A 6-month case study of one adult composing in both his native and second language was undertaken to examine the complexity of second-language composing and the relationship between processes in the two languages. Two thinking-aloud protocols were collected from the subject, who was composing in response to a writing task. The first data were collected in his second language, English, and the second set was collected in his first language, Portuguese, 6 months later. After each task, he was interviewed about the task and his composition. Protocols and interviews were transcribed and coded for specific writing processes (translating and reviewing) and subprocesses (generating, goal-setting, evaluating, revising). Striking similarities were found in the processes used in the two languages, with the overall goals-to-text model evident in each. Initial problem representation and high-level goal structure were clear. Differences occurred in the efficiency of attaining these goals. Difficulties in reaching high-level second-language goals occurred because of occasional inability to translate, some low-level skills that were not fully automatic, and difficulty in structuring first-language knowledge in a second-language format. Additional research is recommended. A 26-item bibliography is included. (MSE)
A Study of Composing in a First and a Second Language

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The past decade has seen extensive investigation in first language (L1) composing processes. As Zamel has stated, the importance of this research is based on the assumption that "before we know how to teach writing, we must first understand how we write" (1982, p. 196). Only recently has significant research been conducted, however, concerning the processes of composing in a second language (L2).

In order to establish a valid theoretical foundation for teaching ESL composition, much research of varying types is needed. Of the published studies examining adult second language writers, few have observed subjects also composing in their first language (Jones and Tetroe, 1987). Apparently it has been assumed that the way in which these writers compose in their L1 is either irrelevant or identical to their L2 composing. When considering unskilled L2 writers, however, one wonders if this lack of skill is a transfer from equally unskilled L1 composing, or if it is due to additional variables such as the nature of composing in an L2, individual fluency in the L2, familiarity of the writing task in either the L1 or L2, and rhetorical and content schemata that may be either L1- or L2-based.

Writing in an L1 is a complex act composed of cognitive, affective and socio-cultural domains (Rose, 1985); writing in an L2 may be considerably more complex. In an attempt to examine this complexity and the relationship between first and second language composing processes, a six month case study of one adult composing in his L1 and L2 was conducted. Although it is impossible to generalize from a single case study, an exploratory study such as this can help identify some aspects of L1 and L2 composing that merit future extensive investigation with numerous subjects.

Case Study of Composing in a First and Second Language

The research was begun with numerous exploratory questions. Are L1 and L2 composing processes the same for the subject in
responding to similar tasks? If not, how do they differ? What is the interaction of the L1 and L2 in these processes? How is the L1 used, if it is used, in L2 composing? Are there indications of its use in planning, reviewing or monitoring? Is the rhetorical problem viewed in terms of L1 or L2 knowledge and experience? Are planning and organizing dealt with according to L1 or L2 models?

Prior to observation it was hypothesized that overall writing strategies would be similar in L1 and L2, especially in problem representation, high-level goal creation and planning to achieve these goals, assuming that such strategies existed in the subject's L1 composing process. It was further hypothesized that differences might exist in the fulfillment of low-level goals, depending on the subject's fluency in English (his L2) and the extent to which his L2 low-level skills had become automatic.

Method. Two thinking-aloud protocols were collected from the subject composing in response to a writing task/prompt. The first data were collected in June, 1984, in his L2, English. The second were collected in December of the same year, in his L1, Portuguese. The data were collected on a tape recorder in his home. The English task took him approximately eighty minutes to complete, whereas the Portuguese task took approximately one hundred minutes. After each task, an informal interview about the task and his resulting composition took place.

The rationale for using a thinking-aloud protocol method of data collection follows Ericsson and Simon's (1980) discussion of the validity of this form of verbal reporting. A protocol is certainly not a definitive examination, but it is especially suitable for exploratory work such as this. Swarts, Flower and Hayes (1984) discuss the importance of protocol studies in composing process research. In addition, they discuss some of the limitations of this research, as have Odell, Goswami and Herrington (1983). Flower and Hayes' protocol research has been criticized by some, including Cooper and Holzman (1983).

Subject. Manuel, a native of Portugal, had been living in the United States for close to four years at the time of the first protocol. He had studied economics at a Portuguese university for three years prior to his arrival in this country. While in Portugal he had also studied English as a foreign language for roughly two years. He later transferred to an American college where he studied management for two years. At this college he was required to take
an intermediate course in writing ESL, a "freshman" composition course for foreign students, and business writing.

At the time of his English protocol, he had not written an academic composition for over a year. A few times a month he had written short business letters in English. At the time of his Portuguese protocol, Manuel estimated that he had not written an academic essay in Portuguese for five years, and since he has lived in the United States, he has written only informal letters in Portuguese.

**Task.** For each protocol Manuel was asked to write a composition in response to a task/prompt. In selecting appropriate prompts, there was a particular concern for topic control and validity of cross-analysis of data. It was necessary to use comparable topics that would still differ so that despite a six-month interim between protocols, the first task would not influence the second task. For this reason, two prompts were chosen that had been statistically shown to elicit comparable holistically-graded compositions in a study by Witte, Meyer, Cherry & Trachsel on native English speaking students (forthcoming). The L1 prompt asked the subject to write a composition discussing the role of education in American society. The L2 prompt asked him to discuss the role of money in our society.

**Analysis of Data.** All taped data from the protocols and interviews were transcribed. Later, the material was coded according to the basic processes of translating and reviewing and the subprocesses of generating, goal-setting, evaluating and revising as described by Flower and Hayes in their 1981 model of composing processes. Metacommments were noted, as well as the language in which they were spoken. Since "translation" is a potentially confusing term when working with bilingual subjects, the term "transcription" was used to describe the act of writing on paper and "translation" retained its traditional meaning.

As Swarts, Flower and Hayes (1984) emphasize, "there is no single, correct way to analyze protocols: one's method is ultimately determined by the task, the subjects, and the research questions to be answered" (1984, p.56). Therefore, the exploratory questions and hypotheses outlined above helped determine the method used in analyzing the protocols of this particular study. Flower and Hayes' (1981) model of cognitive processes in writing provided the basis for analysis of the protocols. In addition, various types of goal-
setting were analyzed according to those which reflected declarative or substantive knowledge and those which indicated procedural knowledge (Gagné, 1985), essentially distinguishing between content and structural schemata. Within procedural goals, goals which indicated process and those which emphasized structure of the writing task were further distinguished. In addition, both substantive and procedural goals were analyzed as either high-level (H), mid-level (M), or low-level (L). Appendices A, B, and C present sample data coded and analyzed according to this method.

Observations

Overview of composing process. The basic model of composing process evident in both of the subject's L1 and L2 protocols is a goals-to-text (Witte 1985) model, a term used to describe a process whereby a writer first generates ideas, then establishes goals, next generates more material and finally transcribes the text. Although some of his long generating episodes (evident in his L2 protocol) appear characteristic of a text-to-goals or "discovery" model, all of these episodes can be traced back to the initial generation of ideas and the structure of high-level goals. In his L1 protocol, once Manuel began transcribing text he rarely stopped to generate material or even revise. His few changes in processes after transcribing text were for reviewing within the paragraph he was writing. The marked difference in generating and transcribing in the L1 and L2 is evident from a word count of the two protocols and resulting compositions: L2 protocol = 4964 words, L2 composition = 480 words; L1 protocol = 2297 words, L1 composition = 778 words.

In both his L1 and L2, Manuel began transcribing notes from the outset, as soon as he had generated major points to discuss. This occurred after rereading/reviewing the L1 prompt, and immediately after the initial reading of the L2 prompt. In both languages he produced two different sets of notes: one of the initial ideas not used in the transcribed text, and another of specified ideas in phrases set up in a tentative outline format. These ideas were used, but the wording was changed upon transcription. The tentative outline established the overall structure of the essay. When he transcribed his L1 text, Manuel rarely referred back to his outline, notes or prompt. Most of the content, however, is contained in the outline and related directly to the prompt. This may be an indication of
easier and more accurate long-term memory (LTM) recall in the L1. While transcribing text in his L2, however, Manuel referred back frequently to his outline and the prompt, perhaps indicating that writing in his L2 is more taxing on short-term memory (STM). This may relate to performance components in composing as described by Scardamalia, Bereiter and Goelman (1982). Their work shows how speed of memory searches, STM limitations, and demands for attention on STM can affect cognitive processes in writing. Additionally, it should be noted that in this study thinking aloud in an L2 may possibly demand even more attention from STM.

The rhetorical problem. As Flower and Hayes (1981) note, writers only solve the problems that they represent to themselves. In both L1 and L2 studies, Manuel solved the problems he represented to himself. He clearly stated his interpretation of each problem in the protocols. Although it could be argued that Manuel did not approach either topic from a "typical" American point of view, nor perhaps "solve" the problem as some Americans would have, it is clear from his protocols that Manuel solved both problems according to his representation. That he did not represent nor solve the writing problem in the same way as perhaps a "typical" American would, may be a reflection more on the significant effect of prior knowledge and cultural experiential bases on reading comprehension than on composing processes per se.

Long-term memory. In the L1 generating episodes, there is evidence of three major schemas, but it is difficult to judge if this declarative knowledge is L1- or L2-based. Structurally, Manuel approached the topic in a historical/chronological manner but transformed this chronological structure schema into an expository structure while transcribing text (Compare Appendices A and B).

Long-term memory in the L2 task appeared quite different. Throughout his long generating episodes, Manuel pulled information from his L1 knowledge base and verbalized this information in the L2. This caused difficulties for him in interference of some non-translatable items and may also have made structuring the problem more difficult. As in the L1 task, he took a historical/chronological approach but had problems in altering this structure in transcription, possibly due to inappropriate culture-specific structure schemata. Perhaps Contrastive Rhetoric may be used to investigate these schemata and their relationship to the overall composing process in this second language writer.
Generating. In the L1 protocol, Manuel's generating was directed to the represented problems. It was particularly efficient in that almost all of his generated ideas were used later in transcription. Any ideas that were not used, were not directly relevant to the topic. Once transcription of text began, very little generating occurred. In the L2 protocol, brainstorming and generating were also well directed since the problem had been conceptualized. His L2 protocol was characterized by lengthy generating episodes, ranging from ten to twenty-six clauses during the first half of the protocol. These seem to be used more for content clarification than for generating pre-text (Witte 1987), and many of these generated ideas were never transcribed. Once transcription of text began, generation only occurred in small episodes within transcribed text (See Appendix 3). Manuel discussed this in his post-composing interview; he was aware that he was working out orally the problem in his mind but later knew that much of the generated material was not "on topic" for a short essay. Thinking-aloud while composing probably reinforced this generating, but as Raimes (1985:251) has noted, the technique may actually be a helpful writing strategy for ESL students.

Goal setting. In both L1 and L2 protocols, high-level goals were established from the outset; high substantive and procedural process goals were created immediately before the first long generating episodes. At times in the L2 protocol, however, Manuel had difficulty in moving from high goals to transcription. These situations were often accompanied by a low-level procedural process goal and a metacomment or comment in Portuguese, in his L1 (See end of Appendix 3).

When composing in either language, Manuel generally did not concern himself greatly with low-level goals, even when they became important in rereading and revising his texts toward the end of his composing session. Despite problems he felt he had in finding the "right" word in his L1, as mentioned in his post-composing interview, Manuel often appeared satisfied with his initial word choice. Spelling problems in the L2 were avoided by either changing the word or enclosing it in quotation marks. Although he did not usually hesitate or search for low-level procedural goals, he did for low- and mid-level substantive goals in both languages.
Reviewing. Dissonance was perceived at high levels throughout generating and transcribing in both the L1 and L2. Only in his L2, however, did Manuel frequently review the prompt as an evaluation tool. When questioned about the absence of this in his L1 protocol, Manuel replied that the L1 prompt was straight-forward and was easy to remember, so he didn't need to review it often. Considering the statistical reliability of both prompts, the L1 and L2 seem to be the major variables here. This may be another indication of STM limitations when composing in the L2 - a difficulty of retaining new L2 information in working memory while thinking aloud and composing.

Low-level errors in his L1 composition were usually corrected at the point of utterance. Generally, Manuel paid little attention to low-level concerns, perhaps a sign of a skilled writer whose fundamental language skills have become fully automatic.

This lack of concern over low-level problems, when transferred into his L2 composing process, was actually detrimental at the final stages of completing his L2 task. Many errors, mainly Portuguese transfer errors, went by unnoticed during reviewing. At other times these same grammatical errors were revised at the point of utterance. Adverbs and adjectives were correctly revised in some spots but not in others. This may have been due more to carelessness than lack of ability in English since the L2 essay was actually left uncompleted and little time was spent rereading and editing. However, this may also indicate a lower frustration level in L2 composing. Manuel readily gave up at the end in creating a final perfect product. He was more interested in accomplishing his main goals, of solving the problem and writing his solution in a structured manner, than of producing a polished essay. We need to keep in mind, though, that the subject knew these essays would not be graded.

Conclusions

There are striking similarities between Manuel's L1 and L2 composing processes. His overall goals-to-text model is evident in composing in each language, and his initial problem representation and high-level goal structure is quite similar. Differences occur in the efficiency of attaining these goals.

Manuel had some difficulties in reaching his L2 high-level goals for a few reasons. First, most of his generated material was L1 knowledge which he literally translated during generation. At times
he was unable to translate concepts and this interrupted his composing process. He had strategies to solve these problems, such as writing a Portuguese word within quotation marks, asking the observer for a translation, or modifying his idea to fit known English terminology. Despite these helpful strategies, his train-of-thought was often disturbed and he had to review previously translated and/or generated material to re-establish high-level goals.

Secondly, some low-level skills were not fully automatic in his L2. This created problems in reviewing and revising, but most importantly, in occupying working memory and preventing full concentration on high-level goals. It is quite possible that the act of talking aloud created additional demands on working memory when English oral skills were not automatic. This is an important area to investigate, especially if researchers continue to use the valuable research tool of thinking-aloud protocol analysis in investigating L2 composing processes.

Third, there is evidence that Manuel associated closely the L2 topic with L1 knowledge and had difficulties in structuring the knowledge in an acceptable L2 format. He sensed that his natural narrative pattern was inappropriate, and, therefore, he needed to consciously restructure narrative generated material into an expository structure.

Still, one cannot consider Manuel a basic or novice writer in his L2. He is not preoccupied with low-level problems at the expense of higher-level goals. Similarly, he is not bound by grammatical rules like some ESL students are. He is able to go beyond these rules to use language as a generative means of composing. Other characteristics separate Manuel's L2 protocol from that of a novice writer: The task is constructed and represented easily, high-level goals are constructed and retained throughout, mid-level goals are created and used in production to reach high-level goals, and the produced text is evaluated frequently against intentions. It is clear that the assessment of a basic writer is put here in terms of process, not written product. Raimes (1985: 231-2) discusses the problems and inconsistencies of various researchers in defining basic or unskilled writers. Any comparisons made among studies need to distinguish clearly between assessment of writers' skills through process or product.

Few generalizations should be drawn from this study of one individual composing in a first and second language to L2 adult composers as a whole. Tremendous individual differences can exist in degree of L2 fluency and L1 writing skills. This study does,
however, indicate that additional research is greatly needed in observing L2 composing processes. Only by examining composers of varying degrees of L2 acquisition, may we begin to understand the relationship between L1 and L2 composing processes.

REFERENCES


Appendix A

English Translation of L1 protocol

Key

/ slashes / Thought segment
Underline Transcribed material
Italics Reading of text

Capital Letters Appearing Above Text

| L | Low | PPG | Procedural Process goal |
| M | Mid | PSG | Procedural Structure Goal |
| H | High | SG | Substantive Goal |

... How would it be seen, what would be the best manner to make one, to briefly write something, / the best way of organizing to do something quickly, that does not take a long time ... yes, what is the best way. / I think I am going to write several things ... / The title, really, the role of education in the American society. / The role of education in the American society. / It is very clear in the text that when they refer to education in the American society, they refer to institutional education, to the education in the school, / it doesn't refer to education in the family, the moral education, that depends on the society in general, in the school, in the institutions... ... / The role of education in the American society. / Several things. / It is important to make a historic reference. / In the text presented, it
refers to the forefathers of this country. / The forefathers... / of
the fatherland refer to it is referring to Washington, Jefferson, ... the
founders / Washington, Jefferson, / and others, Adams. / No, it is
not important the name, / it is important. / Was it not Jefferson that
was very ingenious, that wrote books about aspects of small
inventions, or something like that.../ ...It is true that since the
foundation of the United States ... there is a great mixture of people
who came from many different places, / they came here, / because in
Europe there was not freedom to do everything one wanted to do. / In Europe, one had to do in accordance with what the ruling parties
accepted, / if one was not on the side of the government, they
would become, / but, if one was not accepted /then, the people
came here, where they had the freedom to develop the inventions
they wanted to make. / In the beginning there were not many rules,
/ then, the people were making them ... / Then [the country] grew
... / and in the East, ... in the East of the United States, New York,
... / in that area it became more organized, it starts to exist ... / then
they took advantage of technology that was used in Europe, / the
Industrial Revolution in England ... the people that came here used
the same methods ... /only that they didn't have the same, ... they
were not under a social c.rganization like that one in England. /
There was more freedom to pay what they wanted, really, the
relationships of labor and money, of capital. The forefathers'...
... Many schools were founded, many schools were founded,
schools, institutions, universities, many institutions, ... many
schools were founded last century. ... But many of the
innovations, ... many of the innovations appeared outside of the
school. They appeared from people that were ingenious.
The role of education in the American society. / What would be the best way to make an introduction / .../ ...for many people, / ...

For many people history may seem a little / but ... in the United States of the North America they prove ... that really ... it is not only very ... / it is really enormous ... ... / 'it is really enormous ' .../

(rereads what just wrote) ... / Since the forefathers, ... / I am referring to the politicians who worked for the independence of this nation, / (rereads phrase) ... / the people / ... how can I say that ... / the people ... / the people / had ... / humm ... / have education, / how can I say it? ... / (rereads phrase) / ... O.K. / the people ... / always had the freedom of doing what they wanted. / how they wanted it. / to experiment new inventions, educate themselves / and revises to educate / ... and finally / to educate / the population in general. / It is not placed in the best way but I don't know ... / It is possible to divide ... / It is possible to make reference to perhaps three aspects, or divisions to observe better/ the process how the Americans have acquired formal knowledge, ... / First it is to refer
to the historic development of the country and the its senses as like a human being in becoming more educated. Another aspect will be or would be... the role of society, that is i.e., LPSG Meta institutions or groups and the education. Third, no... Another one refers to the individual and education. Firstly, It was the individuality to experiment making inventions, to express without the barriers that some have found when they lived in Europe. This is more evident, or particularly... the example of Thomas Jefferson, the ingenious and inventive president. (rereads sentence after tape is turned over) But it continued during the nineteenth century, there were always inventors, some came from Europe others were born in America. It is possible to find great names such as Ben Benjamin Franklin and others and others... This continues in the twentieth century, twentieth first those that had a better economic situation were enrolled in some of the few universities in the East. Today these universities are the pride of the United States in the role that they (universities) had in participating in the development of this country. All Americans know names such as Harvard, Yale, Columbia, etc. (whistles a little)...
Appendix C

English (L2) Protocol
(Refer to key in Appendix A)

And this is a basic concept of value here that is the basis of money today. /And this goes on, and there are several different places in the world where people try to have instead of carrying these gigantic things around -- one little thing is O.K., but when it gets to trading of several large things and as people produce more and more things get larger-- and to change these things people decided to have some kind of money printed like Carlos Magnum and uhh.../ Carlos Magnum issued coins with his face on and symbols or somehow... / and they had an assumed value. / And they were traded by things. / And people don't lose coins that have some value for trade./ They were easy to carry./ One of the objectives was that they were easy to carry. / Due to the need of keeping those coins in shape, they had a tendency to use silver or gold as the substance to make the coins. / They are scarce. / But in the beginning it is more because they keep their shape and since they are scarce, it would be harder to replace them and they for awhile they get their value almost from what is put into the coins. / And it had been that for a long time, several centuries it was that way. / Gold and silver were the basis of the
currencies of all of the countries until they knew that gold should be
the moeda padrão. / So, this explains equivalente geral. / It's not
easy in English in a short time. / Money and theory of value. / Uhh
... there is a relationship here. / There is theory of value. / There
are several definitions but what is the value of something is a
question that we can ask. / The value of things. / We have to go
farther and see the overall picture of the value of one thing because
as we saw, the value of a knife and a sheep to be traded depends on
the person. / But when converted to money those things... there is
... if I knew or if I had more surplus that I wanted to sell, there is
some market idea involving this. / But that would be the valor do
HSG
mercado. / But we should go to the essence of the thing. / How
long it will take to do it, what kind of work we need to do it, / we
HSG
HPSG
should go back and try to get a dictionary definition to start / and
value is the quantum -- is the amount -- of the work needed to make
objects, to make a product. / And that product translates into that
value. / But it would be the average, the world average work needed
to make that product that would translate the value. / It would be
very hard to calculate but it would be in essence what it should be. / And the problem since today we have international trade, it would
not be necessary to calculate in terms of a number, but if the trade
becomes fair and the product gets access .../ I don’t know how to say /... accessible .../ if the products reach the people / that knew that product, the market value and value should not have a big gap.

/ And this is shaping .../ we are going to see that this has a larger impact in shaping society because the quantum of work./...O.K..

LPPG

MSG

Let’s write a few things here. / So the topic is pretty well known. /

MSG

We’ll have money as the equivalente geral. / Money as equivalente geral. / So.../ objects of merchandise are converted into metal and later this money owned by a person is going to convert again into merchandise. / Let’s see an example. / Let’s suppose you make hats. / You sell your hats. / You get money for them. / With that, / with this / money you can acquire other things you need such as food, clothes, etc. / So, money was... / thus money was in between. / Was, / it was / the equivalente for your trade. / This money as an equivalente geral issued by the central bank in the USA, the Fed government, Fed Reserve or Federal Reserve, / let’s see/... this money as an equivalente geral issued by the central government, the central government here in the US, the Fed /

Reserve plays a broad role. / That is the equivalente geral. / Is,/ it is the thing that people use to measure value of other things when they trade, / when they are traded, they / are traded. / We have this .../
let's go check this question the page in the blue print... how is money valued compared to the way other things are valued? / Meta

Uhh... in other words, not were, money was in the past valued similar as other things were. But through the years Meta separate itself from those things. / O.K. / Let me write a little bit Meta more and then I'll stop. / Come on. / O.K. / I don't know where I Meta was. / Intervalo. Intervalo. / Let's see. In other words, money was in the past valued similar... similar-ly... as other things were but through the years separated itself from those things... / thus money appears today to people. / No, that appears today as something different than other things are. / In fact, money is different although once was similar and was, it was should be, it was / originated from a need of comparing things with the purpose of trading things. / Not a big composition yet but it's not bad. / Let's see. This explains already equivalente geral from some point of view, historic point of view, and although could be written a lot more, I think I could stop here for now and just check on our third point. / My third point relates with umm...