DO ESL WRITERS THINK IN L1 OR L2?

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Writing has become an important part of English as a second language programs at most levels in Taiwan since the late 1970s. It is a required course for English majors at the college or university levels in Taiwan. The inclusion of writing in English programs in recent years and wide acceptance of writing as a utilitarian skill by the general public speak for the importance of writing in our schools and society. However, the sad state of affairs in our profession is that stressing writing in ESL does not guarantee its success at the end of a program. The effectiveness of a program depends to a large extent on theoretical orientation, teaching materials, and pedagogy. As a matter of fact, teaching writing has posed a tremendous problem to the teachers and learning writing has been a hard task for the ESL learners all over the world and here in Taiwan there are no exceptions. The aim of this paper is to find answers to our problem in the title by examining research in the literature, responses from student surveys, and samples of student writing. The term ESL, English as a second language, is used interchangeably with EFL, English as a foreign language in our situation. L1 refers to a writer's primary or native language and L2 refers to a writer's second or foreign language, which in our case is English as the first foreign language.

Review of the Literature

Since the impetus given by Emig (1971) to the consciousness of writing as a process, composing processes in the primary language have been widely studied in the last two decades or so (Ney, 1974; Emig, 1979; Perl, 1979; Pianko, 1979, 1982; Steinberg, 1980; Faigley and Witte, 1981; Flower and Hayes, 1980a, 1980b, 1981, 1984; Rose, 1984, 1985; Flower et al. 1986; Hillocks, 1986; Huff and Kline, 1987). Briefly speaking, composing processes have been categorized into the prewriting, writing, and rewriting processes together with other organizing subprocesses. These composing processes as production strategies in writing have also been borne out in experiments (Page, 1974; Perl, 1979; Pianko, 1979; Matsuhashi, 1981; Stallard, 1974).

ESL researchers and teachers soon learned from the composing processes research in L1 and applied these composing processes to their ESL students in the classroom and research. A process-oriented approach took the place of the form and correctness of a finished product. Ungraded and uncorrected journals, written brainstroming, and content-based academic writing have been used in teaching ESL writing to maximize the effectiveness of composing processes (Spack and Sadow, 1983; Taylor, 1981; Zamel, 1982; Shih, 1986).

Writing processes in ESL have also been investigated by other researchers

(Edelsky, 1982; Lay, 1982; Zamel, 1982, 1983; Jones, 1985; Raimes, 1985; Arndt, 1988). Most of these studies have noted the similarities between composing in L1 and L2 However, the use of L1 and translation from L1 to L2 found in their research are most relevant to our interest and focus of study. Zamel's (1982) most proficient subject, a graduate student in English, wrote first in her native language and then translated it into English. Lay's (1982) subjects did somewhat differently in this respect. One of her students translated key words into her first language to get a stronger impression and association of ideas for the essay in her thinking and planning. But essays with such code switches were judged by Zamel to be "of better quality in terms of ideas, organization and details." Zamel's Chinese subject did almost the same thing. "If I have an idea, but I don't have the words, I write it in Chinese so that I don't lose it" (Zamel, 1983:179). Apparently, thinking in L1 has been involved in these ESL writers even though the researchers did not touch on this aspect in the writers' complicated composing processes. Nevertheless, these writers tended to think in L1 rather than L2 in their composing processes.

Also directly related to our study of thinking in writing is Kaplan (1966, 1967), comparing Greco-European rehetoric against principles and rules of written discourse in other cultures. Kaplan (1972: 1) elucidated his basic idea:

> It is apparent but not obvious that, at least to a very large extent, the organization of a paragraph, written in any language by any individual who is not a native speaker of that language will carry the dominant imprint of that individual's culturally coded orientation to the phenomenological world in which he lives and which he is bound to interpret largely through the avenues available to him in his language.

Kaplan (1967) cited many examples of paragraph structures in other languages deviating from those in English. He paid particular attention to Oriental languages, concluding that Chinese and Korean are circular in development while English is linear. However, he gave no examples written by Chinese students in his paper.

Kaplan (1972) went on to search for the source of Chinese rhetoric in the Eight-Legged Essay, and quoted a fifteenth-century author to prove parallels between ancient Chinese writing and compositions by contemporary Chinese students studying in the United States. His judgment was that the structure under scrutiny "is obviously not strong in its logic... and the paragraphs were conceived in pairs as complementing and completing each other (Kaplan, 1972:49). Among other things, Kaplan (1972) also remarked that some Oriental writing is marked by what may be called "an approach by indirection".

Of course, Kaplan attributed the awkward and unnecessarily indirect paragraph development in Oriental writing to contrastive rhetoric. He also attempted to produce a contrastive rhetoric for Chinese literature. However, Mohan and Lo (1985) strongly objected to Kaplan's contention. They preferred to explain the apparent differences in terms of pedagogical approach, amount of writing practice, students' knowledge and

general experience. Mohan and Lo even quoted Confucius and Mencius to prove that structures in Chinese are not different from those in English.

Lin (1989) scrutinized Kaplan's contention and found Kaplan's weaknesses in selecting the Eight-Legged Essay for comparison with contemporary narratives. Kaplan's types of text for analysis were not clearly specified and limited. Lin did agree with Kaplan that ESL paragraph structure written by Chinese university students is somewhat different; however, he contended that there are commonalities or universals as well as specifics in L1 and L2 rhetoric. Contrastive rhetoric is limited to specifics in L1, which are negatively transferred to L2 in writing. However, commonalities are positively transferred to L2. From this perspective, research in thinking and its relation to writing should seek structural universals and specifics in L1 and in L2.

Lin (1989) also refuted Mohan and Lo's claim that Chinese paragraph structure is the same as that in English and had serious doubts about the methods they adopted to reach their conclusions. Most importantly, Lin rejected Mohan and Lo's conclusion that difficulties in ESL academic writing are due to developmental factors because their subjects between 16 and 35 years of age were unable to write in L2 competently by transferring from L1.

After having examined his protocols and considered other cases in the literature from the top-down and bottom-up processing perspectives, Lin (1989) suggested that ESL writers think in L1 which is their dominant language in use. However, such a suggestion is only limited to his subjects or ESL writers who are not bilinguals in a strict sense. Moreover, by investigating his student surveys and interviews and comparing remarks made by his subjects with the protocols, Lin established that his students were thinking at the sentence level in L1 while they were writing in L2. As thinking in L1 and L2 at the discourse level was beyond his study, no mention was made about this respect in Lin's (1989) chapter on discussion.

Thinking and Inner Speech

Our comprehensive review of the literature with particular reference to thinking and writing covered different approaches with various focuses. Although it was supposed to be an up-to-date review of thinking and writing in L1 and L2, no clearly delineated answers could be found to our satisfaction. It is advisable, therefore, for us to tackle our problem from other academic disciplines. First of all, we may define "thinking" and then clarify the relations of thinking with language.

The Russian psychologist Vygotsky (1962) may give us the best definition of thinking and the best description of the interrelationship of thinking and language. According to Vygotsky, verbal thinking covers the greatest part of thinking. Our thinking in writing is verbal thinking. For the sake of brevity, we will use thinking to refer to verbal thinking in this paper.

The concept of inner speech proposed by Vygotsky explains how a writer conceives meanings and conveys them to his readers:

> Inner speech is not the interior aspect of external speech. . . . it is a function in itself. It still remains speech, i.e., thought connected with words. But while in external speech thought is embodied in words, in inner speech words die as they bring forth thought. Inner speech is to a large extent thinking in pure meanings. It is a dynamic, shifting, unstable thing, fluttering between words and thought, the two more or less stable, more or less firmly delineated components of verbal thought (Vygotsky, 1962:149).

Inner speech is thinking in pure meanings. It connects words and thought. We think in pure meanings of words, but in inner speech, words die they they bring forth thought. Inner speech is the most important part of thinking in writing. Ideas to write about are generated at this stage. Inner speech will become external speech in its written form by putting in words in their syntactic framework. Therefore, writers need vocabulary items to draw on meanings and syntactic devices to connect these items in good syntactic order and form.

Vygotsky regards inner speech as an autonomous speech function: it is a distinct plane of verbal thought. This inner plane of verbal thought will move from inner to outer planes, "from the motive which engenders a thought to the shaping of the thought, first in inner speech, then in the meanings of words, and finally in words (Vygotsky: 1962:152).

We think Vygotsky's model of verbal thinking involving inner speech, meanings of words and words is a good concept. Moreover, this model seems to be the process of our verbal thinking in writing. For these two reasons, we would like to accept Vygotsky's model of thinking as our theoretical base in identifying in which language ESL writers think.

Thinking in L1 at the Sentence Level

Theoretically, in writing, a monolingual will always think in L1 since he does not have any L2; however, a bilingual will have a free choice of using either L1 or L2. But to be more exact, we have to specify in which language a bilingual writes and thinks. Naturally, we would assume that a bilingual will think in L1 if he writes in L1 which is his dominant language. A bilingual will have a free choice of thinking in L2 only if his competence in L2 is better than or equal to his competence in L1; or, he may do so if he has been accustomed to thinking in L2 due to environmental factors or social and personal preference. In our real world, our assumptions may be accepted by the laypersons. In theory, our assumptions can stand as a bilingual will naturally use his dominant L1 in thinking unless he or she is compelled to do so for the reason of language acquisition. Perhaps no one will find fault with the hypothesis of a monolingual's use of L1. But our theoretical hypotheses of a bilingual's choice of L1 and L2 may not count if we have no empirical data to support our assumptions. Therefore, an examination of existent and further data in light of Vygotsky's model may be necessary in order to find theoretically based answers to our question in the title.

It goes without saying that when an ESL writer writes in L1 he or she thinks in

L1. Zamel's (1982) graduate student who first wrote in her native language and then translated it into English must have thought in L1 without doubt. There was no reason for her to retrieve meanings from her L2 while thinking and writing in L1.

Lay's (1982) subject translated key words into L1 to get a stronger impression and association of ideas. On one hand, this fact confirms the truthfulness of Vygotsky's concept of verbal thinking. On the other hand, it shows that the writer was thinking in L1 in which he could gather and associate meanings from words in L1 in his verbal thinking.

Zamel's (1983) Chinese subject used L1 to write an idea in Chinese. The subject did this for two reasons: There were no words in L2 to express it and without doing so the idea coming up might be lost. This example empirically verifies the function of inner speech in association with the meanings of words and words in Vygotsky's model of verbal thinking. It also verifies the fulttering nature of inner speech. It further verifies that at least the subject partially used L1 in thinking. The subject might totally use L1 in verbal thinking while writing. This is only assumed to be so because there was not suffucient information available for this case to enable us to make a conclusive judgment.

ESL writers' use of L1 in thinking is further confirmed by Lin's (1989) subjects. A subject mistakenly used "clawn" to take the place of the right word "climbed" "Clawn" is apparently an incorrect form of "clawed", the past tense of 'claw" as a verb. "Claw" and "climb" are represented by two different Chinese characters with the same pronunciation, "pa". But their meanings are different. This confusion of claw and climb acutally came from the writer's memory from English-Chinese dictionaries which ESL learners widely use in Taiwan. But the choice of "claw" in writing clearly indicates to us that the writer was thinking in L1 and then translated that word and meanings into L2 in his writing task.

Another interesting example from Lin (1989) also concerns the use of the meanings of Chinese words in the sentence "A boy decorate like a cowboy." The writer meant that a boy is/was dressed like a cowboy. The incorrectly used "decorate" was Chinese in its stretched meaning. Its use also shows that the writer thought in Chinese, in L1.

One more example in Lin's (1989) data is the use of "slit" in the sentence that follows: "Suddenly, from the slit of the leaves, we can see a little boy riding a bicycle gradually approaches the pockets which is full of pomegranates." In Chinese, plural numbers are usually not marked and so we do not care whether there is a slit or many slits. But in English, there must be many slits of leaves so that a person can see a boy at a distance. Such a discrepancy of meaning and form in Chinese and English speaks for the fact that the ESL writer under consideration was thinking in L1 and did not care to make the necessary change in the meanings and forms in L2. The writer might just translate the meanings in Chinese into English and was not aware of the necessary change in L2.

The examples given so far can confirm the value of Vygotsky's concept of verbal

thinking with reference to meanings and words. They can also convince us that these ESL writers thought in L1 while working on their writing task in L2. But our examples are mostly limited to the use of words in thinking and construction of sentences except one case in which the writer translated the whole text from L1 to L2. Under such circumstances, it may be safe for us to say that ESL writers at this level of competence in L2 tend to think in L1 at the sentence level. As to ESL writers' thinking at the discourse level for the whole text, we have to examine other data before we can say anything about it.

Thinking in L1 at the Paragraph Level

In order to verify our hypothesis in thinking in L1 at the paragraph level, we should examine empirical data against our theoretical base and find our results from them. Hopefully, such data should be generated by subjects who produce data under normal conditions unconcious about our interest of study. As our focus of study is on writers' thinking in L1 or L2, we should collect data in two languages on the same subject matter. With such understandings on mind, protocols for analysis were written by the same subjects in L1 and L2 on the basis of the same silent movie they watched on two different occasions. The decision to choose a silent movie was to play down the role of L1 or L2 which might affect data processing and data generation and thinking. The subjects were taken from two different groups. One group would start writing in L1 after watching the movie and another group would start writing in L2 after watching the same movie. A week later, the two groups would watch the same movie and then write the same story in a language different from the one in which they first wrote about the story.

The material used for eliciting protocols was a video tape entitled *The Pear Story Film* (Chafe, 1980). This tape is in color and has a sound track, but there is no dialogue. The subjects were 60 students in two intact classes of English. A total of 60 protocols in English and 60 protocols in Chinese were collected and analyzed. When these protocols in L1 and L2 by the same subjects were compared in terms of overall structure, paragraph development, and even word order, similarities were found. We will comment on them after our representative protocols have been presented.

Altogether, 7 episodes in English and 7 episodes in Chinese are to be presented. Each episode in L1 and L2 was written by the same person on two occasions. The first three episodes were first written in the students' L1, Chinese, and then in their L2, English. The last four episodes were written in the reverse order, English first and then Chinese. Generally, the seven episodes make up the Pear Story even though many of the facts might have been ignored by these writers. In each episode, an English version is followed by its Chinese version by the same author. The English versions are quoted from the original without any change and correction. The versions from Chinese were translated by the researcher. In translation, care was taken to maintain the original style and order as much as possible so that we might be able to trace the writers'

thinking in writing.

Episode 1
In a hot morning, a farmer was taking fruits on a ladder. He took them one by one, all of a sudden there fell a guava, so he went down the ladder, put all of the guavas which were in his bag into a basket, then he took a turn to pick up that guava, took off his nectie to clean it and put it in a basket, then he stood up, rised to the ladder again. (English written after Chinese.)

On a sunny afternoon, a farmer was picking guavas on a ladder standing against the trunk of a tree. He picked and picked and unconciously dropped one guava. So he came down the ladder and dumped the guavas from his bag in the front of his chest into a basket under the tree. Then he turned around and picked up that guava on the dry grass. He took off a silk bandana around his neck, wiped the dirt off his knees and climbed back to the tree again. (Translated from Chinese.)

We can easily find that the English version serves as the embryo of the subject's Chinese version which was written before the English counterpart. One detail contained in the Chinese version is wiping the dirt off his knees. Almost all other things are already there in the English version. What makes the Chinese episode longer is more semantic infromation and syntactic elaboration. In English, the writer lacked the word bandanna and used necktie instead. Instead of a basket, a bag was consistently used both in English and Chinese in meaning. The writer's choice of necktie and bag might suggest that he thought in L1 and L2 while writing and had to make a choice in English vocabulary items before putting it down into black and white.

Episode 2
At this moment, there was coming a shepherd with a sheep. When they walked beside the three baskets, the sheep smelled these guavas, but they soon went away. (English written after Chinese.)

Then came a shepherd leading a goat. While passing the baskets, the goat smelled the baskets. When they were about to leave the shade of the tree, suddenly the goat refused to move. The shepherd boy used all his strength to force his goat to go. (Translated from the Chinese.)

The two versions have almost the same first part of the episode. What the shorter English version lacked is the goal-directed action of the goat and the shepherd. But the complexity of telling these actions is compensated by the simpler statement that "they soon went away". From this analysis we may well guess that the writer might have associated these meanings in Chinese while writing in English but had to give up representing it in English since necessary words were not available for presenting the

idea. Hence, he used a simple statement to summarize the actions.

Episode 3
When the shepherd walked away, a boy riding a bicycle was coming near to the tree, he stopped his bike under the tree, and he was going to pick up one of those fruits, but when noticed that the farmer was busy taking guvas and never taking care of him, so that he lifted a basket of guavas and put it on his bike, then rode away quickly. (English written after Chinese.)

Just at that moment, a boy riding a bicycle was coming from a long distance. He rode his bicycle to the shade of the tree and saw the fruit in the baskets. So he dismounted, put his bicycle aside, looked at the farmer in the tree, noticing the farmer did not pay any attention to him. Then he went to the baskets. When he picked a guava, he saw that the farmer was not aware of his arrival at all. Therefore, he greedily lifted a basket of guavas and put it beside his bicycle. He picked up the bicycle, got on the bicycle, and placed that basket of the guavas on the handlebar basket. He rode away. (Translated from Chinese.)

Just like Episode 2, a series of actions are omitted in the English verision. But the basic frame of a series of actions is there. But we can see what was omitted, apparently not ignored, by the writer had to do with the verbs in English and several nouns. Collocation of these verbs and nouns must be a hard task for the writer at the time of his writing. In such a case, it would be too bold for us to jump to the conclusion that the writer did not think in English. He might have thought in Chinese; he might also have thought in English simultaneously back and forth fluttering between sentences in a paragraph. We will comment on this after we have examined what the subjects said about their thinking process.

Episode 4
The boy quickly fled away. On the way he met another boy riding a bike. That boy took his hat and so his bike hit a stone and fell down. His leg hurt and the guavas were filled in the ground. (English written before Chinese.)

At this time, this boy was not only nervous but also excited emotionally. Suddenly, a boy riding a bicycle was coming from the opposite direction. That boy approaching him deliberately took the first boy's hat and threw it onto the ground. As the boy looked so attentively at the hat thrower, he unfortunately hit a rock. Then he and the bicycle fell over and the pears spilled all over the ground. In the meantime, his legs were hurt. But he brushed the dirt off his trousers and then began to pick up the guavas. (Translated from Chinese.)

It is interesting to note that two errors were made by the writer: The next

person on a bicycle was a girl, and the hat was flown away. The errors remained uncorrected in her second writing even though the film was shown twice. We might think that she was a careless person. But on closer examination, we find that her Chinese narrative was carefully done, with states of mind and a sequence of actions well taken care of. Didn't she think about these finer aspects of narration in writing English? Did she think about them in Chinese while writing English but have to give them up due to her lack of wrods in English? These are the questions that we will consider later.

Episode 5
At that time, there were three boys saw the whole process on the tree. One of the boys with a pingpong ball stucking one something up and down. The voice is the only voice in the story. It's a interesting and tempted part. Then these boys helped the boy to pick up the groupping fruits and they walked away. (English written before Chinese.)

But my friend, the accident was seen by three other boys. But they did not laugh at him. On the contrary, they helped the small boy pick up the fruit on the ground back into the basket. Yes, I remember that one of the three boys held a pingpong racket in his hand all the time. That pingpong ball was strung by a string. It produced the only sound effect in the film. That was very interesting. After finishing up their picking up the fruit, one of the boys removed the rock that hindered passage. This was the most moving part of the whole film and it touched me the most. Then they departed from each other. (Translated from Chinese.)

In both versions, the setting was clearly stated and the sound effect was introduced and commented on. In the Chinese version, the author expressed her feelings and reaction from the episode. The only missing part in the English version is the bicycle's hitting the rock and its effect on the story teller. Was it due to failure in memory or problems in language use in L2? This point will be discussed in the next section.

Episode 6
When they walk a near distance, they find the boy's hat and they call the boy. They give the hat back to him. The boy sends them three fruits in order to express his thanks. The three boys are walking and eating the fruits. (English written before Chinese.)

The boy continued his journey and suddenly heard whistling, turned back and found that he forgot to pick up his hat. The oldest boy among the three sent back the hat to the boy. The boy was really moved by them. In all his lifetime, no one except his gang had ever been so nice to him. So, he sent them three pieces of fruit and hurried back home. (Translated from Chinese.)

The major difference in the two versions in terms of the word use is "they call him back" in English and "heard the whistling" in Chinese. Can we say the writer thought in Chinese and then tried to find English words to fit in the situation and began to think in English? This seems to be a possibility in that the rest of the paragraphs in L1 and in L2 look so much alike. Although in the Chinese version the writer wrote out her mental perception and reaction in long sentences, she did not forget to put in "in order to express his thanks" in her English version.

> Episode 7
> The three boys keeps on going and eating the guavas. Now they have come to the tree. The farmer gets down the ladder and sad to find that he's lost one basket of fruit. When he looks back, he sees three boy eating guavas and goes by him. (English written before Chinese.)
>
> How was the farmer on this side? He descended the ladder and looked at his baskets. Why? Why was a basket of fruit missing? When he was wondering why, the three boys were passing by the farmer, eating their fruit. This made him feel more puzzled. (Translated from Chinese.)

The most striking difference between the two versions in L1 and L2 is the use of rhetorical questions in Chinese. But the content of the English and Chinese versions remains almost the same. Even though the farmer's puzzlement was not expressed clearly in English, it was implied in "He thinks maybe that fruit should belongs to him."

Having seen the seven pairs of English and Chinese paragraphs by the same authors written on two different occasions, we find our tentative conclusions as follows.

1. The content of each pair is quite similar.
2. Each English version regardless of its order of writing is shorter in length and it serves as an embryo of its correspondent Chinese version.
3. The writers' mental perceptions, reactions, and comments are more fully expressed in Chinese, but they are implied in a simpler manner in each correspondent English version.
4. Such implication of meaning in the English versions can be characterized by inadequate pragmatic mapping of the events or states which are adequately represented in the Chinese versions.
5. Similarities of each pair of the episodes in L1 and L2 and minor discrepancies in pragmatic mapping in each pair may be due to ESL writers' thinking either in L1 or L2.

In Writers' Opinion

No matter how many standardized language testing instruments have been designed and implemented, a writer's competence in writing is hard to gauge. People write and think in their own different ways. A finding in research may be applicable to many writers, but may not be applicable to all writers. There are usually exceptions. If a researcher interacts with his subjects in the course of study, some unexpected grain of truth may be found. For this reason, a questionnaire was designed and handed out to the subjects of this study employing The Pear Story to fill out one week after finishing their last piece of writing. Two questions specific to the current study were answered by sixty university freshmen in the third week after their entrance to university. The two questions were:

1. Do you think Chinese narrative is very different from English narrative?
2. In writing The Pear Story, did you think you should write differently in English and Chinese?

To the first question, 23 students answered "yes" while 37 respondents said "no". A majority of them believed that the two versions should not be different in respective languages. This may suggest that cognitively they regarded the structures of English and Chinese narratives as identical and their thinking in writing the two versions was done in the same way. This cognition of the majority of respondents may explain why each pair of the episodes in L1 and L2 was so similar in content and structure.

To the second question, 28 students said they should not be written differently. On the contrary, 26 respondents thought they should do differently while the other 6 did not answer the question at all.

An examination of the answers of the 26 respondents shows that they wrote differently because of their different levels of competence in the two languages. As Chinese was their dominant primary language, they should write more vividly. As English was their weaker language in which they lacked the vocabulary and could not well control the syntax, they just expressed their main ideas. One student clearly indicated that when writing in English he thought in Chinese.

Our invesgitation of writers' thinking would not be very conclusive without further considering the writers' perspectives and insights. Consequently, responses to a questionnaire on writing in L1 and L2 will be examined.

The questionnaire to be found in the appendix with respective statistics consists of 34 questions. Some are yes-or-no questions while most are to be answered on a five-point-scale basis, either from the least to the greatest in degree or from the greatest to the least depending on logical arrangement of expected answers.

The questionnaire was handed out and collected two years before the questionnaire on narrative writing was done. It was filled out by a group of 21 freshmen majoring in English at the end of their second-semester ESL composition and by two groups of 35 sophomores majoring in English at the end of their second-year ESL

composition. For convenience sake and for easy reading, the freshman group is to be identified as Group A and the two sophomore groups are to be identified as Group B, and the statistics are to be calculated on a percentile basis for Groups A and B. In some cases, the total may come to less than or more than a 100% because some unimportant numbers have been rounded out and some questions can be answered in more than one way.

57% of freshmen and 69% of sophomores used different methods to write in Chinese or English.

All freshmen and 94% of sophomores thought that their writing in English sounded like "Chinese English".

Why did it sound like Chinese English? 67% in Group A and 49% in group B attributed it to their thinking in Chinese; 5% and 14% translated sentence by sentence from Chinese into English; 38% and 60% (38% in Group A or of the freshmen and 60% in Group B or of the sophomores, henceforth to be represented in this order) depended on translating from Chinese into English as they did not know how to express in English; 14% and 20% jaxtaposed words and sentences in their Chinese way; and 29% and 31% did not know how to think in English.

80% of the freshmen and 94% of the sophomores have heard their English teacher(s) say that while writing in English one should think in English.

76% and 71% said their teacher(s) never defined "thinking in English."

How would you define "thinking in English"? 1). 5% and 11%: Think out the whole sentence in English; 2). 5% and 0%: Think out all sentences in a paragraph in English; 3). 67% and 71%: Think about an outline of a passage and its subject matter in the English style; 4). 10% and 6%: Not to pay any attention to how we say it in Chinese; 5). 14% and 20%: Figure out through English vocabulary the main idea of what we have in our minds.

Have you ever thought in English? 1). 0% and 9%: Completely in English; 2). 62% and 63%: Partially in English; 3). 29% and 23%: Occasionally in English; 4). 5% and 3%: Do not know we have to think in English; 5). 5% and 6%: Have never thought in English.

Concluding the summarization of major findings in our relevant data, we find that just as in a pluralist society, divergent views are expressed and they are not completely consistent. But the answers in the two questionnaires are complementary to each other when we try to gain from them some insight into our research questions. However, these answers should be considered in light of the problems we have encountered and the evidence we have gathered. In this way, the responses have provided us with empirical data to verify our academic research and helped us to answer theoretical questions.

Conclusions and Implications

Our research question is mainly whether ESL writers think in L1 or L2. We have

clearly stated that the subjects who used translation in writing in the literature and our subjects thought in L1 at the sentence level. This conclusion is in line with Vygotsky's concept of inner speech and verbal thinking and confirmed by our samples and the responses from our subjects who came to a total of 116 university students in their seventh or eighth year of ESL acquisition.

In examining the protocols at the paragraph level, we discerned similarities between each pair of the two versions in L1 and L2. We tried to be open-minded and receptive to all theoretical possibilities. We seemed to be timid and drew no conclusions for the protocols at the paragraph level. Now with the responses from our subjects we are in a better position to answer our questions which were left unanswered for the purpose of further consideration.

When we consider the sheer number of the respondents who thought that writing in L1 and L2 should not be done differently, it is safe for us to say that they did not do their thinking differently in L1 and L2 at the paragraph and the discourse levels. Of course, their answers should not be taken at their face value. Nevertheless, our conclusion is confirmed by the similar content and order of presentation of each pair of the episodes in L1 and L2 and some respondents' use of translation from L1 into L2. Regardless of the sequential order in which English versions were written, they are comparatively shorter. However, in terms of content, they serve as the embryo of their longer counterparts in L1 which are syntactically, semantically, and rhetorically better elaborated. But the similarities between the two versions can be attributed to thinking in L1 while writing in L1 and L2.

On the contrary, we should not deny the fact ESL writers may also think in L2 both at the sentence and paragraph level. But the question is to what extent they do this. They may do so occasionally and there may be some special ESL writers who have been trained and able to do this. So we limit our conclusion to the ESL writers at the levels of our subjects and they may change as time goes on and their competence develops.

Pedagogical implications about writing can be drawn from our findings and conclusions. These implications are applicable to teaching ESL writing and to ESL research.

1. In Vygotsky's conceptual model of verbal thinking, inner speech, the meanings of words and finally words are involved. ESL writers usually are not equipped with a workable vocabulary to carry out their writing task in L2 and therefore have to fall their backs on L1 in thinking and writing. In this regard, vocabulary building which is often ignored in ESL programs should be stressed in ESL reading and writing.

2. ESL writing is teachable. In answer to "Do you think writing is hard?", 62% of the freshmen said "very hard" while only 4% of the sophomores said so. 38% in Group A and 49% in Group B said "hard" while the rest of the Group A, 46% said "not hard." In view of other statistics in the questionnaire, such a difference between the freshmen and the sophomores was due to the teaching and practice of ESL writing.

3. A process approach and a product approach are like the two sides of a coin and they can be profitably employed in research in ESL writing. A well designed questionnaire can complement and verify theoretical research because the subjects whom we study for their benefit may provide their perception and insight for our reference and consideration.

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Appendix:
A Questionnaire on Writing in L1 and L2
(With the results indicated in percentage)

1. Is writing hard? 1). Very hard (62%, 4%). 2). Hard (38%, 49%). 3). Not hard. 4). Easy. 5). Very easy.

2. Do you like writing? 1). Very much. 2). Yes, I do (52%, 60%). 3). No, I don't (48%, 31%). 4). I fear it. 5). I hate it.

3. How did you develop your competence in writing? 1). Taught by teachers (14%,

11%). 2). From writing practice at school (38%, 26%). 3). Through personal study (14%, 31%). 4). Through imagination or inspiration (14%, 11%). 5). No definite methods (33%, 20%).

4. How good is your competence in writing in Chinese? 1). Very good. 2). Good (0%, 14%). 3). O.K. (71%, 63%). 4). Not good (19%, 20%). 5). Bad.

5. How did you develop your competence in writing English? 1). Taught by teachers (29%, 17%). 2). From writing pratice at school (29%, 46%). 3). Through personal study (38%, 26%). 4). Through imagination or inspiration. 5). No definite methods (10%, 29%).

6. How good is your competence in writing English? 1). Very good. 2). Good. 3). O.K. (33%, 34%). 4). Not good (62%, 63%). 5). Bad (0%, 3%).

7. Is your Chinese teachers' correction of writing helpful? 1). Very helpful (19%, 11%). 2). Helpful (5%, 40%). 3). somewhat helpful (29%, 29%). 4). Not helpful (24%, 14%). 5). Not helpful at all (4%, 0%).

8. Is your English teachers' correction of writing helpful? 1). Very helpful (24%, 17%). 2). Helpful (48%, 46%). 3). Somewhat helpful (29%, 20%). 4). Not helpful. 5). Not helpful at all.

9. In what area is your Chinese teachers' correction of writing helpful? 1). Methods of writing (0%, 9%). 2). Structures of writing (19%, 63%). 3). Ways of thinking (5%, 26%). 4). Choice of words (62%, 68%). 5). Syntax (0%, 3%).

10. In what area is your English teachers' correction of writing helpful? 1). Methods of writing (5%, 11%). 2). Structures of writing (9%, 31%). 3). Ways of thinking (14%, 6%). 4. Choice of words (67%, 51%). 5). Syntax (67%, 66%).

11. Is writing in English harder than writing in Chinese? 1). A lot harder (19%, 37%). 2). Somewhat harder (48%, 29%). 3). Same (29%, 29%). 4). Easier. 5). Much easier.

12. In what area is writing in English harder than writing in Chinese? 1). Syntax (38%, 40%). 2). Vocabulary (67%, 69%). 3). Paragraph structure (5%, 6%). 4). Overall structure (19%, 29%). 5). Ways of thinking (29%, 49%).

13. Do you use the same method to write English and Chinese? 1). Yes (43%, 31%). 2). No (57%, 69%).

14. Does your writing in English sound like Chinese English? 1). Yes (100%, 94%). No.

15. Why does it sound like Chinese English? 1). Thinking in Chinese (67%, 49%). 2). Translating sentence by sentence from Chinese into English (5%, 14%). 3). Depending on translating from Chinese into English for not knowing how to express in English (38%, 60%). 4) Jaxtaposing words and sentences in their Chinese way (14%, 20%). 5). Not knowing how to think in English (29%, 31%).

16. Have your English teachers ever mentioned "Think in English"? 1). Yes (80%, 94%). 2). No.

17. Have they ever defined "Think in English"? 1). Yes (24%, 26%). 2). No (76%, 71%).

18. How would you define "Think in English"? 1). Think out the whole sentence in English (5%, 11%). 2). Think out all sentences in a paragraph in English (5%, 0%). 3). Think out an outline of a passage and its subject matter in the English style (67%, 71%). 4). Not to pay any attention to how we say it in Chinese (10%, 6%). 5). Figure out through English vocabulary the main idea of what we have in our minds (14%, 20%).

19. Have you ever thought in English while writing English? 1). Completely in English (0%, 9%). 2). Partially in English (62%, 63%). 3). Occasionally in English (29%, 23%). 4). Do not know we have to think in English (5%, 3%). 5). Have never thought in English (5%, 6%).

20. Have your Chinese teachers taught the methods of writing? 1). Yes (81%, 86%). 2). No (19%, 14%).

21. If yes, in what area? 1). How to write (29%, 49%). 2). Ways of thinking (10%, 34%). 3). Overall and paragraph structures (71%, 66%). 4). Choice of words (19%, 20%). 5). How to self-revise (0%, 3%).

22. Have your English teachers taught the methods of writing? 1). Yes (95%, 97%). 2). No (5%, 3%).

23. In what area have they taught? 1). How to write (33%, 43%). 2). Ways of thinking (5%, 37%). 3). Overall and paragraph structures (86%, 83%). 4). Choice of words (24%, 26%). 5). How to self-revise (10%, 11%).

24. Is your teachers' teaching the methods of writing useful? 1). Very useful (19%, 14%). 2). Useful (38%, 49%). 3). Somewhat useful (33%, 40%). 4). Not useful (5%, 0%). 5). Not useful at all.

25. Can the methods in writing Chinese be applied to writing Egnlish? 1). Yes (57%, 71%). 2). No (43%, 26%).

26. Are the methods that you have learned in writing English applicable to writing Chinese? 1). Yes 62%, 83%). 2). No (24%, 17%).

27. Do you want your teachers to correct your writing? 1). Yes (86%, 86%). 2). No. (14%, 14%).

28. Is teachers' correction more important than teaching methods of writing? 1). Yes (71%, 66%). 2). No (29%, 34%).

29. Do you include introduction, body, and conclusion in your writing? 1). Yes (38%, 51%). 2). No (62%, 49%).

30. Have you learned different modes of writing and how to write them? 1). Yes (19%, 40%). 2). No (81%, 60%).

31. Will you consider using a chronological order in writing narrative? 1. Yes (92%, 77%). 2). No (9%, 23%).

32. Is it easier to write a narrative than description? 1). Yes (71%, 69%). 2). No (29%, 31%).

33. Are transitional expressions important in writing English? 1). Yes (95%, 94%). 2). No (5%, 6%).

34. Do you know how to use transitional expressions? 1). Yes (29%, 34%). 2). No (71%, 51%).