measures, such as writing efficiency and quality, were captured using words per minute, total words written, and the coherence of the argumentation using the Lectical Assessment System (LAS; Dawson, 2008).

Data analysis for this study is on going, with a completion date of fall 2011. The preliminary findings suggest a significant interaction between modality and working memory during the writing of conceptually complex expository text. Students with “high” working memory demonstrated improved performance using the keyboard; while students with “low” working memory demonstrated poorer performance using the keyboard.

* Lectical Assessment System

Iris Schrijver
 Artesis University
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 Belgium

Theme	Writing skills and translation processes
Keywords	Coding Merging data Pauses Revisions Fluency
Prior knowledge	Yes

The purpose of my doctoral research is to examine the effect of writing skills on the translation processes and products of translation students. A classical pretest-posttest experimental design has been drawn up, in which the experimental group receives writing training and the control group other, not writing related, training. The pretest, immediate and delayed posttests entail a translation task that will be registered with Inputlog and Morae. In the immediate posttest, a retrospective interview (prompted by replay of several fragments of the log file) will also be conducted to collect qualitative data on how each participant processes so-called critical instances. These are items in the source texts that require transediting to optimize the technical communication with the target audience. In the data analysis, the focus will be on whether the participants who received writing training approach their translation process differently. Special attention will be paid to how and at which point in the translation process the critical instances are spotted and processed. Another focal point will be fluency. In addition, the data from the delayed posttests may shed some light on whether the participants in the experimental group have retained the procedural writing knowledge acquired in the treatment and continue to use it in their translation processes.

Carola Strobl
 University College
 Ghent
 Belgium

Theme	Academic L2 writing
Keywords	Coding Revisions Quality Fluency
Prior knowledge	No

My PhD research is situated in the field of Computer Assisted Language Learning. The project focuses on the development of academic writing skills, more specifically, précis writing, in a foreign language (here: German for native speakers of Dutch) via an online learning environment. The main study, which I am currently preparing, is based on an experiment with second year bachelors in translation studies. The core variable in the experiment is the underlying pedagogical approach, namely cognitive constructivist vs. socio-constructivist. Two of the main questions related to this variable are: (1) Is there a difference in the quality of the final texts that can be ascribed to the experimental condition? If so, is it true that this difference is mainly related to accuracy, as literature suggests? (2) Does online peer collaboration and feedback trigger different revision behaviour than pre-programmed constructivist teacher guidance? Is it true, then, that revision activities in a collaborative setting are mostly meaning-preserving and form-

related?

Concerning methodology, I will combine quantitative with qualitative approaches. On the quantitative side, I carry out CAF-analyses (complexity, accuracy and fluency) of the assignments and of pre- and posttests. Two independent variables, viz. learning style and language proficiency level of the participants, are measured using a closed questionnaire respectively a cloze test. On the qualitative side, I use keystroke logging in order to gain insight into the revision behaviour. Furthermore, I analyze the macropropositional structure of the final texts, and I carry out post-hoc focus group interviews examining students' preferences and attitudes.

Elke Van Steendam

Belgium

Theme
Keywords
Prior knowledge

Ruth Villalón

Universidad a distancia
de Madrid (Open
University of Madrid)

Spain

Theme Reading and writing
Keywords Combining research methods
Pauses
Revisions
Prior knowledge No

I belong to the Spanish research team: Reading, Writing and Knowledge Acquisition. Our research interests are reading and writing as a learning tools in Secondary and University Education. Our team have carried out cualitative and quantitative studies about reading and writing tasks perfomed in different educational levels, written composition processes, writing beliefs, writing intervention programs, etc. We are currently involved in the project: "Reading and writing to learn in Higher Education: the impact of student's conceptions on reading and summary and synthesis tasks". In this project we want to adress the role of different beliefs on written production and learning. We will deal, among other topics, with students' writing processes when performing collaborative tasks using computers. Our plan includes to collect data in different formats such as written products, video-recording, interviews and questionnaires. In order to get information about writing processes we have employed Camtasia software in previous studies, but we want to explore new ways of collecting and analyzing data. I am sure that the methods that will be presented in the training: "Writing Process Research 2011: Keystroke Logging and Eye Tracking" could provide new ideas for our project.

Naomi Weintraub

Hadassah-Hebrew
University Jerusalem

Israel

Theme Typing errors
Keywords Coding
Pauses
Patterns
Prior knowledge No

Characteristics of transcription typing-errors of post-secondary Hebrew-writing students, with and without learning disabilities.

Background. Researchers have identified and classified various typing errors. However, most of the studies are related to Latin- or Romance-based languages and not to Hebrew. Moreover, no studies have been found, examining the typing errors of students with learning disabilities (LD). Because of the unique attributes of the Hebrew language and the difference in the keyboard layout between the Hebrew and other languages, we hypothesize that typing errors of Hebrew typists may be different from Latin/Romance typists. Additionally, because students with LD often have language and motor deficits, we hypothesize that the extent and type of errors among students with LD will differ from those of their peers without LD.

Study Objectives: (a) To document typing errors prevalent among Hebrew-typists; (b) to compare these errors to those of Latin / Romance-based language typists; and (c) to compare the kinds and extent of typing errors among students with and without LD.

Methods. The study will include 260 post-secondary students between the ages of 20-30 (200 without LD and 60 with LD). The students will be administered a typing assessment using the 'Kaldiuk' software, which is a new program developed with the purpose of

assessing typing skills in Hebrew, while documenting students' speed and errors through an activity-log.

Expected Results. Although similarities in typing errors between Hebrew and other languages will be found, we will also find typing errors that are unique to the Hebrew language. We also expect to find different typing error-patterns between the students with and without LD.
