Hypertext writing: effects on writing processes and writing products

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SESSION

N 7 | 28 August 2009 | 13:30 - 15:00
room: Agora: Aernout Mik Room
Symposium
category: Writing
Writing instruction: Effects on process and product

participants

- Chairperson: Martine Braaksma, University of Amsterdam, Netherlands
- Organiser: Martine Braaksma, University of Amsterdam, Netherlands
- Organiser: Jesus-Nicasio Garcia, Leon University, Spain
- Discussant: David Galbraith, Staffordshire University, United Kingdom

The ability to communicate ideas effectively as text is relatively difficult to acquire, and typically only develops as a result of classroom instruction. There is a growing body of research exploring what form this instruction should take in order to be most effective. Evidence, summarised in a recent meta-analysis (Graham and Perrin, 2007) suggests that interventions that aim to develop students' metacognitive understanding and self-regulated use of effective writing processes, rather than just on desirable features of the finished product, tend to be particularly successful. However, the mechanisms by which these interventions work are not well understood. One possibility, and an implicit assumption when process-focussed interventions are delivered (e.g., De La Paz and Graham, 2002), is that these intervention affect the kinds of activities that students engage in when producing text, and that this in turn affects that quality of what they finally produce. However, because evaluations have typically looked just at finished texts and have not explored the processes that students adopted in their creation, evidence for this claim is lacking. Papers in this symposium will explore both existing classroom practice and formal evaluations of novel interventions. They will discuss effects on process and on the quality of completed texts, and on the relationships between these. Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. Journal of Educational Psychology, 99(3), 445-476.De La Paz, S., & Graham, S. (2002). Explicitly teaching strategies, skills, and knowledge: Writing instruction in middle school classrooms. Journal of Educational Psychology, 94(4), 687-698.

Hypertext writing: Effects on writing processes and writing products

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Hypertext writing might have beneficial effects on writing skills (writing processes and writing products). To study this assumption, we set up an experiment in which 102 participants (tenth grade) followed an extensive lesson series in argumentative writing in which they wrote an essay in hypertext form (experimental condition) or in linear form (control condition). Pre-tests (e.g. aptitude, computer skills) and post-tests (linear writing task) were administered. For a sample of participants (N=16) logfiles during the intervention were collected, providing indicative data for writing processes during hypertext writing and linear writing. Results showed differences in process characteristics during hypertext writing and linear writing between the two conditions. Linear writing showed more time spent in pausing between words in the beginning of the writing process and in pausing between sentences in the middle part than hypertext writing. Contrasting, students in the hypertext condition showed more frequently and during a longer time production activities during the whole writing process than students in the linear condition. Furthermore, it was found that (some of) the process activities that were mainly performed by students in the linear condition (much time devoted to pausing between sentences in the middle part) were negatively related with text quality and the activities that were mainly performed by students in the hypertext condition were positively related with text quality (executing frequently production activities in the middle part of the writing process).

Summary

Background and aims: 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 nonlinear text in which information is organized as a network in which nodes are text chunks and links are relationships between the nodes; Rouet et al., 1996).Nevertheless, there is a large gap between the possibility of constructing hypertexts at school and the current practice at schools. An analysis of text books and a questionnaire and interviews with students showed that within the subject Dutch, students do not write hypertexts. However, theoretical literature (e.g., Lohr et al., 1995; Snyder, 1997) suggests that hypertext writing might enhance students' writing abilities. 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 et al. (2002). They observed that students who performed hypertext-like tasks executed more planning and analyzing activities during writing than students who performed linear text-tasks. These planning and analyzing 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.

Methodology: We set up an experimental study in which 102 participants (tenth 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.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 time devoted to pausing between words and text quality at the end of the writing process. Furthermore, we tested whether we could find differences between conditions (HYP vs. LIN) on the different locations of pausing and production activities. Regression analysis (see Table 2) showed that students in the linear condition devoted significantly more time to pausing between words in the beginning of the writing process than students in the hypertext condition and also spent more time in pausing between sentences in the middle of the writing process than students who wrote a hypertext. Students in the hypertext condition performed more frequently production activities and performed these for a longer period than students in the linear condition.

Conclusions: With our study we aimed to show that hypertext writing could have beneficial effects on writing skills. We found some differences in process characteristics between hypertext writing and linear writing. Linear writing showed more time spent in pausing between words in the beginning of the writing process and in pausing between sentences in the middle part than hypertext writing. Contrasting, students in the hypertext condition showed more frequently and during a longer time production activities during the whole writing process than students in the linear condition. Furthermore, it was found that (some of) the process activities that were mainly performed by students in the linear condition (much time devoted to pausing between sentences in the middle part) were negatively related with text quality and the activities that were mainly performed by students in the hypertext condition were

positively related with text quality (executing frequently production activities in the middle part of the writing process). We might conclude that we found similar results as in our earlier study (Braaksma et al, 2002). However, one should realize that the earlier study was conducted with think aloud protocols and in the current study process characteristics were assessed with logfiles (which give no information about the content of the process) so we cannot compare these two studies entirely