

THE WRITING PROCESSES OF
ADVANCED FOREIGN LANGUAGE LEARNERS IN THEIR NATIVE
AND FOREIGN LANGUAGES:
EVIDENCE FROM THINKING-ALoud
AND BEHAVIOR PROTOCOLS

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This paper reports on the research I carried out to identify the course and structure of the writing processes of the skilled, average and unskilled student writers composing expository prose in their native and foreign languages.

GOALS OF THE STUDY

1. To verify the Cognitive Process Theory of Writing proposed by Hayes and Flower (1980)¹ to establish the course and structure of the writing processes of advanced foreign learners of English composing expository prose both in their native and foreign languages;
2. To identify differences between the writing processes of skilled and unskilled writers in both languages.

METHOD

To gather a maximum amount of information about the writing processes of advanced foreign learners writing in their native and foreign languages, I decided to use a combination of input-output and process-tracing methods of

¹ This theory is summarized very briefly in footnote 11.

exploration.² Subjects composed aloud in Polish and English³ and their verbal reporting of concurrent thought processes was taped for the purpose of drawing a verbal protocol.⁴ Apart from asking them to think aloud, I observed them during their writing to draw a behavior protocol.⁵ After my subjects had completed their writing tasks, I analyzed their written products in both languages, concentrating here on the types of revisions they had introduced.

SUBJECTS

Thinking-aloud protocols provide the investigator with the richest data imaginable: for each page of composed text there may be twenty pages of protocol. In fact, this sometimes turns against thinking-aloud protocols as a research tool because analysis of the twenty pages requires a great deal of work. Because of this and because I decided to conduct thinking-aloud research in conjunction with drawing behavior protocols and analyzing the written products of my subjects, the work I faced accumulated to an even higher degree. For these reasons, as well as because of a limited pool of potential subjects to draw from, only three students took part in the experiment. They were randomly selected representatives of three groups of students whose status as skilled, average and unskilled writers respectively had been identified empirically in another study researching the writing processes of intermediate/advanced foreign language learners composing in their native and foreign languages (Skibniewski and Skibniewska 1986). At the time of execution of this study my three subjects were all fourth-year students of

² To understand the relationship between the two types of methods, we can use the following metaphor (after Hayes and Flower 1983): When we use input-output methods to study writing, we act as if the writing process were occurring in a locked room which we cannot enter or look into. We put writers, writing assignments and reference books (inputs) into the room, and receive the finished text (output) at the door. By varying the inputs and observing their effects on the output, we infer what the writing process must have been. When, however, we use process-tracing methods, it is as if in addition to the data above we had a window allowing us to look into the locked room and observe some of the processes which lead inputs to output.

³ The Polish assignment was: "Describe in approx. 600 words what joys and what difficulties a young woman/man faces studying at the University. Your opinion will be published in a monthly bulletin for senior high school students." The English assignment was: "Write a three page essay explaining what it means to be an English major at the University. Your essay will be published in a monthly newsletter for high school students who take English courses."

⁴ In thinking-aloud protocols subjects report anything they are thinking while performing a task.

⁵ In behavior protocols investigators report what subjects do while they perform a task, but they do not ask subjects to report their thought processes verbally.

English (of Adam Mickiewicz University in Poznań), who may be thought of as advanced Polish learners of English with the past experience of seven semesters of a low-frequency course in writing.⁶ As two years had passed since they were identified as skilled, average and unskilled writers respectively, I treated this value-judgement as a working hypothesis to be verified by independent evaluators unaware of my assumptions. My hypothesis was confirmed.

RESULTS

As far as the first goal is concerned, this study has confirmed all the assumptions of the Cognitive Process Theory of Writing postulated by Hayes and Flower (1980) as well as has provided some additional information which helps in describing the writing processes of expository prose in more detail.

As to the second goal, the study identified distinct differences between the structure and course of the writing processes of the skilled and unskilled student writers composing both in their native and in their foreign languages

1. Quality of writing

Upon the completion of their writing tasks, the subjects' written products were graded by two independent evaluators unaware of the purposes of the experiment as well as unaware that each subject wrote one text in English and one in Polish. Below I present the results of their grading carried out according to the holistic scale of evaluation used in my Department:⁷

TABLE 1

	essays in English		essays in Polish	
	evaluator A	evaluator B	evaluator A	evaluator B
subject 1	4.25 ^a	4.5	4.5	5
subject 2	3.25 ^a	3.5	3.25 ^a	3.5
subject 3	2.5	2.5	2.5	3

Analysis of the grades listed above shows that subject 1 can be regarded as a skilled, subject 2 as an average, and subject 3 as an unskilled student writer in both languages.

⁶ Low-frequency as meeting only once a week for a 90 minute period.

⁷ The scale consists of seven grades: 2, 2.5, 3, 3.5, 4, 4.5, 5; grades 2, 2.5, 3 indicate poor quality; grades 4, 4.5, 5 indicate high quality.

^a Here evaluator A hesitated between grades 4 and 4.5.

^b Here evaluators A and B hesitated between grades 3 and 3.5.

TABLE 2. COGNITIVE PROCESSES INVOLVED IN COMPOSING

Writers	English essays										Polish essays													
	PLANNING PROCESSES										PLANNING PROCESSES													
	Goal Setting					Goal Setting					Goal Setting					Goal Setting								
	Global Goals		Procedural			Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word phrase or collocation	Satisficing	Total	Global Goals		Procedural			Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word phrase or collocation	Satisficing	Total				
audience	purpose	self	rhetor.	tactics	plan						audience	purpose	self	rhetor.	tactics						plan			
skilled	4	4	6	13	21	49	12	109	8	4	3	24	32	28	10	104	8	4	3	24	32	28	10	104
average	—	—	—	10	6	23	2	41	—	—	—	9	9	22	5	45	—	—	—	9	9	22	5	45
unskilled	—	—	—	7	3	7	1	18	—	1	1	5	7	10	1	25	—	—	—	5	7	10	1	25
Writers	TRANSLATING PROCESSES										TRANSLATING PROCESSES													
	Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word phrase or collocation	Satisficing	Total	Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word phrase or collocation	Satisficing	Total	Generating next sentence or its part	Searching linguistic expression of meaning	Searching best word phrase or collocation	Satisficing	Total									
																32	5	12	2	51	53	5	8	1
	average	6	8	7	—	21	10	20	—	30	68	8	4	—	80									
unskilled	21	11	24	—	56	—	—	—	—	—	—	—	—	—										

Writers	English essays										English essays															
	Rereading					Revising					Rereading					Revising										
	current sentence	group of sentences	paragraphs	whole text	Evaluation	Rhetorical Revision	Stylistic Revisions	Total Revisions	current sentence	group of sentences	paragraphs	whole text	Evaluation	Rhetorical Revision	Stylistic Revisions	Total Revisions										
																	paraph structure and organ.	overall organization of essay	making content more precise	making content more precise	syn- tax	spel- ling	lexi- con			
skilled	20	3	8	1	10	5	1	15	8	6	3	13	51	92	37	8	12	1	18	5	6	5	10	43	119	
average	10	1	—	1	10	4	1	8	12	14	3	27	69	92	20	6	3	1	18	13	24	6	15	31	104	153
unskilled	32	5	2	2	35	1	—	5	5	5	6	6	26	102	40	5	5	—	49	—	6	6	3	15	36	137
skilled	37	8	12	1	18	5	—	12	6	5	5	10	43	119	20	6	3	1	18	13	24	6	15	31	104	153
average	20	6	—	1	10	4	1	8	12	14	3	27	69	92	40	5	5	—	49	—	6	6	3	15	36	137
unskilled	32	5	2	2	35	1	—	5	5	5	6	6	26	102	40	5	5	—	49	—	6	6	3	15	36	137

2. The course and structure of the writing process

Observation of the writers' behavior combined with access to their concurrent reporting of their thought processes unequivocally revealed that composing in both languages they all proceeded by orchestrating three major cognitive processes: PLANNING, TRANSLATING and REVIEWING.¹⁰ Table 2 above lists all the occurrences of cognitive processes as well as their subprocesses during the time of composing. It is maybe worth noting that the classification of the subprocesses is a result of a laborious matching of thinking-aloud protocols with the corresponding fragments of behavior protocols.

As to the structure of the writing process which has emerged from my study, it definitely confirms a hierarchical (especially in the case of the skilled writer), and a highly embedded (in the case of all subjects) organization. Indeed, each of the three major processes was called upon a number of times (see Table 2) and embedded within another process or even within an instance of itself.

Thinking-aloud protocols of my subjects have also revealed that writing is indeed a goal-directed thinking process. All three writers proceeded in the direction they had set up when deliberating over what their assignment demanded from them. It was, however, apparent that only the skilled writer proceeded by building a growing network of hierarchically organized goals. The average writer's network of goals was organized in part hierarchically and in part sequentially. The unskilled writer's goals had a clearly sequential organization.

¹⁰ (After Hayes and Flower 1980 and Flower and Hayes 1981): The function of PLANNING is to take information from the task environment and from long-term memory and to use it to set up goals and to establish a writing plan to guide the production of a text that will meet those goals. The function of TRANSLATING is to transform the meaning generated and organized by the planning process into a linear string of written language. The function of REVIEWING is to improve the quality of the text produced by the translating process by detecting and correcting weaknesses in the text.

According to Flower and Hayes (1981), these three thinking processes have a hierarchical, highly embedded organization: the thinking-aloud research that they conducted revealed that any given process may be called upon at any time and may be embedded within another process and even within an instance of itself. Writing is a goal-directed thinking process guided by the writer's growing network of content goals (which specify what the writer wants to say or do to his audience) and process goals (which instruct the writer how to carry out the process of writing). Good writers create hierarchical networks of goals in which higher-level goals give direction to their subsequent moves in which middle-range, and further on, lower-level goals are created. Poor writers, on the other hand, will either depend on very abstract, top-level goals stopping short of developing them into middle-range or low-level goals, or, alternatively, they will depend on very low-level goals, such as finishing a sentence or correctly spelling a word.

Finally, this study shows that there are distinct groupings of planning, translating and reviewing processes, groupings involving the orchestration of all cognitive processes, where one of the three processes prevails. This is not a novel finding: the sequential ordering of the writing process has been postulated by such researchers as Emig (1971), Stallard (1974), Pianko (1979a, 1979b), Perl (1979). Hayes and Flower's Cognitive Process Theory of Writing has, however, revolutionized our understanding of the structure of the writing process as it has identified the cognitive activities whose orchestration underlies the sequence of planning → translating → reviewing. The grouping of cognitive processes in which PLANNING prevails can be referred to as the stage of Producing Text One. Similarly, the grouping of processes in which TRANSLATING prevails can be referred to as the stage of Producing Text One, while the grouping of processes in which REVIEWING prevails can be referred to as the stage of Reviewing Text One. Optionally, the average and unskilled writers engaged into a grouping of cognitive processes in which REVIEWING and TRANSLATING prevailed, a grouping which can be referred to as the stage of Producing Text Two, which was a revised version of Text One.

3. Differences between the writing processes of the skilled, average and unskilled student writers

a) Results

PLANNING. The most drastic differences could be observed within the planning process: The unskilled writer initiated her planning process (when composing in both languages) on the average slightly above 20 times during the entire writing process, the average writer did twice as many activities, whereas the skilled writer undertook as many as five times more instances of planning. This finding is significant at over 0.001 level for both languages¹¹.

It is also worth looking at the character of the planning activities: The unskilled and average writers did not virtually undertake any global goal-setting in either of the two languages¹², whereas the skilled writer resorted to global goal-setting about 15 times in both languages. This finding is significant at 0.01 level. As for procedural goal-setting, the unskilled writer set herself 10 goals during her writing processes in each language, the average writer did that about 1.5 times more often, while the skilled writer did the same thing over 4 times more often in both languages. This finding is significant at over 0.001 level.

When composing in English, the unskilled writer turned to planning content

¹¹ This and all the following statistical tabulations of the significance of my findings were done using the Chi-Square Test.

¹² The unskilled writer did this twice when composing in her native language.

only 7 times during the whole writing process, the average writer did that 3 times more often and the skilled writer 7 times more often (significant at the 0.001 level). Composing in Polish the unskilled writer planned content about 10 times, the average writer twice as often and the skilled writer 3 times as often (significant at 0.05 level).

As far as organizational planning goes, when she composed in English, the unskilled writer organized her content only once, the average writer did that twice, the skilled writer undertook organizing his ideas 12 items. When she composed in Polish, the unskilled writer organized her content again only once, the average writer 5 times, and the skilled writer 10 times. Both findings are significant at the 0.01 level.

TRANSLATING. During her writing process in both languages the average writer undertook translating on the whole some 25 times, while the skilled writer did the same about 2.5 times more often, and the unskilled writer 3 times more often (significant at the 0.01 level for both languages).

REVIEWING. Within the reviewing process the unskilled writer introduced some 30 revisions in each of the two language versions, whereas the skilled writer made about 1.5 times more corrections, and the average writer about 3 times more corrections (significant at over the 0.001 level for both languages).

Significantly enough, as many as 40% of all skilled writer's revisions in both languages were of global nature; only 27% of all average writer's revisions in both languages were of global nature, whereas as few as 20% of all unskilled writer's revisions were of global nature (significant at the over 0.01 level).

b) *Interpretion of Results*¹³

It seems that writers who have planned their prose substantially and sufficiently and who have developed their hierarchically organized plans into the prose of their text, have no reason to engage in elaborate reviewing (my skilled writer). On the contrary, it seems that inadequate and insufficient planning results in numerous revisions, provided that the writer has some sense of what an effective piece of expository prose should look like (my average writer). Inadequate and insufficient planning combined with ignorance of, or indifference for, the characteristics of effective prose lead to poor quality of writing no matter how much effort and compassion is put into the writing process during translating (my unskilled writer).

To conclude this discussion of the differences between the writing processes of my subjects, I would like to point out the crucial significance of the cognitive process and stage of planning:

¹³ Where I use the plural 'writers' in this section I refer to the observations made both in this study and in its preceding 'parent study' reported in Skibniewski and Skibniewska (1987). Where I use the singular 'writer' I refer specifically to the findings of the present study.

The average total writing time of the writing process in both languages is very similar for both the skilled and unskilled writers¹⁴: it was 199 min. (SD=35) versus 203 min. 30 sec. (SD=1.5) for the skilled and unskilled subjects respectively. The solution to the puzzle as to what brings about a better quality of writing in the skilled writer's prose lies probably in the distribution of this time among the cognitive processes undertaken by the subjects as well as in the internal structure of the processes. The skilled writer planned for 48 min. (SD=19) undertaking 43 planning activities (SD=15) before even starting to compose the text proper, while the unskilled writer did this only for 5 min. (SD=0.5) undertaking as few as 7 (SD=1) planning activities. Further on, the skilled writer returned to planning during the stage of text production as many as 66 times (SD=16), while the unskilled writer did this only 14 times (SD=4). Throughout his planning activities the skilled writer set up 60 goals (SD=11) which included 15 global goals (SD=1), while the unskilled writer set up only 12 goals (SD=2) which included only 1 global goal (SD=1). Additionally, the skilled writer organized his goals into hierarchical networks which guided his composing, a type of organization absent from the planning activities of the unskilled writer. In fact, the few goals that the unskilled writer set up for herself were restricted to the tactics of composing the surface structure of her sentences.

All in all, the skilled writer produced an elaborate network of hierarchically structured goals in the planning stage often returning to the process of global planning during the stage of text production. The unskilled writer, on the other hand, produced a very basic sequence of linear goals in the planning stage returning to the process of planning only very occasionally and for the purpose of solving problems of a very superficial nature in the stage of text production. It is in the attitude toward the stage and process of planning that I see the major qualifying difference between the writing processes of skilled and unskilled writers, irrespective of whether they are composing in their native or foreign languages.

In this respect the findings of my study differ substantially from the now traditional beliefs of the investigators researching the writing processes of skilled and unskilled writers (cf., e.g., Stallard 1974, Pianko 1979b). Their findings indicated that skilled student writers introduced more revisions than other writers and that they stopped more often to reread what they had written. The results of my study seem to suggest that the investigators in question encountered in their research only average (whom they took for skilled) and unskilled writers. Had they encountered truly skilled writers in their research,

¹⁴ To draw a conclusion pointing to some instructional implications we need only to compare the extreme cases of the skilled and the unskilled writers, leaving the middle-of-the-road one aside.

they would have identified as the major difference between the writing processes of skilled and unskilled student writers the amount and character of planning rather than reviewing activities. This is the strong version of my hypothesis about the course and structure of the writing processes of skilled and unskilled, or effective and ineffective writers. The weak version might be formulated as follows: adequate emphasis laid on the stage and process of planning leads one to efficiency in writing effective expository prose. It is not theoretically impossible to arrive at effective expository prose for weak planners, but to accomplish this they have to go through a laborious process of multiple revisions of the successive versions of their prose, a process which has very little to do with efficiency and a great deal to do with superfluous expenditure of time and effort.

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