

## **Scientific Report Short Term Scientific Mission COST ISO703 - Veerle Baaijen**

### ***Purpose of the visit***

There is general agreement within research on writing that writing can be seen as a problem solving activity (Flower & Hayes, 1980) which should be a valuable tool for learning (Ackerman, 1993). There are two approaches within writing research to the question of how writing facilitates learning. Some researchers focus more on the processes involved in writing and others focus more on the effect of writing on knowledge change by testing knowledge change. The aim of my PhD research is to bring those two approaches together and to test how processes of writing relate to knowledge change. In order to do so, I proposed to begin my research by looking at the different conditions from Galbraith (1992, 1999, 2006) in which knowledge change appears to be happening and simultaneously investigate the underlying processes. The purpose of this Short Term Scientific Mission was to discuss the design and the method of my first study with David Galbraith.

### ***Description of the work carried out during the visit***

During my Short Term Scientific Mission the following things have been carried out:

- (i) Discussions and tutorials about the theoretical predictions made by Galbraith's (2008) dual process model of writing. In addition it was discussed how these predictions can be tested. This included an introduction to connectionist models, which form an important part of the dual process model, and some simulation work.
- (ii) Discussions and tutorials about the knowledge change measure used by Galbraith in previous research. This included analyzing original data from previous experiments in order to get a better understanding of the procedure used in the knowledge measure. It also included the evaluation and the analyses of the importance rating, which is one of the aspects of the knowledge measure used.
- (iii) Evaluation of different methods of collecting process data and selection of the most appropriate one for testing the dual process model. This involved some piloting with individual participants to assess how best to combine process measures with knowledge change measures. In these pilot studies think aloud data, keystroke data and knowledge measure data were collected and analysed. It also included the development of a training method to teach participants to think aloud.
- (iv) Some linguistic analyses were carried out on essays from previous research to determine whether it is possible to locate old and new ideas in the written texts.
- (v) Finally, we discussed the design of my first study, including the power and sample size required, and the writing task and topic that would be most appropriate.

### ***Description of the main results obtained***

During this STSM the following results have been obtained:

- (ii) It was decided that the knowledge measure as used in 1992 is going to be replicated and that all aspects of this measure - such as the rating of knowledge, the listing of ideas, the importance rating and the correspondence rating - will be used in my first study.
- (iii) It was decided that keystroke logging is the most appropriate method to collect process data for the first study in which I will be looking at different writing conditions in which knowledge change appears to be happening. Working with keystroke logging will allow me to use a large sample size and still collect process data in a rather short period of time.
- (iv) Analyses of linguistic aspects of the written texts and locating old and new ideas in the texts showed that this sort of analysis is possible and would make a big contribution to our understanding of how new content is generated and written down during writing.
- (v) The design of my study was finalized. It was decided to use a between subject design with two independent variables, each with two levels. The independent variables are self-monitoring (high self-monitors versus low self-monitors) and planning (outline planning versus synthetic planning). The knowledge measure as carried out in 1992 will be used and the writing assignment will involve writing an article for the university newspaper in which a current affairs topic is discussed. Keystroke data will be collected from all participants.

#### *Future collaboration with host institution*

A second visit is planned from the 20<sup>th</sup> of April until the 1<sup>st</sup> of May within this Short Term Scientific Mission. In this second visit it is planned to carry out some work on the analyses and the interpretations of the results of the experiment mentioned above. In addition, this second visit will involve the development of further analyses in the light of initial findings and the design of further studies in the light of the results of the first experiment. Following the second visit, it is anticipated that an article about the research will be submitted to a refereed international journal.

#### *Confirmation by the host institute of the successful execution of the mission*

**As host of the STSM, I, David Galbraith, confirm that the mission was successfully carried out. If further details are required I can be contacted at [d.galbraith@staffs.ac.uk](mailto:d.galbraith@staffs.ac.uk)**