Chapter 2.01.14

Hypertext Writing: Learning and Transfer Effects

Martine Braaksma, Gert Rijlaarsdam and Huub van den Bergh

In the Netherlands the position of writing tasks in secondary education is twofold. Within the school subject Dutch, writing tasks are used in the context of ‘learning-to-write’: writing for communication. Students have to (learn to) write several text types, regularly in a communicative setting (e.g. writing an opinion article). In other subject domains, writing is focused on ‘writing-to-learn’, and is used as a learning or assessment tool. In all writing tasks, information and communication technology (ICT) plays an important role in information retrieval and in text composition and revision. Students can choose to produce a hypertext (i.e. a non-linear text in which information is organized as a network in which nodes are text chunks and links are relationships between the nodes; Rouet, Levonen, Dillon, & Spiro, 1996).

Nevertheless, there is a large gap between the possibility of constructing hypertexts at school and the current practice at schools. An analysis of textbooks and a questionnaire and interviews with students showed that within the subject Dutch, students do not write hypertexts. However, it is suggested that hypertext writing might enhance students’ writing abilities (e.g. Lohr, Ross, & Morrison, 1995) and learning outcomes (Haas & Wickman, 2009).

We also suppose that hypertext writing could have beneficial effects on writing skills (writing processes and writing products). These proposed effects build on research by Braaksma, Rijlaarsdam, Couzijn, and Van den Bergh (2002). They observed that students who performed hypertext-like tasks executed more planning and analysing activities during writing than students who performed linear text-tasks. These planning and analysing activities were positively related to text quality,
both in the hypertext-tasks and in the linear text-tasks. Therefore, it was concluded that writing hypertexts might stimulate the use of writing activities that are positively related to writing proficiency.

Method

We set up an experimental study in which 102 participants (10th grade) followed a lesson series in argumentative writing in two versions: a hypertext version (HYP) for the experimental hypertext writing condition, and a linear version (LIN) for the linear writing control condition. The two versions of the lesson series were similar in many aspects: same text type (argumentative text), theme, documentation materials, instruction time, etc. The first three lessons were exactly the same. Only the fourth and the fifth lesson differed between the conditions. Then, students in the HYP-condition (N = 41) wrote their argumentative text in a hypertext format. In contrast, students in the LIN-condition (N = 61) wrote a linear text (for more information about the lesson series see Braaksma, Rijlaarsdam, & Janssen, 2007).

Pre-tests (aptitude, computer skills) and post-tests (writing of a linear text) were administered. For a sample of participants (N = 59) logfiles of (linear) post-test essays were collected as well, providing indicative data for writing processes. For another sample of participants (N = 16), the writing of their hypertexts (N = 8) and linear texts (N = 8) in the intervention was logged as well.

Results

No a priori differences between conditions on computer skills and aptitude were observed. The quality of the linear writing post-test was coded globally. Regression analysis showed no differences between conditions on linear text quality for students with a medium aptitude. However, an aptitude-treatment interaction was found. The regression slopes differed significantly between the two conditions showing that students with a higher aptitude wrote a linear text of a higher quality in the post-test when they were in the hypertext-condition during the intervention than students in the linear condition. In future analyses, the logfiles of the (linear) post-test writing tasks will be related to the quality of the writing task to see whether we can find a relation between (some) process characteristics and text quality.

In regression analyses on the logfiles scores administered during hypertext writing and linear writing, we focused on different pause locations during writing and on production activities. Table 1 shows whether a (positive or negative) relation was found between the duration of time and number of pauses or production activities and text quality. For instance, for pausing between words a positive relation was found between the amount of time that was devoted to pausing and text quality in the middle of the writing process. A negative relation was found for the amount of