

WRITING IN MOTHER TONGUE AND A FOREIGN
LANGUAGE; TWO PHD-PROJECTS

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1. Abstract	2
2. Introduction	3
3. Project 1: Differences in the temporal distribution of linguistic processes during writing in L1 and L2 (Marion Tillema).....	8
4. Project 2: The relation between (sub)processes of writing in L1 and L2 (Daphne van Weijen).....	9
5. Literature	11

1. ABSTRACT

This project aims to shed light on the relation between linguistic/cognitive processes during writing in the mother tongue and writing in a foreign language. In addition the relation between the temporal distribution of the linguistic processes and the quality of the produced texts is subject of investigation.

It is often assumed that the writing process of good writers differs from the writing process of poor writers (e.g. Flower & Hayes, 1980). Empirical evidence has been rather scarce, however. Many studies were shown to be either methodological weak (see Van den Bergh & Rijlaarsdam 1999) and/or expected relations could not be revealed empirically (e.g. Breetvelt, 1990). A breakthrough was made in the early nineties. Studies were carried out in which it was shown that linguistic processes of writers (like planning, generating, structuring, formulating, revising) are not randomly distributed over the writing process (Breetvelt, Rijlaarsdam & Van den Bergh, 1994). Cognitive activities like planning, formulating, etc. appear to be concentrated during certain phases of the writing process. Moreover, writers appear to differ greatly in this temporal distribution of cognitive processes.

Furthermore, it is shown the frequency with which a writer carries out a cognitive process is hardly related to the quality of a produced text. The number of planning activities for instance is not related to the text quality. However, once the distribution of planning activities over the writing process is taken into account it appears that writers who plan in the beginning of their writing process have written better texts, than those who planned at later moments in the writing process. The process of generating, to give another example, is positively related to text quality only when it takes place during episodes in the middle of the writing process; when generating occurs at other moments in time, such as at the beginning or at the end the process-product correlation is negative.

These empirical results hold for writing in the mother tongue. Once students have to write in a foreign language the general picture appears to change. Texts written in a foreign language appear to be of a relative low quality as compared to texts produced in the mother tongue. This pertains not only to low level aspects (word and or sentence level), but also to higher-level aspects (like the number and complexity of ideas). Apparently the extra task difficulty has an enormous effect on writing. It is assumed that the default (L1) organization of linguistic processes is disrupted due to the extra task difficulty: writing in a foreign language. If a task is carried out in a foreign language the individual writing processes are still present; i.e. a writer still has access to the same cognitively encoded information; he can still plan chunks of information, and reorder those chunks, etc. However, apparently a foreign language writer does not engage in these processes in the same way as in the mother tongue. It is assumed that the organization --the distribution of processes over the writing process--, and the mutual dependency of the linguistic processes are disrupted because of the foreign language. In two separate, but related projects we will unravel the influence of writing in a second language on the temporal distribution of linguistic processes and assess relations between process and product in the mother tongue as well as in a foreign language.

2. INTRODUCTION

Writing is a very complex cognitive activity in which a large number of linguistic and cognitive processes are involved. When we use the term processes we refer to language use and language processing, such as (sub) processes of planning, (sub) processes of generation, (sub) processes of structuring, reading processes, revision processes etc. It has been shown that there is no direct relation between frequencies of occurrence of linguistic processes and (aspects of) text quality. Recently it was shown that the distribution of these linguistic activities over the writing process is a crucial factor. This *distribution* of linguistic processes over the writing process have been shown:

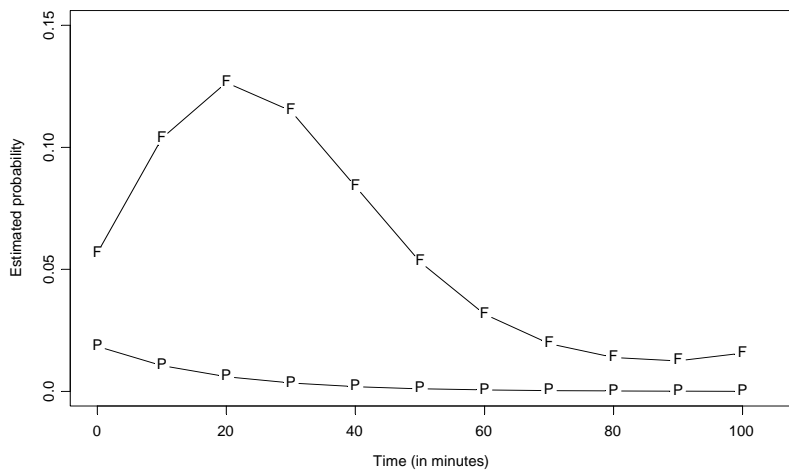
- To differ from one proces to another (Breetvelt, Van den Bergh & Rijlaarsdam, 1994, 1996; Rijlaarsdam, Van den Bergh & Couzijn, 1996; Levy & Ransdell, 1996; Rijlaarsdam & Van den Bergh, 1997; Van der Hoeven, 1997, etc.);
- To differ between writers (Breetvelt, Van den Bergh & Rijlaarsdam, 1994, 1996; Rijlaarsdam, Van den Bergh & Couzijn, 1996; Levy & Ransdell, 1996; Rijlaarsdam & Van den Bergh, 1997; Van der Hoeven, 1997, etc.);
- To be related to text quality. That is, the relation between writing processes and text quality changes during writing (Breetvelt, Van den Bergh & Rijlaarsdam, 1994, 1996; Rijlaarsdam, Van den Bergh & Couzijn, 1996; Levy & Ransdell, 1996; Rijlaarsdam & Van den Bergh, 1997; Van der Hoeven, 1997; Braaksma, Rijlaarsdam, Van den Bergh, Van Hout-Wolters, 2004);
- To differ due to the quality with which writers can carry out sub processes (Van der Hoeven 1994). For instance, it has been shown that writers with good high revision skills are more likely to postpone revisions to one phase. Hence, during other phases mental attention can be given to other aspects of the writing process;
- To influence the relation between different linguistic processes; The correlation between (sub) processes changes during the writing process (Rijlaarsdam & Van den Bergh, 1996; Van den Bergh & Rijlaarsdam, 1999; Levy & Ransdell, 1966, etc.). Reading the assignment, for instance, is used as a means to tune into the subject and to make a plan for the text to be written, while at later stages it is highly correlated with generating activities. Or, generation of information and structuring of information, which appear to be highly related only in the middle of the writing process. Such combinations of (sub) processes appear to be highly related to the quality of the written texts; such combinations of (sub) processes appear to be more adequate predictors of text quality than could be expected on each single (sub) process.

In sum, it is not (only) relevant if and how often a certain process occurs during writing, but especially important *when* exactly this (sub) process occurs.

In Figure 1 the mean occurrence of ‘formulating ideas’ (F) and ‘planning activities’ is plotted against the writing time (see, Van den Bergh & Rijlaarsdam, 1999). It appears that probability of occurrences for formulating activities changes from low

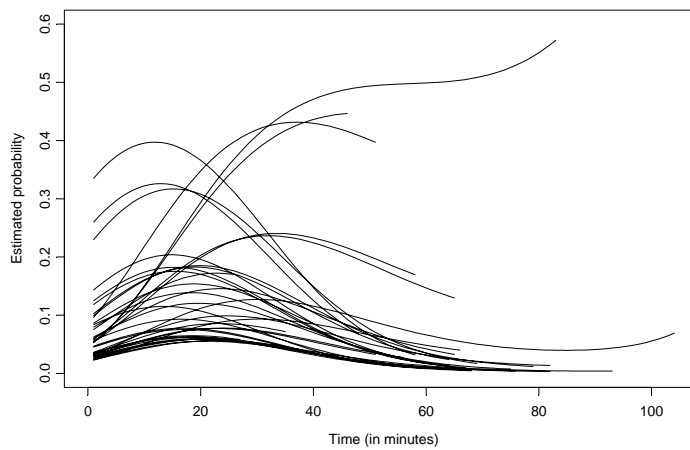
to high to low again, while the mean number of planning activities is not only overall low but also decreases continuously.

Figure 1. Mean occurrence of Formulating (F) and Planning (P) activities during writing (x-axis)



In science we are often preoccupied with mean scores, thereby we forget that the mean is in many cases does not tell us everything. The ‘mean writer’, in this case, is an unexisting abstraction; we need to investigate the writing process of individual writers. By means of multilevel modelling we can estimate the course of a linguistic process during writing for each writer separately (see Van den Bergh & Rijlaarsdam, 1996). In Figure 2 the individual ‘formulating-curves’ for formulating are presented.

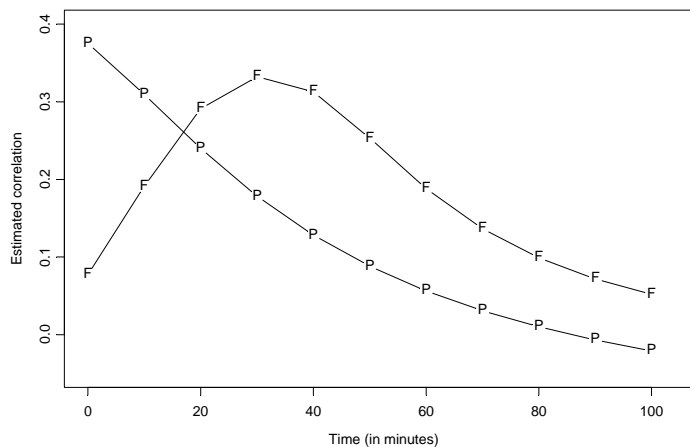
Figure 2. Individual probabilities for Formulating activities during the writing process.



It is easy to see that the between individual variance is rather large. None of the writers in Figure 2 appear to have behaved as the mean writer from Figure 1. Especially writers who continuously for who the probability continuously increases (right above) as well as writers who start their writing process with formulating (left above) stand out as exceptions.

The relation with text quality appears to provide a useful tool for the interpretation of these differences between writers in the distribution of formulating activities. In Figure 3 the height of the correlation (y-axis) of process and text quality is plotted against the moment in the writing process (x-axis).

Figure 3. Correlations (y-axis) between Planning activities and text quality (P), as well as between Formulating activities and text quality (F) during the writing process (x-axis).



The correlation between processes and text quality appears to vary during task execution. Consider, for instance, the correlation between formulating and text quality. This correlation is negative in the beginning, increases to (significantly) positive values at later moments in the writing process, and gradually decreases again. This means that students who start generating too soon write poorer texts than those who postpone generation, and those who still generate at the end write poorer texts than those who don't need to generate information at the end of the task.

Recent research also shows a functional dependency between processes. That is, at some moments formulating triggers the generation of new ideas, while at other moments in the writing process the information in the assignment is used for generating information (beginning), or rereading of the text written thus far (later stages). In general, the correlation between processes changes during task execution. The same holds for the combination of processes and text quality. For instance, the texts of students who engage in structuring processes before generating sufficient information show poorer quality than the texts of writers who did not begin structuring until they had generated enough information to write about (Van den Bergh, 1999).

The distribution of linguistic processes over the writing process is also influenced by the proficiency with which a writer can carry out (sub) skills (Van der Hoeven, 1997). Good revisers, for instance, seem to trust on their revision skills, and are likely to postpone revising until the end of the writing process. This influences, of course, the occurrence of other processes during the writing process. They are likely to generate more, and to formulate more during the initial phases of the writing process. For good revisers the relation with rereading the text-thus-far is strengthened near the end of the writing process (van der Hoeven 1997).

In sum, off-line measures provide the tool to interpret on-line measures of writing. That is, differences in on-line writing processes are not only described but also valued as well in terms of off-line text quality measures. This calls for adequate procedures and adequate operationalizations of text quality. Until now, only ratings of

teachers on a various dimensions have been used (global text quality, content, language use, goal orientation, audience awareness, etc.). Although in each case the ratings of several raters were used (whom appeared to agree –more or less), this can be hardly called a theoretical sound way of determining the quality of a text, although it is common practice in an educational context. In this project it will be explored if more sound procedures of determining the quality of the written texts can be used. Especially ways to determine the quality of text-structure, one of the key elements in text quality, seem worthwhile candidate in this respect. A second operationalization of text quality will be the continuity of the written texts, or more precise the lack of continuity. It is expected that disruptions of textual continuity will have a pendant in the writing process (compare Schilperoord, 1996), although it is hard to predict beforehand which processes will be involved.

In sum, it can be concluded that the organization of linguistic processes during task execution is highly relevant to our understanding of differences in resulting texts. This holds for the temporal organization of single processes as well as for the way in which different processes support or hinder each other during task execution. In two related projects both aspects will be empirically investigated. In the first project the distribution of individual (sub) processes over the writing process in two languages, as well as their correlation with text quality is investigated. In the second phd project the differences in dependency between (sub) processes due to language is investigated. Of course, the same on-line (process) of-line (product) relations as in the first project are studied as well, only now combinations of (sub) processes are related to text quality.

Combined the two projects have a surplus value. Of course, the distribution of writing processes and their relation with text quality in two languages can be studied more extensively. By specifying two different age groups, for both projects and exposing both groups to the same writing tasks, we can get a cross sectional view on changes in the writing process with proficiency. Thereby the projects together gain a surplus value over each project on its own (As it is beforehand not 100% sure whether both phd-students will finish their project with a dissertation, questions regarding the development of writing processes will not be an essential part of either phd-project. But, once the data have been gathered, we will apply for a grant at NWO to study the development of writing processes in L1 and L2). Please note that only scarce information is available on the differences between young and older writers. What changes in the writing process? Only more general notions, many applicable only to (very) young writers are available.

3. PROJECT 1:
DIFFERENCES IN THE TEMPORAL DISTRIBUTION OF LINGUISTIC PROC-
ESSES DURING WRITING IN L1 AND L2
(MARION TILLEMA)

If learners write in a foreign language the quality of their texts lags behind as compared to texts produced in their mother tongue (see for instance, Bereiter & Scardamalia, 1987, p.176 ff). This does not only pertain to lower-level aspects (word and sentence level) but also to higher-level aspects (number and quality of ideas). The extra task difficulty --the foreign language-- does interfere with normal task execution, which leads to a 'performance loss'. This seems to be the case when complete writing tasks have to be carried out, but also when only specific parts of writing -- e.g. revisions-- have to be performed (compare, Broekkamp & Van den Bergh, 1996). So, the distribution of linguistic processes over the writing process seems to change due to the language in which the task is performed (Rijlaarsdam, 2001). This finding is at the starting point of the first project. In this project changes in distribution of cognitive activities due to the language in which a text is written is studied. It will be investigated whether the temporal distribution of each linguistic process changes with the language. It will also be shown that this change in organization of linguistic processes is a function of the L2-proficiency as well as sub skill proficiency of the students. As the distribution of processes differs due to the language in which a task has to be performed, so will the correlation with text quality. The general research question can be formulated as: how does writing in a foreign language effect:

- The distribution of writing processes?
- The relation of the distribution of writing processes with aspects of text quality?

Procedures: project 1

Subjects. 20 subjects (e.g. ninth grade students of VWO-schools) will write four in a think-aloud condition. Two texts will be written in Dutch and two in English. Two types of writing assignments will be constructed, of each assignment a Dutch as well as an English version will be constructed. As it is ill advised to have the students to write the same text twice (once in Dutch, and once in English), we know that the topic might exert a large influence on the writing process, the order of the topics and language has to be randomized (see Table 1).

Table 1. Randomization of assignments and language over students.

Subject	Dutch		English	
1	A	B	C	D
2	B	C	D	A
3	C	D	A	B
4	D	A	B	C
Etc.				

Students will be familiarized with thinking aloud before actually writing the texts. (Routines, which have been shown suitable, are available.)

Proficiency instruments. Next to the writing tasks each student has to take several tests on writing sub skills (e.g. revising skills, planning skills, etc. These test will be adapted from Van Gelderen & Blok (1995), and Broekkamp & Van den Bergh, 1995), as well as a more general test on foreign language proficiency (e.g. a standardized reading test).

Data processing. The thinking aloud protocols will be coded in terms of linguistic processes (see Breetvelt, Rijlaarsdam & Van den Bergh (1994), and Van den Bergh & Meuffels, 2000) for a coding scheme), and the length (in ms) of each process will be measured (see Schilperoord, 1996 for procedures). So the occurrence of processes can be analyzed as a function of the time elapsed since the start of the assignment. The distribution of linguistic processes over the writing time is seen as an indication of the organization of linguistic processes (the same holds for the relation between different processes).

At least two indicators for text quality will be constructed: a general rating --as is the custom in many educational settings-- and a theoretically more sound judgment on text structure (among which an identification of textual discontinuities).

Data-analysis. The observations of linguistic processes are nested within subjects. Therefore, in a multilevel model the variance between writers is distinguished from the variance within writers. The procedures to be used can be adapted from Van den Bergh & Rijlaarsdam (1996).

4. PROJECT 2: THE RELATION BETWEEN (SUB)PROCESSES OF WRITING IN L1 AND L2 (DAPHNE VAN WEIJEN)

If we look at writing skills in terms of processes. Skilled writers differ from less skilled ones in terms of cognitive activities employed as well as the way in which the execution of these activities is automatized. That is, a skill can be viewed of as a series of processes, which can be executed without cognitive effort. Change of language disrupts such chains of processes (Van den Bergh, Herrlitz & Klein Gunnewiek, 1996). This hypothesis has been put forward in reaction to many studies (see also Koda, 1996) in which it was shown that's solely enhancing and/or automating word or syntactic does not improve writing skills (Snellings, Van Gelderen & De Glopper, 2003). Inspection of think aloud protocols shows that writers can be characterized in terms of combinations of writing processes. A well-known phenomenon in this respect are the so called 'knowledge tellers' who generate information, write it down, and generate new information. Knowledge tellers can be characterized as writers whose process consists of generating and writing.

It is assumed that performance loss occurs because the default, or L1, organization of linguistic processes is disrupted due to task execution in a foreign language (Rijlaarsdam & Van den Bergh, 1996; Couzijn et al 1996), for at least some students. If a task is carried out in a foreign language, the individual processes are still 'present'. When writing in a foreign language a writer still keeps having access to the same cognitive encoded information; he still can plan chunks of information, or reorder those chunks. It is far more likely that the organization --the distribution of processes over the writing process--, and the mutual dependency of the linguistic processes is somehow disrupted. An anecdotal observation in this respect comes from a first year student who said 'when I come to a word I can't spell, I just forget what I wanted to say'. Or, to be less anecdotal, it has been shown that spelling errors tend to occur at places where the underlying text structure is relatively complex, implying a trade-off between attention for spelling and structural aspects of the text being produced (Van Wijk & Sanders, 1999). The second project will focus on combinations of linguistic activities. The general research question can be formulated as:

- Is the combination of (sub) processes as appearing from writing in L1 also present in L2-writing?
- And are these differences between L1 and L2-writing related to general L2-proficiency level?
- Are combinations of processes related to text quality in both languages?

It is, of course, expected that combinations that occur in L1-writing in L1 do not occur L2 (as frequently, and with the same distribution). Besides it will be shown that the size of content elements, on which the processes operate, will change due to language. Both elements are supposed to be related to the level of achievement in the foreign language, and assumed to be responsible for the difference in quality of texts written in L1 and L2.

Procedures project 2 (see also project 1)

The main difference in procedures is that the type of subjects differs. In the second project more advanced students, in terms of English proficiency, are sampled (e.g. first year university students).

Instruments, texts, sub skill tests, language proficiency tests, will all be the same as in the first project. Thereby the only thing that differs between the data of the first and second project is the proficiency level of the students.

Work plan project 1 & 2: first year only

Familiarization with the subject:

- Reading literature;
- Reanalyzing available think-aloud protocols from students in Dutch and English;
- Construction and pre-testing of writing tasks;
- Helping with the Anela conference on writing in L1 and L2;
- Visiting the congress of EARLI's WritingSpecial Interest Group (SIG-writing), in august 2003;

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