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THE UNIVERSITY OF ALBERTA

A STUDY OF CHARACTERISTICS OF CHINESE ESL LEARNERS IN MBA PROGRAMS AT

CANADIAN UNIVERSITIES

by

MU, HAI

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA

SPRING, 1987

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ABSTRACT

The purpose of this study was to describe the characteristics of Chinese ESL learners in terms of their education background, English as a Foreign Language (EFL) learning background, and their written English syntactic maturity (WESM) in two writings, to compare these learners' WESM with that reported in both first and second language acquisition literature and to determine the level of WESM required of the learners to complete MBA programs in Canadian universities.

The seventeen subjects in this study were recommended by seven Chinese universities for MBA programs in eight Canadian universities. After having received a twelve-week intensive ESL training program, the subjects were admitted into the MBA programs.

The data base for this study was established in the following manner: first, a questionnaire elicited details about the subjects' education variables, EFL learning variables and English for Academic Purposes (EAP) Test scores; second, the first writing samples and the second writing samples produced by the subjects respectively at the beginning of the twelve-week ESL training and during their first-academic-year MBA courses were collected; third, comparative data were adapted from both first and second language research studies; and finally, information regarding the subjects' completion of MBA programs was attained.

Altogether, background factors include the subjects' undergraduate majors, completion of the programs, length, intensity and features of EFL study. WESM factors measured comprise *words per T-unit, words per clause, clauses per T-unit, words per error-free T-unit, words per error-free clause, clauses per error-free T-unit, features of subordination, coordination, modification and other non-clausal elements inside T-units, percentage of error-free T-units, words per error, percentage of global errors* and *percentage of local errors*.

The major findings of this study were: 1) the subjects' WESM increased significantly in Writing Two in terms of nineteen WESM factors; 2) the subjects' WESM increased mainly because of increased non-clausal embeddings, despite the decreasing of clausal embeddings; 3) the similarities and differences between the characteristics of the subjects' WESM and those of both native English learners and ESL learners were

revealed; 4) a characteristic of those subjects who failed to complete the MBA programs was the marked decrease in clausal embeddings.

ACKNOWLEDGEMENTS

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I. INTRODUCTION

A. The Statement of the Problem

In recent years, increasing numbers of foreign students (FSs) have been coming to the United States and Canada to pursue university studies. For example, at last count (1985),[1] the number of foreign students admitted by Canadian universites alone stood at 29,115 (Lewis 1985). Most of these students have studied English for many years and have received satisfactory scores on the Test of English as a Foreign Language (TOEFL), the Michigan Test of English Language Proficiency (MTELP), or some other test of English proficiency (such as the Test of English for Academic Purposes, a test also taken by the subjects in this study). They may be described as having generally reached an intermediate or advanced level of proficiency in English. Nevertheless, as pointed out by various researchers and scholars (Huckin & Olsen 1984; Johns 1980, 1981; Martin 1976; Ostler 1980; Pearson 1981; Riley 1975; Yorkey 1970), their English is often quite weak, especially in the productive skills, and many of them lack mastery of the academic skills that they will need as students in North American universities. It is felt, in a sense, that, although these above-mentioned test scores have long been required by many post-secondary institutions as part of their admission procedures. it remains doubtful whether English proficiency norms have been established as predictors of academic success in the case of many foreign students. Thus, many performance variables truly reflective of foreign students' English language proficiency are yet to be studied.

In particular, while some research has been done to study the written English syntactic maturity of university level ESL students who are heterogeneous with regards. to language background, field of study, and academic status, little is known of the characteristics and the level of syntactic maturity demonstrated by foreign students

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[1]Source: Employment and Immigration Canada (1985 data preliminary), compiled by Barbara Lewis, CBIE staff.

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homogeneous with regard to language background, field of study, and academic status before and after they begin their graduate studies. Likewise, little has been done in the study of the characteristics and level of foreign students' syntactic maturity in relation to the characteristics of their English as a foreign language learning background and of their actual academic performance. Since this was the case, it was felt necessary to examine those issues in depth in the present study.

B. The Purpose of this Study

This study examines several variables related to a group of Chinese MBA students (1984-1986) studying in Canadian universities. The purpose of the study is four-fold:

1. to describe the characteristics of the subjects" education background and English as a Foreign Language (EFL) learning background prior to their graduate study in MBA programs;

2. to describe the characteristics of the subjects' written English syntactic maturity[1] demonstrated in their writings produced both prior to and after their entry into the regular MBA graduate work;

3. to provide comparative data for the quantitative study of syntactic maturity of English as a second and/or foreign language (ESL/EFL) learners at the university graduate level;

4. to describe the characteristics and the level of written English syntactic maturity required of the subjects to complete the MBA programs.

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[1]Syntactic maturity refers to a learner's ability at a developmental stage to use sentence structure strategies such as embedding, subordination, and modification.

C. The Need for the Study

Although in first language research studies a developmental trend with regard to syntactic maturity has been found and reported, in the second language research studies there is still lacking consistent information on developmental trends in syntactic maturity among adult ESL learners. In particular, little is known of the level of syntactic maturity in the English language required of foreign students to measure up to the linguistic demands of academic studies.

The present study is inspired by Yau and Belanger's suggestion (1984:74) that "it would be interesting to investigate how writers at a mature level of cognitive ability but immature linguistic ability react to the writing task. Such investigations would shed light on the relationships among cognitive abilities. linguistic abilities, and writing skill." Since many foreign students often have been described as quite weak in productive skills even though they may have reached the intermediate or advanced level of proficiency in English, they do fall into the category of those who are "at a mature level of cognitive ability but immature linguistic ability". Therefore. a research study that selects a sample of subjects as described above would be significant.

This study is also related to the question of rate of second language development. It is influenced by the research question posed by Hunt (1970:195-202): "supposing someone learns a second language as an adult, is his rate of development in the second language as slow as it was in the first, even if he uses his second language in his daily life?" Although to answer this question obviously goes beyond the scope of this study, the study may still provide some insight into the speed with which adult Chinese ESL learners grow in English syntactic maturity and generate usable data so that these learners may be compared with those involved in comparative data already available in the related literature.

D. Research Questions for the Study

This study focuses on the general question: "What are the educational and syntactic characteristics (in language use) of a sample of Chinese MBA students studying in Canada?" This question entails the following sub-questions:

1. What are the characteristics of the subjects' education background and English as a Foreign Language (EFL) learning background?

2. What are the characteristics of the subjects' syntactic maturity in two writings, the first produced in the end of April, 1984 at the beginning of a twelve-week ESL training program and the second one produced by the subjects for their first winter session (1984-1985) MBA courses?

3. What are the characteristics of the subjects' written English syntactic maturity factors found in this study in comparison with those revealed by the comparative data available both in the first language acquisition literature and in the second language acquisition literature?

4. What are the characteristics of written English syntactic maturity of those subjects who did not complete MBA programs?

Each of these four major questions may be further subdivided. The questions will be detailed in Chapter Three.

E. The Limitations

This study intends to describe the written English syntactic maturity of a group of non-immigrant Chinese MBA students in Canadian universities. It makes no attempt to predict academic success on the basis of the observed level of their written English syntactic maturity.

In this study the word "maturity" is used to designate nothing more than the observed characteristics of the Chinese MBA students with special reference to their syntactic maturity in two writings. It has nothing to do with whether some subjects write

"better" in any general stylistic sense.

This study only infers the effect of a twelve-week ESL training program received by the subjects on their written English syntactic maturity as shown in Writing Two, but does not interpret the result in the way an experimental study would.

While this study compares the written English syntactic maturity of Chinese MBA students with that of native English speakers and with that of ESL learners, it recognizes the difference in the conditions and time constraint under which the data of this study and the comparative data were produced.

The subject matter of the two writings was not controlled by the researcher. The study considers that whatever the subjects had to write during the twelve-week ESL training and the first-year MBA program is characteristic of their writing performance at that time, and is acceptable for the present study.

As this study is a descriptive one, the researcher did not attempt to control the mode of discourse and decided to accept written samples with the mode of discourse determined by whatever they had to write at different points in time.

F. The Conclusion

In this chapter the dissertation states the problem that leads to the focus of the study, emphasizes the need for the study, and proposes four general research questions. The related literature is reviewed in Chapter II and the research design is laid out in Chapter III. The research findings are presented in Chapter IV, and conclusions and implications are discussed in in Chapter V.

II. REVIEW OF RELATED LITERATURE

A. The Need for a Theoretical Framework

With reference to the foreign students' (FSs) academic success at the university graduate level what is still lacking is a coherent framework within which the relative importance of different variables and the possible interactions among them can be conceptualized. While socio-cultural background factors (Bowen, 1977; Tucker 1977; Schumann 1978) are obviously important, little is actually known about what the links are in the causal chain through which their effects are translated into academic outcomes (Cummins 1979a). Similarily, there has been little understanding of the mechanisms through which many school program variables affect academic outcomes (Cohen & Swain, 1976; Swain 1978; Cummins 1979a). There is no consensus as to the relative merits of ESL-only, transitional bilingual or maintenance bilingual programs in promoting academic and cognitive skills (Cummins 1979a, p 225). There are, in fact, very few interpretable data which are directly related to this central issue. One of the main reasons for the lack of meaningful research in this aspect is that researchers have failed to incorporate the possibility of interaction between educational treatment and learner input factors into their experimental design.

Cummins (1979a) has discussed two main input factors: the conceptual-linguistic knowledge and the motivation to learn the second language (L2) and maintain the first language (L1). He feels that it is highly necessary to justify the inclusion of a linguistic factor as a critical input variable and explains what is meant by "conceptual-linguistic knowledge." Conceivably, "conceptual-linguistic knowledge" as a critical input variable centers around the dimension of the developmental interrelationship between language and thought and the nature of positive influence of cognitive development and linguistic development upon each other. The "developmental interdependence" hypothesis proposed by Cummins (1979) addresses itself to this dimension.

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The Developmental Interdependence Hypothesis

Cummins (1979a) proposes that the level of L2 competence which a bilingual child attains is partially a function of the type of competence the child has developed in L1 at the time when intensive exposure to L2 begins. In Cummins' words:

> To the extent that instruction in 'Lx' is effective in promoting cognitive/academic proficiency in Lx, transfer of this proficiency to Ly will occur provided there is adequate exposure to Ly (either in school or environment) and adequate motivation to learn Ly (1980a, p. 90).

In a bilingual setting, when the usage of certain functions of language and the development of L1 vocabulary and concepts are strongly promoted by the child's linguistic environment outside of school, then intensive exposure to L2 is likely to result in high levels of L2 competence at no cost to L1 competence. In other words, the initially high level of L1 development makes possible the development of similar levels of competence in L2. However, for children whose L1 skills are less well developed in certain respects, intensive exposure to L2 in the initial grades is likely to impede the continued development of L1. This will, in turn, exert a limiting effect on the development of L2. In short, the hypothesis proposes that there is an interaction between the language of instruction and the type of competence the child has developed in his L1 prior to school.

In view of this perspective, one may ask to what extent this hypothesis lends itself to an understanding of cases in which FSs at the university graduate level in Canada may benefit optimally from the interaction of the type of competence they may have developed in their L1 with the academic environment that characterizes their graduate program, a program offered exclusively in English. What seems certain is that these FSs may have attained a high level of competence in L1 at the time when intensive exposure to L2 (English) begins concomitantly with their graduate work in Canadian universities. The advantage of this high level of L1 is likely to mediate the effects of a disadvantage of lack of a similar high level of L2 competence. Therefore, to account for foreign

students' academic success, it is necessary to gain insights into the potential of their education background in a particular country, which will indicate the level of L1 competence the subjects may reportedly have reached when intensive exposure to L2 began. For a similar reason, it may be advisable to obtain information about the subjects' L2 learning background, specifically the intensity and nature of the exposure to L2 experienced by FSs, and the characteristics of EFL curricula promoted in their home-country universities. This may predict their development in terms of functional capacity in English. Moreover, an attempt should be made to reveal the possible gaps between the level of functional capacity in English which FSs have managed to attain through the years and the rigors of the linguistic demands of English with which they will have to cope for the purpose of academic accomplishment.

It should be noted that the "interdependence" hypothesis was proposed to supplement Cummins' initial "threshold" hypothesis (1976, 1979a). It was postulated by Cummins that there may be two threshold levels of linguistic proficiency. The first, or lower threshold level, must be attained by bilingual children in order to avoid cognitive disadvantages and the second, or higher threshold level, is necessary to allow the potentially beneficial aspects of bilingualism to influence cognitive growth. In view of the threshold hypothesis, a question arises as to whether adult FSs at the university level also need to go through two threshold levels in order to allow the potentially beneficial aspects of their English as a foreign language ability to contribute to their academic success and intellectual growth. If this is the case, obviously, the empirical question that remains is: at what level of English language proficiency can FSs achieve higher levels of academic success?

CALP-BICS Hypothesis

In addition to the interdependence hypothesis, Cummins (1980a) distinguishes two aspects of language proficiency with a view to looking at learners' linguistic

development from the perspective of its effect on learners' educational outcomes. He discusses an underlying cognitive/academic proficiency which makes possible the transfer of cognitive/academic or literacy-related skills across languages. His view, referred to as Cognitive/Academic Language Proficiency and Basic Interpersonal Communicative Skills hypothesis, holds that that "there exists a reliable dimension of language proficiency which is strongly related to literacy and other decontextualized verbal-academic tasks. This dimension appears to be largely independent of those language proficiencies which manifest themselves in everyday interpersonal communicative contexts. There are individual differences in the ways in which native speakers manifest these linguistic skills in interpersonal communicative contexts, e.g. oral fluency, but for the most part these differences are not strongly related to cognitive or academic performance.

There are two points of view expressed with regard to proficiency models. On the one hand, Hernandez-Chavez, Burt, and Dulay (1978) argue that language proficiency involves multiple factors along three distinct parameters: 1) the linguistic components; 2) modality; and 3) sociolinguistic performance. The linguistic components include phonology, syntax, semantics and lexicon. Modality involves comprehension and production through the oral channel and reading and writing through the written channel. Sociolinguistic performance entails the dimensions of style, function, variety, and domain. Thus, the Hernandez-Chavez et al. model gives rise to a three-dimensional matrix representing 64 separate proficiencies, each of which, hypothetically at least, is independently measurable. On the other hand, Oller (1978, 1979) and Oller & Perkins (1978) claim that "there exists a global language proficiency factor which accounts for the bulk of the reliable variance in a wide variety of language proficiency measures" (1978, p. 413).³ This factor is strongly related to IQ and to other aspects of academic

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³ Oller (1983, p. 3) argues for a rather unitary proficiency factor or internalized grammar. He refers to Charles Spearman (1904) as the inventor of factor analytic techniques in statistics, who suggested the possibility of a general factor of intelligence and produced a good deal of empirical evidence

achievement and is about equally well measured by listening, speaking, reading and writing tasks. "Oller's general position is supported by a large body of research showing high correlations between literacy skills and general intellectual skills" (Cummins 1980b, p. 176).

Having compared the two perspectives, Cummins (1978b) comments that "in the context of the data on the age question in second language learning and on bilingual education, it will be argued that the general approach taken by Oller to the concept of language proficiency is more useful than that proposed by Hernandez-Chavez et al. However, it is possible to distinguish a convincing weak form and a less convincing strong form of Oller's arguments" (p. 176). The weak form suggests the existence of a dimension of language proficiency which can be assessed by a variety of reading, writing, listening and speaking tests and which is strongly related both to general cognitive skills (Spearman's "g") and to academic achievement, whereas the strong version holds that this dimension represents the central core (in an absolute sense) of all that is meant by proficiency in a language. The difficulty with the latter is immediately obvious when one considers that everybody acquires basic interpersonal communicative skills in a first language regardless of IQ or academic aptitude. Also, the sociolinguistic aspects of communicative competence appear unlikely to be reducible to a global proficiency dimension (see Canale & Swain 1979; Tucker 1979). For these reasons, Cummins (1980b, p. 177) has chosen to use the term cognitive/academic language proficiency (CALP) in place of Oller's global language proficiency.

To recapitulate the point, CALP is defined by Cummins (1980b) as those aspects of language proficiency which are closely related to the development of literacy skills in

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³(cont'd) in favor of such factor. In fact, Spearman held the view that the method he had hit upon "laid down the criterion needed in order to decide whether or not every ability in any given set can be divided into two factors g and s: g remains throughout the same whilst s varies independently of both g and other s's. Oller indicates that the rigorous criterion to which Spearman referred was simply a method of testing for a general factor underlying the correlations between any given set of scores on tests of mental ability.

L1 and L2, whereas, basic interpersonal communicative skills (BICS) such as accent, oral fluency, and sociolinguistic competence may be independent of CALP for a variety of reasons though it is not being suggested that these latter skills represent a unitary dimension. The relationships between CALP, general language proficiency, cognitive skills, and educational progress are illustrated in Figure 1 (see Cummins 1980b, p. 178):

FIGURE 1
Relationship of CALP to Language Proficiency, Cognitive
and Memory Skill and Educational Progress

Language Proficiency CALP Cognitive and Memory Skills

Major Determinant of
Educational Progress
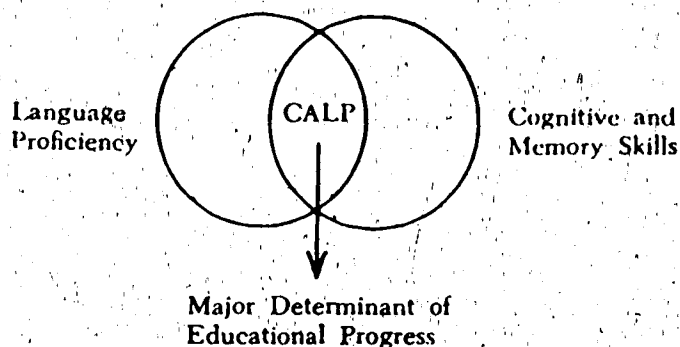
Of central importance to the present study is the empirical question as to the actual composition of a CALP dimension, which has to be answered by correlational techniques so as to delve into the extent to which any particular language measure is tapping CALP. For example, as suggested by Cummins (1980b), measures purporting to assess oral language skills may have very little in common; cloze tests are much more likely to be good measures of CALP than are fluency (words per minute) or subjective ratings of oral skills (Streiff 1978). Other factors which might influence the composition of a CALP dimension in an L2 context are related to the language learning situation. For example, pronunciation ability or syntactic development may load on a CALP factor when the L2 is taught as a subject in a formal classroom setting, but not when L2 is being

acquired through interaction with native speakers in the environment. At the present stage, however, the exact composition of a CALP dimension in either L1 or L2 is an empirical question. (Cummins 1980b)

The CALP dimension is closely linked with the interdependence hypothesis and at the same time, accommodates a few relevant assumptions. To begin with, it is clearly committed to the view as stated by Swain (1981) that "the knowledge acquired through the first language, the use of language to classify, to abstract, to generalize, to manipulate ideas, the essentials of reading and writing learned in the first language all form part of the aspects of the language that underlie functioning in any language." Secondly, it recognizes the conceptual-linguistic knowledge as the learner's understanding of the concepts or meanings embodied in words (see Becker 1977) and hence indispensable to the learner's cognitive/academic language proficiency. Thirdly, it emphasizes that communicative capacity be conceptualized in such a way as to reflect two distinct yet interrelated dimensions of language proficiency (e.g. BICS and CALP), regarding the process of second language acquisition not only as a creative construction but as no less than a developmental build-up, for CALP is built upon BICS and language is used not merely interpersonally as a tool of communication but also internally as a vehicle of thought. Finally, it draws attention to Smith's (1977) perspective that, in order to learn to read, two metalinguistic insights are presupposed: first, print is meaningful; second, written language is different from speech. As obtaining such knowledge from second language depends upon formal training, adult learners whose purpose is to succeed in academic settings must receive such training. In light of these assumptions, the CALP factor, therefore, can be best defined as mastery of study skills or as the ability developed by the learner to make use of syntactic, semantic, lexical cues and discourse conventions in order to make sense out of the printed page and make sense in writing.

Our understanding of the CALP factor can be enhanced if it is viewed from other theoretical perspectives such as those spelled out by other theorists. Bruner (1975), for example, distinguishes a "species minimum" of linguistic competence from communicative and analytic competence. This species minimum competence implies mastery of the basic syntactic structures and semantic categories emphasized in theories of language acquisition such as those deriving from the views of Chomsky (1965) and Fillmore (1968). Mere possession of such competence, however, has relatively little effect on thought processes. It is only when language use moves toward "context-free elaboration" that it tranforms the nature of thought processes. According to Bruner (1975, p. 71), what is important is how language is being used; what in fact the subject is doing with his language. In this regard, Bruner distinguishes between "communicative competence" and "analytic competence." The former is defined as the ability to make utterances that are appropriate to the context in which they are made and to comprehend utterances in the light of the context in which they are encountered. Analytic competence, on the other hand, involves the prolonged operation of thought processes exclusively on linguistic representation. In Bruner's view, analytic competence can be construed as a form of communicative competence, but should be recognized as more cognitively-demanding and more intellectually-oriented. Furthermore, analytic competence is made possible by the possession of communicative competence and promoted largely through formal schooling as schools decontextualize knowledge and demand the use of analytic competence.

Olson (1977), as another example, draws a distinction between "utterance" and "text". Such distinction attributes the development of "analytic" modes of thinking specifically to the acquisition of literacy skills in school. Also, it is concerned with whether meaning is largely extrinsic to language or intrinsic to language (text). Obviously, in interpersonal oral situations the listener has access to a wide range of contextual and paralinguistic information with which to interpret the speaker's intentions, and in this

sense the meaning is only partially dependent upon the specific linguistic forms used by the speaker. However, in contrast to utterance, written text is an autonomous representation of meaning. Ideally, written material depends on no cues other than linguistic ones. It represents no intentions other than those in the text; its meaning is precisely what is represented by the sentence meaning (Olson 1977, p. 276). Language development is not simply a matter of progressively elaborating the oral mother tongue as a means of sharing intentions. The development hypothesis offered by Olson is that the ability to assign a meaning to the sentence per se, independent of its nonlinguistic interpretive context, is achieved only well into the school years (1977, p. 275), because the processing of text calls for comprehension and production strategies which are somewhat different from those employed in everyday speech and which may require sustained "education" for their acquisition.

Donaldson (1978), as still another example, also comes to grips with a similar distinction, one betweeen embedded and disembedded cognitive processes. Departing from a developmental perspective, Donaldson is especially concerned with the implications for children's adjustment to formal schooling. She points out that young children's early thought processes and use of language develop within a "flow of meaningful context" in which the logic of words is subjugated to perception of the speaker's intentions and salient features of the situation. Thus, children's and adults' normal productive speech is embedded within a context of fairly immediate goals, intentions and familiar patterns of events. However, thinking and language which move beyond the bounds of meaningful interpersonal context make entirely different demands on the individual in that it is necessary to focus on the linguistic forms themselves alone for meaning. considering Waldron's (1985) view that the progressive acquisition of words and syntax gives rise to a greater potential of meaningful combinations of words and thus converges to suggest ever new possibilities of thought in terms of finer distinctions and more complex categories. As we build up a repertoire of words with

the basic functions - referential, categorical, and differential, words automatically take on mnemonic and heuristic functions, which, therefore, can be best understood when being defined in terms of one another. Jointly, they serve to refer to, or remind people of objects not present; they help us identify and designate objects not previously encountered. It is in this process that we build up a symbolic network of ideas, whereby we order our experience, make sense of our experience and orient ourselves in a manner quite distinct from the purely sensory orientation available to animal life at large. Like others, Donaldson touches upon an important phenomenon pertinent to the dimensions of language proficiency in relation to intellectual capacity, especially when her point is viewed from Waldron's (1985) perspective that recognition of the mnemonic and heuristic functions present in even our most word categories is the first step towards understanding the nature of human language and thought.

Likewise, Bereiter and Scardamala (1981a), when concerned with the question as to the developmental nature of the cognitive involvement in literacy tasks, suggest that the oral language production system cannot be carried over intact into written composition, that the latter must, in some way, be reconstructed to function autonomously instead of interactively. In the context of writing skills acquisition, Bereiter and Scardamala (1981b) state that, developmentally, cognitive involvement can be characterized in terms of progressive automatization of lower-level skills (e.g., handwriting, spelling of common words, punctuation, common syntactic forms) which releases increasingly more mental capacity for higher-level planning of large chunks of discourse. Such increasing automatization is also evident in reading skills acquisition where, as fluency is acquired, word recognition skills are first automatized and then totally short-circuited insofar as the proficient reader does not read individual words but engages in a process of sampling from the text to confirm predictions (see, e.g. Smith 1978). What appeals most to the present researcher is the notion of the increasing release of mental capacity for higher-level operations of thought processes if viewed in

relation to learners' syntactic maturity.

Clearly, a brief review of these theoretical perspectives in connection with Cummins' conceptualization of a CALP dimension contributes significantly to our understanding of language development with a view to clarifying the relationship between learners' communicative capacity and learners' academic achievement. An adequate theoretical framework emerges when it accommodates those points of view mentioned above.

B. The T-unit as a Measure of Language Development

Background

In recent years the T-unit (terminable unit) analysis of written language development has been documented in both first and second language acquisition research studies. Consequently, research findings reported have given rise to a better understanding of the language acquisition process in its entirety and confirmed educators' intuitions about maturity in the use of sentence structures. For one thing, it is clear now that although children figure out the grammar of spoken language by the time they enter school, "this certainly does not mean that they have mastered more complex sentence patterns found in mature written discourse" (Strong 1985:342). For another, it is undoubtedly a difficult task for adult ESL learners to come to grips with the complex syntactic options often required of them in academic written discourse. Thus, the T-unit analysis allows researchers to delve into important aspects of writing performance at various stages of written language acquisition. What can be documented by means of T-unit indices, developmentally speaking, is "a heightened awareness of how prose works on a page" (Strong 1985:335) on the part of the learner.

One important assumption underlying the present study is that the learners' writing is one of most important literacy skills promoted and demanded by the school

system, and requires, in Bereiter and Scardamala's (1981a, b) term, more mental capacity for higher-level planning of larger chunks of discourse. Thus, a T-unit analysis of the learners' written syntactic maturity may be indeed an adequate measure of their cognitive/academic language proficiency. Moreover, as suggested by Yau and Belanger (1984), there is a close relationship between complexity of thought and complexity of language, considering Hunt's (1965, 1970) comment that mature writers put more thought or have more to say in a thousand words and that when the content of subject matter is constant, mature writers demonstrate greater organizational capacity of the mature mind. Therefore, this study intends to use T-unit analysis in order to explore the relationship between language capacity and academic success.

Of interest to the present study is the issue of how the T-unit as a measure of English syntactic maturity reveals learners' English proficiency in relation to their academic performance with a view to clarifying the issue of CALP on the basis of the observed characteristics of FSs' written English syntactic maturity. In view of this research topic, this study also intends to use T-unit analysis to describe the syntactic maturity of university-level foreign students as compared to that exhibited by native speakers,[4] thus revealing the English language development stage in terms of the level of syntactic maturity at which the subjects pursued their academic study. In fact, the establishment of comparative data in this regard may lead to future investigations into a few more factors that may turn out to be loading more or less on the CALP dimension and correlating with ESL learners' academic performance.

The following review of the related literature includes a summary of research studies conducted to examine the nature of syntactic maturation in the English language development characteristic of both native language learners and English as a second/foreign language learners. The review first gives an account of first language

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[4]This study will make use of some comparative data adapted from research studies by Hunt (1965), O'Donnell et al. (1967), O'Hare (1973), Yau and Belanger (1984), Larsen-Freeman and Strom (1977), Larsen-Freeman (1978), Morenberg et al. (1978).

research work on written English syntactic maturity before it takes a look at English as a

Second Language (ESL) research studies on the same topic. The review also makes

mention of the the improvement in T-unit analysis by including error analysis. Finally,

some related issues dealing with syntactic maturity research in L2 studies will be

discussed.

First Language Research on Written Syntactic Maturity

Until the early 1970s, a number of investigations had been conducted into

syntactic maturation in English as a first language largely owing to Hunt's (1965)

demonstrations of the developmental validity of the index of syntactic maturation, the

T-unit, which is defined as one main clause plus any subordinate clause or nonclausal

structure that is attached to or embedded in it. Using the T-unit indices, Hunt (1965) had

studied writings by Grade 4, 8 and 12 students and O'Donnell et al. (1967) had

measured writings of children at grade 3, 5 and 7. As a result, a developmental index of

syntactic maturity related to the age or grade levels of the subjects in their first

language acquisition was thus established. Subsequently, Hunt (1970) also examined the

difference in syntactic maturity between school pupils and superior adults. Based on his

research findings, he states that:

> as school children get older they tend to embed a larger and larger number
> of sentences within some upper S constituent. Skilled adults carry the
> tendency still further. Stated another way, older children embed a larger and
> larger number of reduced sentences inside a main clause (p. 197).

Hunt describes this process as one of reduction which increases the total number of

words per clause by decreasing the number of clauses as, in effect, older writers pack

more information into fewer clauses by the grammatical processes known as embedding

and deletion.

With regard to the T-unit as a measure of such a tendency, Hunt (1970) argues

that "not only is this measure related to chronological maturity, but also to mental

maturity." It seems to him that, although no one yet knows how it relates to concept formation and other aspects of cognitive thought processes, the T-unit may be indeed the measure of a deep-seated characteristic of the maturing mind.

While the T-unit may serve as an indicator of first language development, it should not be taken for granted as a reliable measure of writing quality. Hunt (1965) limited the term "syntactic maturity" to the "observed characteristics of writers in an older grade" and did not claim that it has anything to do with whether students write "better" (1965:5). In spite of Hunt's cautious advice, researchers, nevertheless, still went on to explore the relationship between "syntactic maturity" and writing quality as they were guided by their intuitions about the link. Consequently, T-unit indices began to be incorporated by experimental studies attempting to verify improved writing quality along with increased syntactic maturity.

For example, in an experimental study involving native-American seventh graders over a one-year period, Mellon (1969) claimed only that sentence-combining practice would increase syntactic fluency, although he also looked for improved quality but found no positive results. As a result, Mellon argued in favor of a clear distinction between the term "mature style" and the expression "mature syntactic fluency".

In still another experimental study involving seventh graders at the Florida State University High School, O'Hare (1973) used six syntactic maturity measures that were employed in Hunt (1965) and O'Donnell's (1967) methodology. O'Hare (1973) reported that increased syntactic maturity led to improved quality in accordance with his research findings and thus supported his argument: "if sentence combining practice is designed to make students write ... more mature syntax, it seems reasonable to assume that at some point this syntactic difference should show qualitatively" (p. 14).

As pointed out by Morenberg (1981:402), Hunt's (1965:54) recognition that syntactic development does not stop at the twelfth grade and O'Hare's (1973:71) argument that there was no reason for restricting sentence combining to the lower

grades were responsible for the extension of syntactic maturity research to the college level.

However, research studies of syntactic maturity at the college level have only provided us with contradictory evidence, which indicates that the relationship between syntactic maturity and writing quality is not clearly understood. On the one hand, Smith et al. (1980:35) indicated that college freshmen, told that their audience expects long sentences, almost immediately produce more complex prose, though "without ... the actual substance of complexity ...". Likewise, Stewart (1978) reported gains in syntactic maturity without concommitant gains in quality. On the other hand, in their research conducted at Miami University, Morenberg et al. (1978) reported that freshmen who practiced writing through rhetorically based sentence-combining treatment used more mature syntax and also wrote better papers than a control group. The experimental papers were judged significantly better on a holistic rating. More important was the fact that their research studies have bridged the large syntactic gap showed by Hunt (1965, 1970) between high school seniors and skilled adults.

Second Language Research on Written Syntactic Maturity

In recent years T-unit analysis has been applied by second language (L2) acquisition researchers attempting to study the development in English of students involved in English as a Second/Foreign Language (ESL/EFL) programs. The application began with Thornhill (1969:37), who, studying the development over a nine-week period of syntactical fluency of four adult Spanish-speakers learning English as a second langauge, found the mean length of T-units to be a usable measure of development toward maturity in second language oral production. Then, the application of T-unit analysis moved on to studies of ESL learners' written samples. Scott and Tucker (1974) examined both the oral and written English proficiency of 22 Arabic-speaking students enrolled in the first semester of a low-intermediate intensive English course at the

American University of Beirut. In addition to using error analysis, they also analyzed their language samples (collected at the beginning and the end of the semester) in terms of error-free T-units and reported an interesting increase in the percentage of error-free T-units over a period of one semester. These two ESL studies only marked the beginning of using T-unit analysis in the English as a Second/Foreign Language literature.

The advance made in using T-unit analysis for second language research is attributable to the recognition by a number of researchers (Scott and Tucker 1974; Gaies 1976; Larsen-Freeman and Strom 1977; Larsen-Freeman 1978; Vann 1978) that "errors, while not characteristic of first language data do occur relatively frequently in adult second language data, and that an index of language growth ought in some way to reflect the incidence of developmental errors" (Gaies 1980:55). Similarly, Larsen-Freeman (1983) argues that the performance variable of average number of words per error-free T-unit which measures learners' success at both syntactic elaboration and error elimination seems intuitively and empirically to have a great deal of appeal as a basis for an index of L2 development.

Since the mid 1970s, second language researchers (Larsen-Freeman 1977; Larsen-Freeman 1978, 1983; Perkins 1980; Ho-Peng Lim 1982) have been using not only the original T-unit indices but also more frequently the error-free T-unit indices in their studies. Larsen-Freeman and Strom (1977) examined 48 compositions written by non-native speakers of English and reported that the measure which seemed suitable as a basis for an index of development were 1) the average length of the T-unit and 2) the total number of error-free T-units per composition. Larsen-Freeman (1978) undertook a more ambitious project involving the analysis of 212 compositions written by university ESL students. Using several measures based on Hunt's (1965) performance variable, she reported that the two measures which she regarded as the best discriminators among the five levels of ESL proficiency were 1) the percentage of error-free T-units and 2) the average length of error-free T-units. Ho-Peng Lim (1982), utilizing seven indices of

syntactic complexity, studied the writing of 120 university ESL students and reported that of the seven indices of syntactic complexity, mean error-free T-units per sentence was the best indicator of language development in the writing of university ESL students. The second best index was mean words per error-free T-unit while the third best index was mean words per T-unit.

The T-unit as an objective measure of syntactic maturity has also been examined for its validity in correlation with holistic ratings of writing proficiency. Perkins (1980) used ten objective measures of writing proficiency to evaluate compositions written by advanced ESL students. He reported that only those objective measures that 'take the absence of errors into account discriminated among holistic evaluations of the compositions by experienced ESL teachers. In his words, "it may be the case that any syntactic density formula which does not consider the elimination of errors is not sensitive enough to discriminate among compositions qualitatively" (1980:65). As another example, Farhady (1978), in a completed study at UCLA, reported a significant positive correlation between the length of T-units in compositions written by 28 Persian students and five independent measures of their writing ability (organization, logical development, grammar, writing mechanics, style) based on a subjective evaluation of these same compositions by three judges.

The review of syntactic maturity research in second language acquisition studies as compared to that in first language acquisition studies reveals a number of weaknesses. First, second language researchers seem to have been more concerned with T-unit indices as fine discriminators among the levels of ESL proficiency than with them as gross indicators of different stages in second language development. Second, although second language research has, in varying degrees, added to our knowledge about syntactic maturity factors, consistent research effort to study ESL learners' syntactic maturation is still lacking. Consequently, no substantial comparative data are found accessible in the second language literature, nor have they ever been subjected to

comparison so that a developmental syntactic index may, through joint research effort, be established for second language learners in contrast to that already known to us in first language studies.

The reason for this scarcity of comparative data in ESL research literature may be attributed to the difficulty for research designs in controlling a great many variables associated with ESL learners, particularly those at the university level. First, unlike native speakers of English, students in learning English as a Second Language (ESL) or Foreign Language (EFL) have different first language backgrounds. Besides this, they vary in their educational background and in their ESL/EFL learning background in addition to individual foreign language aptitude, motivation and academic ability. Thus, "the adult should be aided by his prior learning of a language, his greater memory span, his full cognitive development, and a predisposition to analyze new information" (Butterworth and Hatch 1978:244). Yet, previous L2 research studies did not examine ESL learners' written English syntactic maturity in relation to the variables mentioned above.

Another reason is that, while second language researchers have been using error-free T-unit indices for quite some time, they have inadvertently slighted the use of the original T-unit indices such as T-unit length, clause length and ratio of clauses to T-units. Although they have improved the use of T-unit indices, they have somehow failed to provide sufficient comparative data so as to establish a developmental index for ESL/EFL learners' syntactic maturity. For these two reasons there have been no substantial comparative data that "would allow for meaningful numerical comparisons between first and second language acquisition" (Gaies 1980:54) in terms of written English syntactic maturity.

It should be noted, however, that Yau et al's (1984) study of the syntactic maturity of EFL students in Hong Kong has made a very good beginning in solving this problem, for it not only corroborates the findings of previous research in the first language literature but also provides invaluable comparative data. Moreover, in addition

to the evidence their study shows that the ability to adjust syntactic complexity to the writing task indicates a developmental trend, the authors also suggest:

> It would be interesting to investigate how writers at a mature level of cognitive ability but immature linguistic ability react to the writing task. Such investigations would shed light on the relationships among cognitive abilities, linguistic abilities, and writing skill.

Related Issues for L2 Syntactic Maturity Research

In view of Yau et al's (1984) suggestion, it is necessary to look at some issues related to L2 syntactic maturity research. One of them, for example, pertains to how T-unit indices as indicators of ESL/EFL learners' syntactic maturity are to be conceptualized in cognitive and academic terms with particular reference to foreign students' persistence at the university graduate level. Since their academic success is associated with the attainment of certain levels of bilingual proficiency, of relevance here is the hypothesis that there may be two threshold levels of linguistic proficiency. The first, or lower threshold, must be attained by learners in order to avoid cognitive disadvantages and the second, or higher threshold, is necessary to allow the potentially beneficial aspects of bilingualism to influence cognitive growth (Cummins 1976, 1979; Toukomaa and Skutnabb-Kangas 1977). This threshold hypothesis, which was originally proposed by Cummins (1976) for cases of bilingual children, may also hold true in cases of foreign students learning English as a second language in order to live up to the rigor of linguistic demands in academic settings.

However, the postulation of two thresholds was clearly speculative, for it did not consider in any depth the nature of the proficiencies which constituted the "thresholds" (Cummins, 1984:3). Since the syntactic maturity research relies on the use of objective T-unit measures, a descriptive analysis of foreign students' syntactic maturity at the university graduate level will generate useful comparative data from which some inferences about the nature of the proficiencies which constitute the

"threshold" can be made. The empirical question, specifically, is: "what is the level of syntactic maturity at which foreign students learning English as a second language manage to complete the requirements of their academic programs?"

Another relevant issue is reflected in the "interdependence" hypothesis proposed by Cummins (1978) to suppplement the threshold hypothesis and to consider explicitly the relationship between the first language (L1) and the second language (L2). The "interdependence" hypothesis suggests that L1 and L2 academic proficiencies are developmentally interdependent, i.e. in educational contexts the development of L2 proficiency is partially dependent upon the prior level of development of L1 proficiency. The hypothesis is thus applicable to the case of foreign students at the university level.

Cummins (1979a) predicts on the basis of his CALP/BICS hypothesis and interdependence hypothesis that older learners, whose L1 CALP is better developed, would acquire cognitive/academic L2 skills more rapidly than younger learners. He sees some studies (Appel 1979; Burstall et al. 1974; Esktrand 1977; Ervin-tripp 1974; Fathman 1975; Genesee and Morcos 1978; Skutnabb-Kanga and Toukomaa 1976; Snow and Hoefnagel-Hohle 1978) as having consistently shown a clear advantage for older learners in the mastery of L2 syntax and morphology as well as in the cognitive/academic types of L2 skills measured by conventional standardized tests. Cummins' prediction is clearly subject to empirical investigation. If writing performance loads on the CALP factor, the use of T-unit indices as measures of ESL learners' syntactic maturity in their L2 development may generate insights into the nature of adult ESL learners' cognitive/academic language proficiency.

The use of T-unit measures may also help account for some contradictory findings in the second language research literature. For example, although academic achievement has been repeatedly shown to be positively related to English language proficiency attained by foreign students (e.g. Brandwine 1965; Dunnett 1977; Elting 1970; Halasz 1969; Porter 1962; and Sugimoto 1966), Hamlin (1972) and

Tan-Ngarmtrong (1979) found that academic achievement was not significantly related to English proficiency test scores.

Gue and Holdaway (1973) observed one hundred and twenty three Thai graduate students in Education studying on a one-year program at the University of Alberta, Canada. Test of English as a Foreign Language Scores, both total and subtest, together with interview panel ratings obtained in Thailand, were predictor variables. But none of them displayed a high degree of predictive power. The result was consistent with those of other studies (Upshur 1976; Jones, Kaplan and Michael 1964; Mulligan 1966), which indicated that scores on tests of English proficiency do not yield high correlations with grade-point averages.

Similar research findings were reported in the early 1980s. While Bostic's (1981) study reported a correlation between foreign students' academic achievement and their scores on the Test of English as a Foreign Language (TOEFL), other researchers (Warner 1982; Odunze 1980; Zimmerman 1981) found no such correlations between foreign students' academic achievement and their scores on TOEFL and the Michigan Test of English Proficiency.

In view of the contradictory evidence outlined above, it is clear that the relationship between foreign students' academic achievement and their English language proficiency is not yet fully understood. Admittedly, TOEFL scores are the most widely accepted measure, which claims to be indicative of readiness on the part of foreign students for academic study. But, on the other hand, TOEFL is a very general measure and difficult to interpret, especially when considering the fact that it merely relies on comprehension-oriented and recognition-oriented performances rather than production tasks to measure testees' English language proficiency. Thus, there is a need to explore alternatives so as to substantiate what constitutes the so-called two "threshold" levels of language proficiency as proposed by Cummins (1976, 1979). In this regard, the T-unit analysis of foreign students' level of syntactic maturity at the point of their graduate

study will provide us with valuable insights into the second language acquisition process.

C. Summary

The review of the related literature has provided a rationale for the present study. First, it reveals that T-unit analysis may be capable of providing research findings needed to explore the actual composition of a <u>cognitive/academic language proficiency</u> (CALP) dimension, a term used by Cummins (1980a, b) to refer to the kind of language capacity indispensable to academic outcomes at school. Second, it indicates that T-unit analysis may be used to determine what constitutes the two "threshold" levels of language proficiency that bring about different academic outcomes. Third, it shows that, although chronological age and grade levels are of no direct relevance to the T-unit analysis of written English syntactic maturity in second-language research studies, it still makes sense to study ESL learners' written English syntactic maturation in relation to their background factors such as the length, the intensity and the nature of their English as a foreign language learning experience. Above all, in order for the second language acquisition theory to account for second language acquisition process in its totality, the theory should not only rely on morphological research evidence, but also draw upon substantial findings of syntactic development. In varying degrees, the use of T-unit analysis in second language acquisition research studies can help provide insights into ESL syntactic development as ESL learners learn to think and write with increased complexity and competence in the English language. It is in this respect that T-unit analysis has great deal of psycholinguistic interest and educational significance.

III. RESEARCH DESIGN

A. Research Questions

In the case of Chinese-speaking learners of English as a second language who have obtained a bachelor's degree or equivalent from a Chinese university and have been admitted into MBA programs at Canadian universities, this study intends to answer four general questions. These in turn generate several specific questions:

1. What are the characteristics of the subjects' educational background and the subjects' English as a Foreign Language (EFL) background before April, 1984 (the beginning of the twelve-week ESL preparation)?

   a. In which year were they admitted to undergraduate study in Chinese universities?

   b. What was their field of study in undergraduate programs?

   c. What was the length of their EFL study?

   d. What was the intensity of their formal university EFL study?

   e. What was the intensity of their additional formal university-level EFL study?

   f. What were the characteristics of English teaching methodology during their formal university EFL study?

   g. What was the degree of their readiness in the English language before April, 1984?

2. What are the characteristics of the subjects' written English syntactic maturity in two writings, the first produced by the subjects at the end of April, 1984 (the beginning of a twelve-week ESL training program) and the second one produced by them during their first-winter-session (1984-1985) MBA courses?

   a. What are the characteristics of the subjects' written English syntactic maturity in terms of:

      1) the mean number of clauses per T-unit (Clauses/T-unit);

2) the mean clause length (Words/Clause);

3) the mean T-unit length (Words/T-units);

4) the mean number of clauses per error-free T-unit (Clauses/EF T-unit);

5) the mean error-free clause length (Words/EF Clause);

6) the mean error-free T-unit length (Words/EF T-unit);

7) the depth of subordination inside T-units;

8) the types of and frequencies of occurence of subordinate clauses;

9) the words used to introduce various subordinate clauses;

10) the characterisitics of coordination inside T-units;

11) the depth of modification;

12) other non-clausal elements inside T-units.

b. What are the characteristics of developmental errors committed by the subjects in their written samples?

1) What is the percentage of error-free T-units?

2) What is the ratio of words to errors (Words/Error)?

3) What is the percentage of global errors?

4) What is the percentage of local errors?

3. What are the characteristics of the subjects' written English syntactic maturity in comparison to those revealed by the comparative data in the related literature?

a. What are the characteristics of the subjects' written English syntactic maturity compared to those reported in the first language (L1) acquisition literature?

b. What are the characteristics of the subjects' written English syntactic maturity compared to those reported in the second language (L2) acquisition literature?

c. What are the characteristics of the subjects' written English syntactic maturity compared to those reported in the second language (L2) acquisition

literature involving university-level ESL learners?

4. What are the characteristics of written English syntactic maturity of those subjects who failed to complete their MBA programs in Canadian universities?

B. Research Method

This section describes the subjects, materials, instruments, procedures and data analysis.

Subjects

The subjects in the present study are 24 Chinese students sponsored by the Canadian International Development Agency--China Project Office. The sample is comprised of 23 males and 1 female. They were chosen because they fit many of the necessary requirements for the study. First, they are homogeneous with respect to their native language[3] and culture. Second, they are reasonably homogeneous with respect to academic background. They have completed their undergraduate work and possess bachelor's degrees (or equivalent) conferred by one of seven Chinese universities (see Table 1).[4] Third, since they are all in the same area of studies, the type of academic English they use is thus not a variable. For instance, they are likely to participate in very intensive oral interactions (formal presentations, debate etc.) and accomplish a great deal of reading and formal report writing. Lastly, they entered their regular academic MBA programs after they had received a twelve-week, two-phase ESL training program intended not only to teach them functional language skills but also geared to the content

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[3]Although the subjects are from different areas of China where local dialects are likely spoken in every-day life, the subjects received an education from primary school to university which since the late 1950s has promoted the use of *Putonghua*, the standard Chinese, as its medium of instruction. It is in this sense that the subjects involved in this study are homogeneous with regard to their native language.

[4] All these Chinese universities except Shanghai Jiaotong University are the "key institutions of higher learning under the direct jurisdiction of the Ministry of Education" (1983) in China. (See China Handbook Series: Education and Science, pp. 56-64. Beijing: Foreign Languages Press.)

area of Business Administration.

Specifically, the ESL training program was held under the instruction of a Canadian four-teacher team during the period of April 23 to June 8, 1984 and July 9 to August 24, 1984. The first phase consisted of the six weeks at the Huazhong University of Science and Technology (HUST) in China and the second phase took another six weeks at the University of British Columbia in Canada. The ESL courses designed for this two-phase intensive training were not intended to teach the subject matter of Business Administration but rather to prepare students for the demands of their future business courses. The subjects were taught functional language skills along with study skills as well as a basic orientation to the approach used in Business Administration programs. The emphasis of the training, therefore, was placed on reading, writing and research skills, listening comprehension, note taking, oral presentation, and classroom participation in discussion. Furthermore, from the beginning great importance was attached to the cultural component of the program since all of the students were to take part in the orientation at UBC during which they would stay with Canadian host families. Consequently, the students may have learned to cope to some extent with cultural shock before commencing their academic studies in September 1984.

The China component of the program was aimed at improving subjects' general reading and writing skills, including skimming, scanning, critical reading, rapid reading, prediction, comprehension, analysis and synthesis on the one hand, and writing for specific audiences, logical development of a theme, rhetorical forms, organization, revision, surface features of writing on the other. A two-hour-a-week language laboratory session focused on listening to and comprehending lectures and developing note-taking skills. While the UBC component of the program continued to work on the four skill areas mentioned above, the content for the course material became business management specific and was obtained from such courses as university lectures, business management textbooks, annual reports and case studies. Class activities

Table 1
Distribution of Subjects
at Home-country Universities and Canadian Universities

Home-country Universities	No. of Subjects	Canadian Universities	No. of Subjects
Xian Jiaotong	1	Alberta	1
Huazhong University	1	Toronto	1
Tianjin University	3	Concordia	3
People's University	4	McGill	4
Nankai University	2	York	2
Xiamen University	5	Dalhousie	5
Shanghai Jiaotong	8	UBC	7
		Waterloo	1
Totals: 7	24	8	24

entailed evaluating, summarizing, analyzing information, understanding and following instructions for classroom activities, making recommendations that are validated by supporting arguments in problem-solving activities, presenting ideas in writing in point and prose form and using the library for research. In addition, two management courses were offered in cooperation with the UBC Faculty of Commerce and Business Administration: Basic Principles of Accounting (lecture) three times a week for three weeks; and Case Studies and Group Exercises (two-hour session) once a week for three weeks (see Table 2).

The accumulated class instruction time during the twelve-week ESL training program amounts to a total of 300 hours. In addition, throughout the training the four Canadian instructors followed a guideline document (compiled by M.E. Belfiore, J. Hunter and W. Allen 1983) which is intended for teachers developing and teaching the *English for Academic Purposes* (EAP) course to Chinese students who will be studying Business Administration in Canada. This document has several characteristics worth mentioning here. First, it was compiled on the basis of awareness of the characteristics of university Business Administration programs. At the outset, it states that obtaining the balance between independence and co-operation is exemplified in the case study analysis which is the distinguishing feature of most business programs. It points out the fact that:

Table 2　　　　CANADA/CHINA ENGLISH FOR MANAGEMENT PROJECT

HUST COMPONENT
(April 23 - June 8, 1984)

	Mon	Tue	Wed	Thu	Fri	Sat
8:00 - 9:20 am. Reading						Silent Reading
9:40 - 11:00 am. Writing						Review
11:00 - 11:30 am. Questions and Conversation						
2:30 - 4:15 pm. (15 min. break)	Guided Study & Consult.	Silent Reading & Lab.	Lecture/ Discussion	Silent Reading & Lab.	Guided Study & Consult.	

UBC COMPONENT
(July 9 - August 24, 1984)

	Mon	Tue	Wed	Thu	Fri	Sat & Sun
8:30 - 9:20 am. Aspects of Lecture or Seminar						Socio-Cultural Activities
9:30 - 11:10 am. EAP and Study Skills						
11:30 - 12:20 am.	Acctg. Lecture	Case Studies & Group Exercises (Group 1)	Acctg. Lecture	Case Studies & Group Exercises (Group 2)	Acctg. Lecture	
12:30 - 1:20 pm.						
2:00 - 3:40 pm.	Guided Study & Consult.	2:30 - 4:10 Canadian Culture	Guided Study & Consult.	2:30 - 4:10 Canadian Culture	Review	

Business programs, especially at the graduate level, present students with more work than they can possibly handle. Students are forced to learn how to manage their time, select high priority work for immediate action and be productive under consistent stress. Basically, they are in training for managerial positions which demand those skills plus independent thinking while operating within a co-operative environment (p. 11).

Second, it shows a good knowledge of what typifies the approach to the language teaching and learning in most of the Chinese university EFL programs, thus pointing to the gap between the possible expectations on the part of the Chinese students and the academic reality they will encounter in Business Administration programs. Third, it recommends a syllabus made up of three components: performance objectives, subskills and business topics. The performance objectives are viewed also as task objectives in terms of reading, listening and viewing, oral interaction and writing (see APPENDIX A). The subskills component addresses interaction strategies such as attending and turntaking, and compensatory strategies like paraphrasing as well as pronunciation and grammar. The business topics component provides descriptions of core MBA courses to assist the teacher in choosing relevant, authentic material for implementing the performance objectives. Finally, the document also includes suggestions for tasks, or rather, for putting the tasks together into integrated activities. In short, it was under such guidance that the twelve-week ESL training program was carried out to the end.

With reference to the evaluation of the subjects' progress over the twelve-week period, one ESL Test of Academic Language Skills (ESLTALS) was administered twice, the first time at the beginning of the program and the second time at the end of the program. Upon completion of this intensive training, the subjects were admitted as regular MBA graduate students into eight Canadian universities.

Definitions of Special Terms

The special terms are defined with respect to the four general research questions.

1. The definitions under the first research question are as follows:

   a. The entrance year is defined as the year in which the subjects entered Chinese universities, commencing their undergraduate studies;

   b. The length of the subjects' EFL study requires two definitions. The first refers to the number of years since the subjects started learning English, whereas the second refers to the number of years during which the subjects felt they had actually studied English intensively to fulfil the requirements of schools and universities.

   c. The intensity of the subjects' formal university EFL study is defined as the number of classroom hours spent learning English as required by the university undergraduate program alone.

   d. The intensity of the subjects' additional formal university EFL study is defined as the additonal number of classroom hours spent learning English under the instruction of native speakers of English. This includes the number of classroom hours in taking certain courses which used English as the medium of instruction.

   e. The characteristics of English teaching methodology during the subjects' formal university EFL study are defined as consisting of three components: the focus of English courses, major types of language activities, the most emphasized language skills and the frequency of occurrence of writing in the university EFL courses.

   f. The subjects' readiness in English for academic purpose is defined as subjects' scores on the Test of English for Academic Purpose, which has been used at the Canada/China Language Training Center (CCLTC) in Beijing

since its establishment.

2. The definitions under the second research question are as follows:

a. The T-unit, a construct first devised by Hunt (1965), "can be described as one main clause plus whatever clauses, phrases and words happen to be attached to or embedded within it" (Street 1971:13).

b. The mean number of clauses per T-unit "is defined as the number of all clauses (both subordinate and main) divided by the number of T-units - or, since the number of main clauses is identical with the number of T-units, divided by the number of main clauses. The result is expressed as a decimal." (Hunt 1965:33)

c. The mean clause length is obtained by dividing the number of words by the number of clauses (see Hunt 1965:15).

d. The mean T-unit length is obtained by dividing the number of words by the number of T-units.

e. The mean number of clauses per error-free T-unit is defined as the number of all clauses (both subordinate and main) within error-free T-units divided by the number of error-free T-units.

f. The mean error-free clause length is obtained by dividing the number of words contained in error-free T-units by the number of all clauses (both subordinate and main) contained in error-free T-units.

g. The mean error-free T-unit length is obtained by dividing the number of words contained in error-free T-units by the number of error-free t-units.

h. The depth of subordination in T-units is defined as the distribution of what percentage of their clauses the subjects put into 1-clause T-units, 2-clause T-units, 3-, 4-, 5-, etc. (Hunt 1965:60-1).

i. The types and frequencies of occurrences of subordinate clauses are defined as noun clauses, adverbial clauses, and adjectival clauses and their

frequencies of occurrence.

j. Coordination inside T-units includes two categories:

1) coordination between words and phrases (phrasal coordination);

2) coordination between subordinate clauses, which is one kind of clausal coordination (Quirk and Greenbaum 1973) and is preserved by T-unit indices,

Coordination between T-units is excluded. Those two categories of coordination mentioned above reflect the belief (Hunt 1965:21) that "as a potential index of maturity, the unit (T-unit) has the advantages of preserving all the subordination achieved by a student, and all the coordination between words and phrases, and subordinate clauses", whereas "coordination with 'and' between T-units is an index of immaturity ..." (Hunt 1965:22).

k. The depth of modification, a term used by Hunt (1965:120), is presented in two categories. The first refers to "the premodification, which comprises all the items placed before the head - notably adjectives and nouns" (Quirk and Greenbaum 1973:376). Thus: The *clever* student or some *clever college* students. The second refers to "the postmodification, comprising all the items placed after the head - notably prepositional phrases, non-finite clauses, and relative clauses (Quirk and Greenbaum 1973:376): The person *in the corner*; the person *standing in the corner*; the person *who stood in the corner*. However, in addition to these three major types of postmodification, there are still "some relatively minor types of postmodification" (Quirk and Greenbaum 1973:392). They include 1) "some adverbs signifying place or time postmodify noun phrases" (Quirk and Greenbaum 1973:129); 2) the postposed adjectives.

l. Other non-clausal elements inside T-units refer to these as follows:

1) non-finite clauses used adverbially;

2) sentence adverbials and prepositional adverbials;

3) prepositional phrases and infinitives used as adjective complements;

4) non-clausal nominals.

m. Developmental errors are defined as "errors similar to those made by children learning the target language as their (first language" (Dulay et al 1982:165). The classification of various types of developmental errors is illustrated by Dulay et al. (1982:166-70) in detail.

1) The percentage of error-free T-units is obtained by dividing the number of error-free T-units by the total number of T-units, times 100.

2) The ratio of words to errors is defined as the number of words divided by the number of errors.

3) "Global errors are those that affect overall sentence organization such as word order errors and errors involving sentence connectors" (Dulay et al. 1982:35, 189-97).

4) Local errors are those "errors that affect single elements (constituents) in a sentence" but "do not usually hinder communication significantly. These include errors in noun and verb inflections, articles, auxiliars and the formation of quantifiers. Since these errors are limited to a single part of the sentence, Burt and Kiparsky labeled them 'local'" (Dulay et al. 1982:191-2).

Data Base

The data base for this study is comprised of three types of data as follows:

1. A questionnaire consisting of three sections that could solicit the following information:

a. the subjects' education background factors before before April, 1984:

1) the subjects' entrance year for undergraduate studies;

2) the subjects' field of study in undergraduate programs.

b. the length and intensity of the subjects' EFL learning experience before April, 1984;

c. the nature of their EFL learning experience in their previous formal university EFL courses.

2. The written samples which were produced by the subjects at the beginning of the twelve-week ESL training program. The topic was not specific in the sense that the subjects were simply told to write something about themselves and thus the subjects decided what to write about.

3. The papers which were written by the subjects for the MBA courses they took in the first two academic terms. The topic was to be whatever the subjects were normally supposed to write about as part of their business course work. The subjects were told that the researcher was not interested in the grade they had received but in what they had actually written about.

Data Collection

As the subjects were attending their MBA programs in eight Canadian universities, data collection had to be carried out through the researcher's personal correspondence with regional coordinators who were appointed by the Canada/China Language and Cultural Project Office at Saint Mary's University, Halifax.

A letter was written to the Chinese MBA students at eight Canadian universities to request their cooperation in providing the data such as papers written during the first two academic terms and their transcripts. Attached to the letter was the message written by Dr. Hermann Schwind, the Director of the Canada/China Language and Cultural Project Office, explaining to the subjects the importance of the study being undertaken by the researcher. It was indicated in the letter that information regarding the subjects' identification would be kept strictly confidential.

The questionnaires were mailed to, and returned by the twenty-four subjects with the help of the regional coordinators working for the Canada/China Language and Cultural Project Office.

The written samples produced by the twenty-four subjects in April, 1984 were gathered by the researcher from the files which were kept in the Continuing Education Centre at the University of British Columbia. The written samples produced by the subjects for their MBA courses were obtained by mail. However, since only seventeen of these subjects provided the researcher with their papers written during the first academic year, the sample size was finally reduced to seventeen subjects.

Data Analysis

The analysis of the collected data began with the information contained in the questionnaire. It resulted in descripive statistics for each variable in terms of frequency and percentage in order to determine the characteristics of the subjects with regards to their entrance year of undergraduate study, field of study in undergraduate programs, English as a Foreign Language learning experience and the characteristics of English teaching methodology encountered by the subjects.

The analysis of the collected written samples began with the counting of the number of words for each subject. The counting was terminated at the end of the sentence closest to the five hundredth word. This decision was justified by O'Hare (1973) who points out that it was discovered that a sample of just over 400 words in length was as reliable an indicator of average T-unit length as was a 1000-word sample. Then the writings of all subjects were cut into T-units and clauses (both subordinate or main) so that the T-unit performance variables could be worked out and subsequently described. Next, errors in the writings of all subjects were counted and classified so that the error-free T-unit variables could be obtained and described. Variables characteristic of the subjects' writings in terms of subordination, coordination,

modification and non-clausal elements inside T-units were also identified. Finally, an error analysis was conducted and error types were classified.

The data analysis then proceeded to a comparison of the T-unit variables obtained in the present study with the comparative data adapted from Hunt (1965, 1970) and Morenberg et al. (1978) in the literature relating to first language acquisition. Comparisons of the T-unit variables obtained in the present study with the data adapted from L2 acquisition researchers were also carried out.

Finally, the characteristics of written English syntactic maturity of the subjects who were not awarded MBA degrees were determined.

Interrater Reliability

Interrater reliability is defined as the estimate of agreement between observers or the percentage of agreement between interraters. For example, if observer A reported 82 minutes of out-of-seat behavior while observer B reported 96 minutes, the reliability estimate would be 82/96 or .85 (see Borg and Gall 1979:331).

In this study interrater reliability was established for the T-unit measures used by the researcher on the basis of the T-unit analysis of six percent of the written samples conducted by the interrater. The percentage of agreement between the two independent raters for the analyses of all written English syntactic maturity factors was found to be ninety-eight percent.

IV. DISCUSSION OF THE RESULTS

This chapter reports results in several sections. The first section, intended to answer the first research question, gives a description of the subjects in order that the subsequent characterization of the subjects' written syntactic maturity in the English language can be viewed against the background of their education, experience and English as a Foreign Language (EFL) learning experience. The second section, in response to the second research question, presents a description of the subjects, who are all Chinese MBA students, based on the characteristics of their written English syntactic maturity in two writings. The third section is a description of the characteristics of the subjects' written English syntactic maturity in comparison with those revealed by the data accessible in the related literature. The final section provides a description of the characteristics of the written syntactic maturity of those subjects who have completed their MBA programs as expected and of those subjects who have not completed their MBA programs.

A. Subjects' Education and EFL Learning Experience

Subjects' Education and Working Background

Table 3 describes the subjects in terms of the university entrance year in which they commenced their undergraduate programs. This table suggests that most of the subjects in this study commenced their undergraduate studies in 1978 or 1979 and, upon completion of the four-year undergraduate programs, graduated from Chinese universities in 1982 or 1983. From this it can be inferred that before they started the twelve-week EFL training program prior to the commencement of their MBA programs at Canadian universities in September, 1984, the subjects could only have had a two-year experience in the work force at most.

Table 3
The Subjects' University Entrance Year
for Their Undergraduate Studies in China

Entrance Year	1975	1978	1979	1980	Total
Frequency	1	6	8	2	17
Percentages	6%	35%	47%	12%	100%

Table 4 displays the subjects' majors in their undergraduate programs in China.

Table 4

Field of Study in Undergraduate Programs

Economics	Mathematics	Engineering	Computer	Total
5	4	7	1	17
29%	24%	41%	0.6%	100%

It is observed that 41% of the subjects majored in engineering during their undergraduate programs while 29% of them majored in social science (Economics) and the rest in Mathematics (including computer science).

Subjects' EFL Study Experience

The following describes the subjects' English as a Foreign Language (EFL) learning experience prior to April, 1984. With reference to the length of their EFL study, the subjects were asked (i) when they began their EFL study and (ii) their perception of the number of years in which they were actually engaged in intensive EFL study. From the information provided, one subject started learning English as early as 1964 while the latest beginner did not start studying English until 1979. Figure 2 shows the number of years since the subjects first started EFL study, with its mean being 8.7 years and the difference as 15 years, ranging from the minimum number of 5 years to the maximum

Figure 2 · NUMBER OF YEARS SINCE BEGINNING EFL STUDY (N=17)
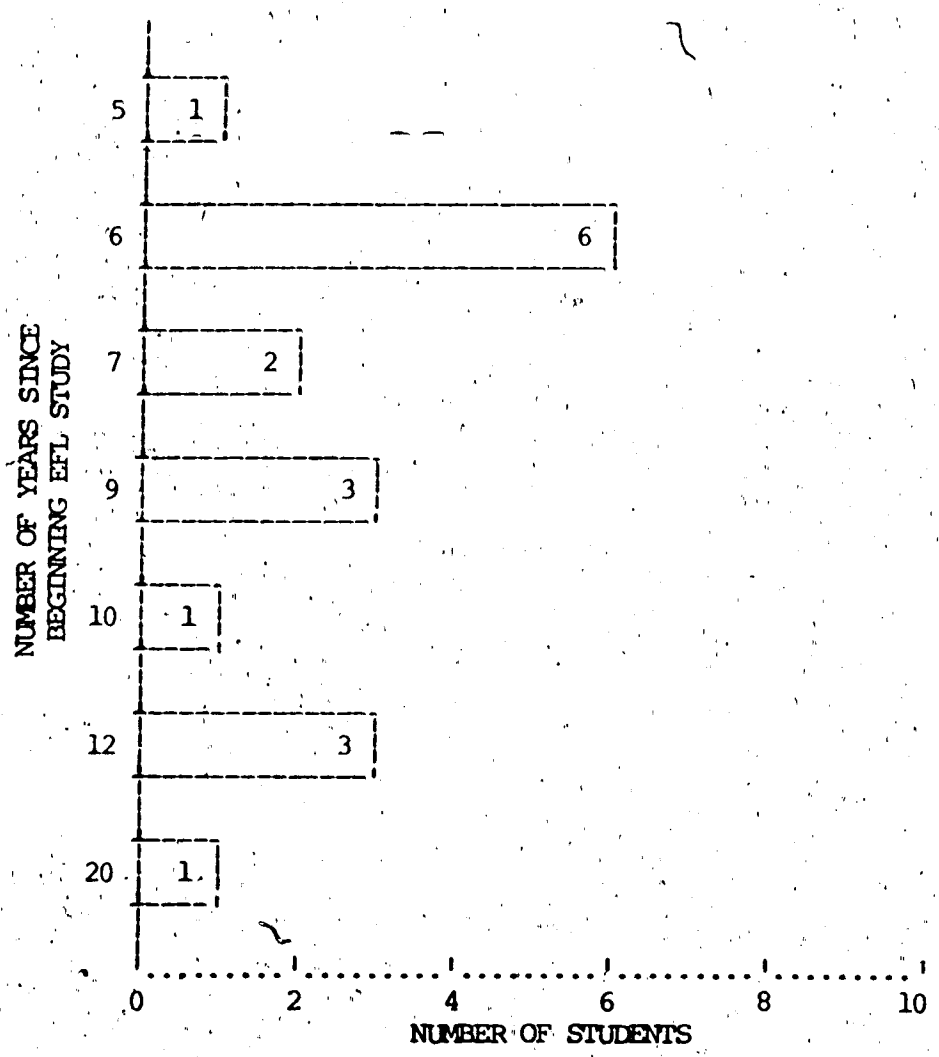
number of 20 years.

As for the subjects" perception of the number of years in which they were actually engaged in the intensive study of English as a Foreign Language, Figure 3 shows that the mean number of years is 5.6 years while the difference among the subjects in the number of years of EFL study ranges from 5 years to 10 years. In fact, ten subjects reported having intensively studied English at the university level and after graduation for only 5 years and six for only 6 years. The difference shown between Figure 2 and Figure 3 may indicate that the English courses offered to the subjects by the secondary school system in China were not adequate enough to be regarded by the subjects as actual EFL learning experience.

Another important characteristic of the subjects is related to the intensity of their formal university EFL study which is counted in terms of the number of hours reportedly spent by the subjects in the university EFL courses as required by their undergraduate programs in China. Figure 4 presents the number of hours each subject spent in their formal university EFL study. Interestingly, the mean number of hours in the subjects' university EFL study is 250.35 hours.

It should be noted that the mean number of hours of EFL instruction received by the subjects provides insight into one aspect of the EFL programs in Chinese universities, for it is consistent with one of the characteristics, reported by Yu (1984:32-3), of the EFL programs available at the tertiary level in China. According to Yu (1984), what is typical of such EFL programs in Chinese universities is that there are "few teaching hours (only 280-320 hr. total) spread out over 2 or more academic years." As far as the subjects involved in the precent study are concerned, only three of them did receive more than 280 to 320 hours of EFL instruction within four years, which attests to the fact described by Yu (1984) that in Chinese universities science-major students have a very limited amount of exposure to English over the period of four-year undergraduate study.

Figure 3   NUMBER OF YEARS ACTUALLY SPENT IN EFL STUDY (N=17)

NUMBER OF YEARS	FREQUENCY	PERCENT	MEAN	STD DEV
5	10	58.8	5.64	1.22
6	6	35.3		
10	1	5.9		
TOTAL	17	100.0		
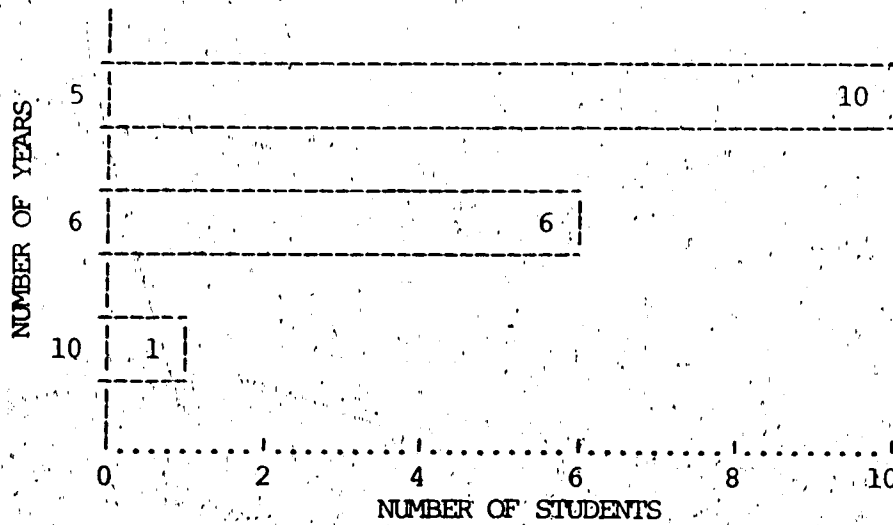
Figure 4   INTENSITY OF FORMAL UNIVERSITY-LEVEL EFL STUDY (N=17)

NUMBER OF HOURS	FREQUENCY	PERCENT	MEAN	STD DEV
0*	1	5.9	250.35	173.24
128	2	11.8		
144	1	5.9		
160	1	5.9		
192	4	23.5		
240	1	5.9		
256	4	23.5		
384	1	5.9		
512	1	5.9		
768	1	5.9		
TOTAL	17	100.0		

* Note: This subject did not report his number of hours spent in
the university-level EFL study even though he started
learning English as early as in 1964 and mentioned the
number of hours spent in five subject matter courses
using English as the medium of instruction.

When it comes to examining the subjects' EFL learning experience, it is necessary to take into consideration important factors such as whether the subjects were ever taught by native English instructors in addition to the hours of formal university EFL study or whether they had ever attended subject matter courses using English as the medium of instruction. The former may make a difference in the subjects' EFL learning experience provided that the instructors are experienced in the teaching of English as a Foreign Language. The latter may make a difference in the quality of the subjects' EFL learning experience because research findings suggest that "adult students can indeed gain in second-language proficiency in the absence of formal instruction when the second language is used as the medium of instruction" (Edwards et al. 1984:280).

As shown in Figure 5, only one subject ever attended subject matter courses using English as the medium of instruction while five other subjects were taught English by native English instructors for quite a number of instruction hours in addition to the number of hours of EFL study normally required by the subjects' home universities. Among these five subjects, four were taught by American teachers who participated in an education exchange program with China at Shanghai Jiaotong University in the 1983-84 winter session while one was taught by a native speaker who was hired by the United Nations for an English training program in Xiamen University.

Figure 6 shows the overall intensity of the subjects' formal university EFL study, which comprises both the intensity of formal university EFL study and the intensity of additional university EFL study. As a result, the mean number of hours of EFL instruction becomes 375.88 hours, which is higher than the average number of hours of EFL instruction which Yu (1984) described the Chinese university students as normally having received during their undergraduate years. Thus, 52.9% of the subjects had studied English for more than 320 hours while they were undergraduate students at Chinese universities. This is one of the important characteristics associated with the subjects in

Figure 5   INTENSITY OF ADDITIONAL UNIVERSITY-LEVEL EFL STUDY (N=17)

	NUMBER OF HOURS	FREQUENCY	PERCENT
ENGLISH			
TAUGHT BY NATIVE SPEAKERS	0	11	64.7
TAUGHT BY NATIVE SPEAKERS	216	1	5.9
TAUGHT BY NATIVE SPEAKERS	288	1	5.9
TAUGHT BY NATIVE SPEAKERS	320	2	11.8
TAUGHT BY NATIVE SPEAKERS	450	1	5.9
USED AS THE MEDIUM OF INSTRUCTION	540	1	5.9
TOTAL		17	100.0

Figure 6. OVERALL INTENSITY OF FORMAL UNIVERSITY-LEVEL EFL STUDY (N=17)

NUMBER OF HOURS	FREQUENCY	PERCENT	MEAN	STD DEV
128	1	5.9	375.88	193.28
144	1	5.9		
160	1	5.9		
192	1	5.9		
240	1	5.9		
256	3	17.6		
344	1	5.9		
384	1	5.9		
480	1	5.9		
512	2	11.8		
540	1	5.9		
576	1	5.9		
642	1	5.9		
768	1	5.9		
TOTAL	17	100.0		

this study, since only slightly more than half of the subjects involved reached this level.

Characteristics of the EFL Instruction

Figures 7 through 10 display the characteristics of the English teaching methodology used during the subjects' formal university EFL study. As shown in Figure 7, 13 subjects regarded reading as the focus of their university EFL courses while 12 subjects mentioned English grammar as the focus of the EFL instruction. Also 7 subjects described the learning of vocabulary as the focus of the EFL courses. Thus, the ultimate objective of the EFL program experienced by the subjects was reading, which may have included grammatical analysis of the reading materials. Figure 8 describes the major language activities in the EFL courses as experienced by the subjects. Since 8 subjects regarded lectures on grammar as the major language activity in the EFL classroom and 7 subjects viewed grammatical exercises as the major language activities in the EFL classroom, it is clear that the English teaching methodology that is most characteristic of the EFL courses attended by the subjects was grammar-oriented. It seems that only on rare occasions might the subjects have had an opportunity to use English for any real communicative purposes, since only one subject reported having participated in group activities.

With regard to the most emphasized skills in the EFL courses, 12 subjects, as shown in Figure 9, mentioned reading skills, while 9 subjects suggested that grammatical skills were the most emphasized skills in the EFL courses. It also seems that very little attention was paid to such language skills as conversational skills, listening skills and writing skills. In view of this, it is not likely that the subjects (except in meaningful reading assignments) could have participated in activities that were provided with rich comprehensible language input in Krashen's (1982, 1984) sense or in activities that were task-oriented and geared to meaningful communicative purposes.

Figure 7 FOCUS OF FORMAL UNIVERSITY-LEVEL EFL COURSES (N=17)

NUMBER OF STUDENTS
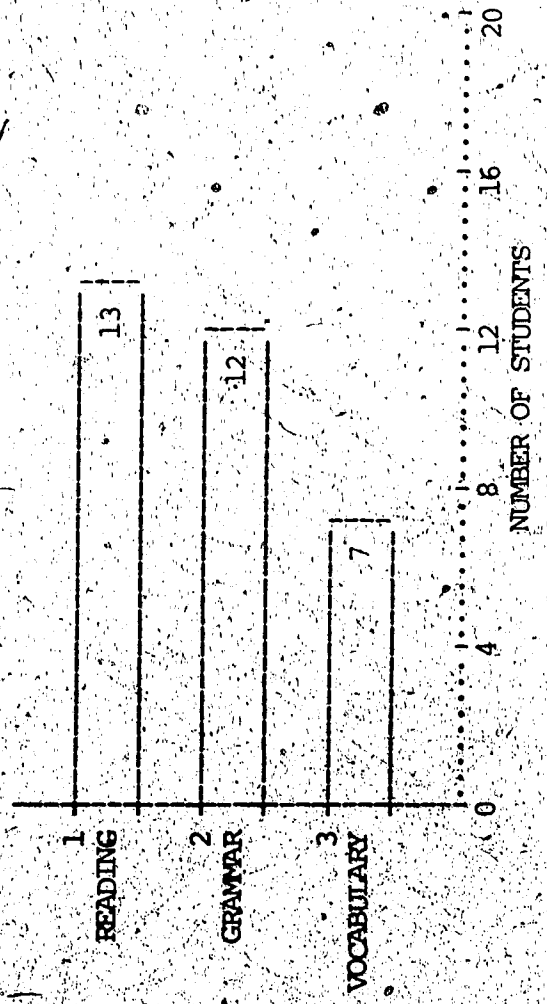
Figure 8   MAJOR LANGUAGE ACTIVITIES IN EFL COURSES (N=17)
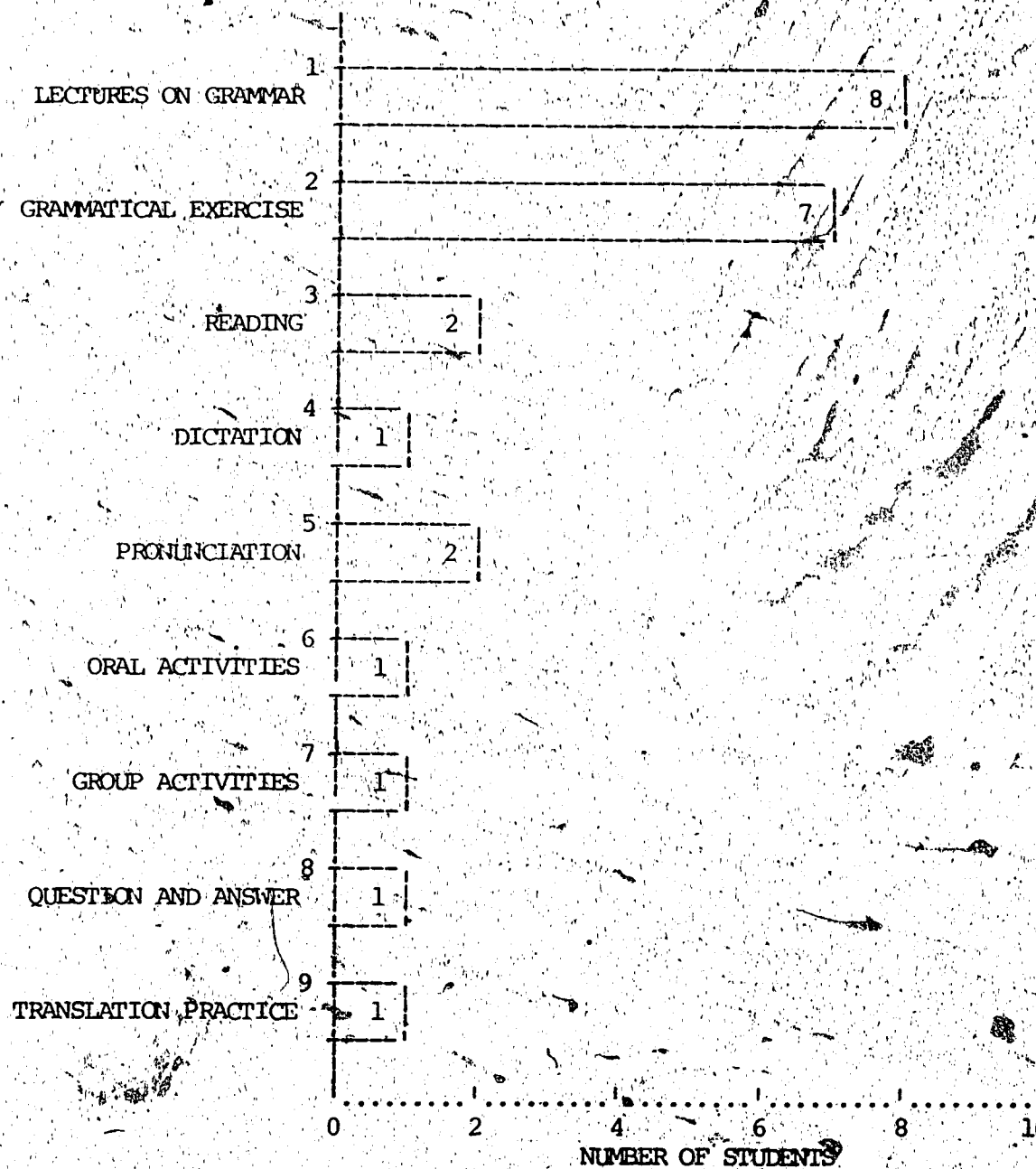
Figure 9 MOST EMPHASIZED SKILLS IN FORMAL UNIVERSITY-LEVEL EFL COURSES (N=17)

1 READING SKILL — 12

2 GRAMMATICAL SKILL — 9

3 CONVERSATIONAL SKILL — 3

4 WRITING SKILL — 1

5 TRANSLATION SKILL — 1

NUMBER OF STUDENTS

0   4   8   12   16   20
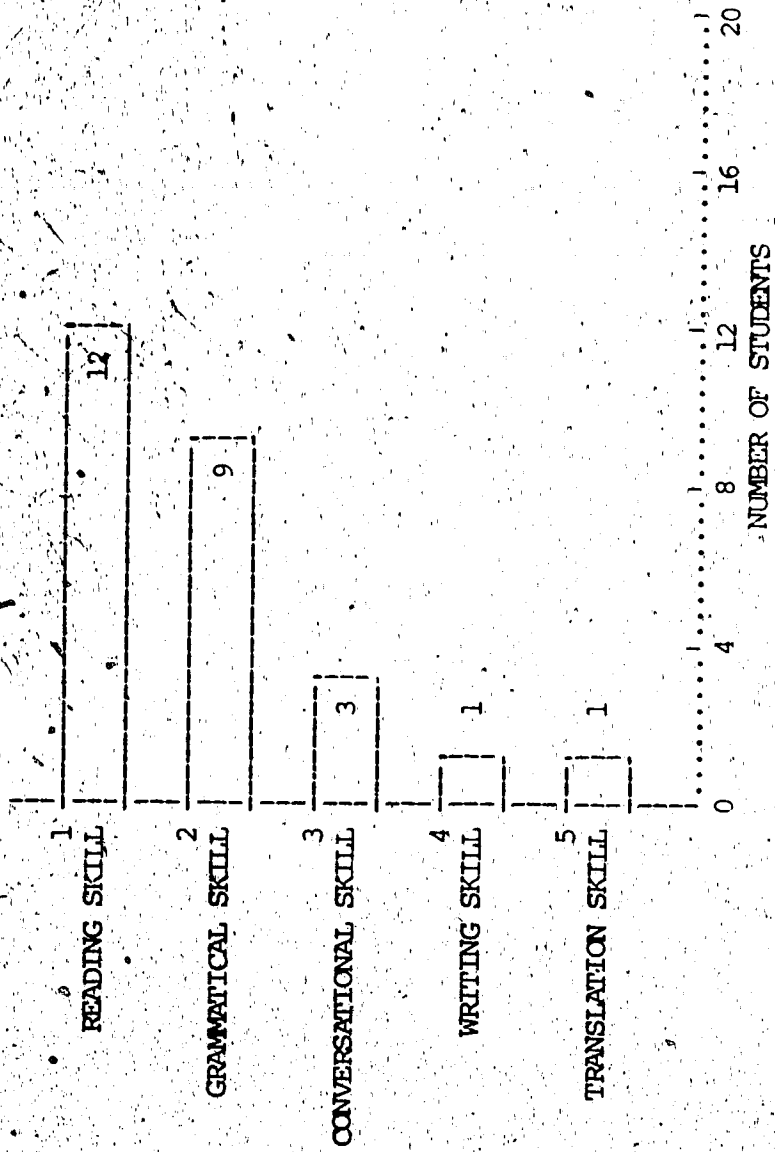
The same can be said of the subjects with respect to writing activities. On an ordinal scale (see APPENDIX C), the subjects reported how often they were asked to accomplish certain writing tasks. As shown in Figure 10, 10 subjects indicated that they were never given writing assignments or tasks while 7 subjects reported that they seldom had the opportunity to experience writing activities. This is reflective of the way English is taught in many university-level EFL classrooms in China.

Subjects' Preparedness in English for Academic Study

While TOEFL scores were not available for the subjects in this study, scores were available on the Test of English for Academic Purposes (EAP), a set of tests of English language proficiency used at the Canada/China Language Training Centre (C/CLTC) in Beijing, China. The tests are administered to those candidates whose purpose for coming to Canada was to pursue academic study at the university level. In fact, "the main purpose of the C/CLTC English Proficiency Examination is to identify those candidates who are ready to function in English or French in a work-training situation or a university programme in Canada".[1] Despite the fact that the validity of the EAP tests still remains to be determined, the subjects' scores on the EAP tests may, to a certain degree, reflect their readiness in the English language for academic purposes prior to April, 1984.

The EAP tests consist of

1. a test of listening comprehension lasting approximately one hour administered in a language laboratory;

2. a test of reading comprehension lasting one and a half hours;

3. a test of writing skills lasting approximately two and a half hours.

Scores are given on a 5-point scale. Figures 11 through 14 present the subjects' scores on the EAP tests and their average scores on the EAP tests in the form of frequencies.

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[1] See Monday Morning, Vol. 1, No. 1, June 1st 1984, p. 4. Monday Morning is a magazine published annually by C/CLTC.

Figure 10 : FREQUENCY OF WRITING IN FORMAL UNIVERSITY-LEVEL EFL COURSES (N=17)

VERY OFTEN   1   0

ONCE A WEEK   2   0

ONCE EVERY OTHER WEEK   3   0

SELDOM   4   7

NEVER   5   10

NUMBER OF STUDENTS

0   2   4   6   8   10
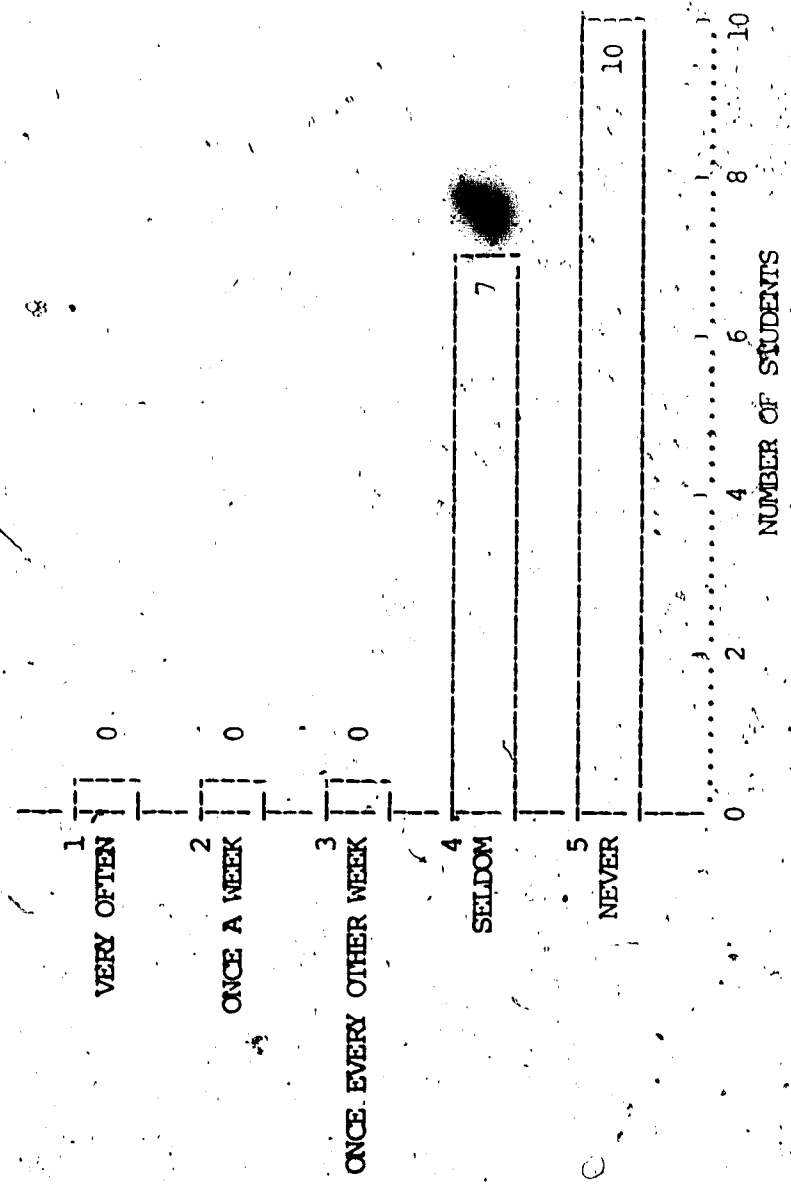
As shown in Figure 11, one subject scored 5 on the listening test while 8 scored 4 and 6 scored 3. Their mean score on the listening comprehension test is 3.67. As displayed in Figure 12, 7 subjects scored 5 on the reading comprehension test while 8 subjects obtained the score of 4, attaining a mean score of 4.47. As illustrated in Figure 13, none of the subjects obtained a score of 5 on the writing skills test. In fact, only 5 subjects scored 4 while 10 subjects scored lower than 4 on the writing skills test, attaining a mean score of 3.07.

The test results suggest that, on the whole, the subjects did best on the reading comprehension test, while their performance on the listening comprehension test ranked second. Their writing performance was the worst. These characteristics were probably the results of the English teaching methodology as it, to varying degrees, affected or rather shaped the subjects' EFL learning experience. It is not surprising that their reading performance turned out to be their best, for reading was given priority while writing was rarely done during their EFL learning experience. In any case, as indicated by Figure 14, none of the subjects was found linguistically ready to pursue academic studies, namely MBA programs, in Canadian universities because 8 subjects obtained an average score of 3.67 while 2 subjects scored an average score of 3.33 and 3.00 respectively, which was well below the standard set by the C/CLTC at 4.60 (personal communication). Only 5 subjects scored on the average at or above 4, still unable to reach an average score of 4.60.

In view of the fact that the subjects at that time did not appear ready to proceed to Canada for university-level studies, a twelve-week ESL training program beginning at the end of April, 1984, was organized in order to prepare the subjects to reach the point where they could live up to the linguistic demands of MBA programs at Canadian universities.

In summary, this section has identified a number of characteristics associated with the 17 subjects finally chosen for the study. It is in the context of the background

Figure 11 LISTENING SCORES ON EAP TEST (N=15)

SCORE	FREQUENCY	PERCENT	MEAN	STD DEV
1	0	0	3.67	.617
2	0	0		
3	6	40		
4	8	53		
5	1	7		
TOTAL	15	100		
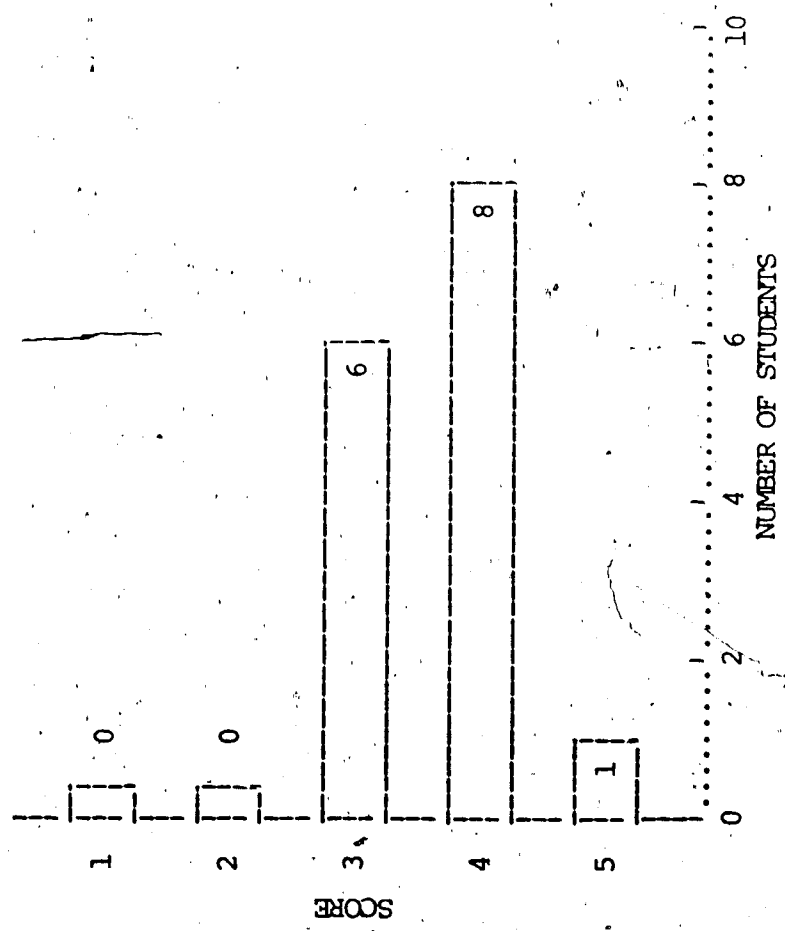
Figure 12 READING SCORES ON EAP TEST (N=15)

SCORE	FREQUENCY	PERCENT	MEAN	STD DEV
1	0	0	4.47	.516
2	0	0		
3	0	0		
4	8	53		
5	7	47		
TOTAL	15	100		
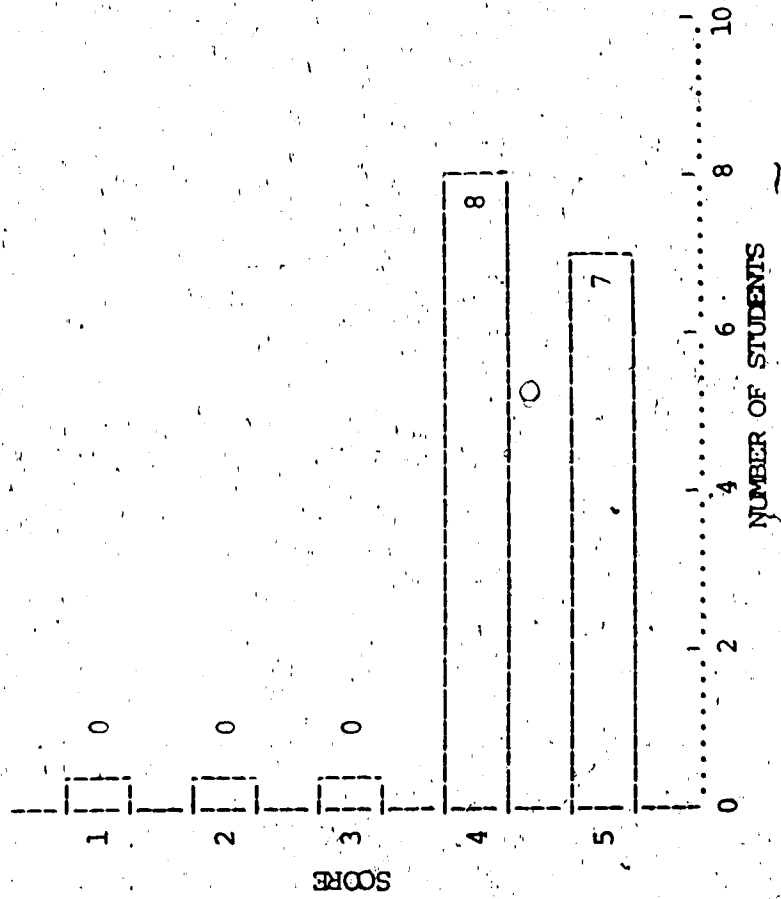
Figure 13   WRITING SCORES ON EAP TEST (N=15)

SCORE	FREQUENCY	PERCENT	MEAN	STD DEV
1	0	0	3.07	.799
2	4	26.7		
3	6	40.0		
4	5	33.3		
5	0	0		
TOTAL	15	100.0		
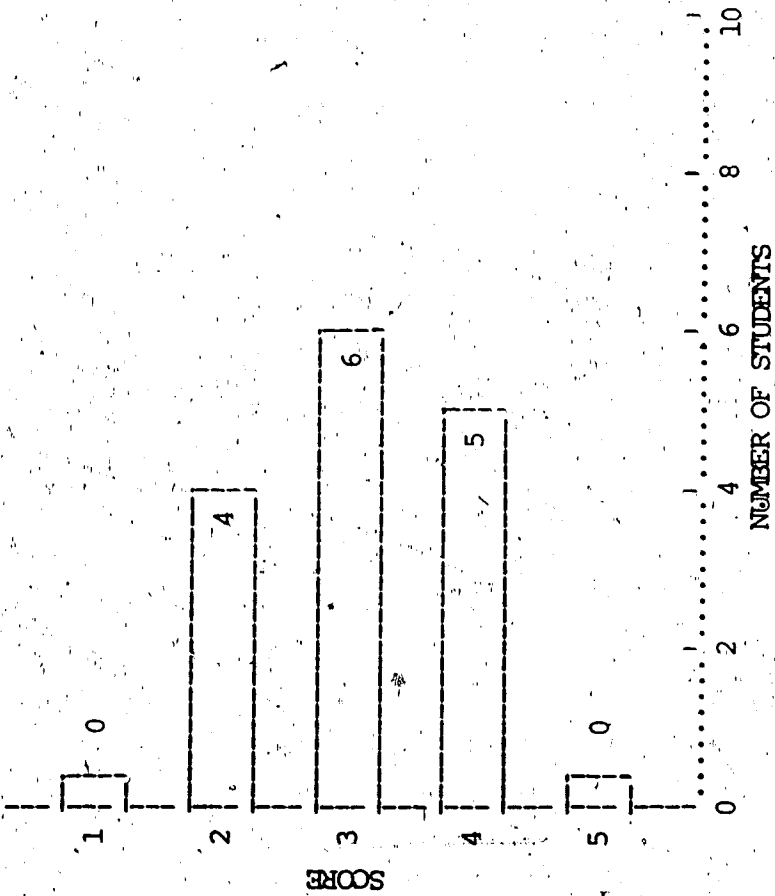
Figure 14 AVERAGE SCORES ON EAP SUBTESTS (N=15)

AVERAGE SCORE	FREQUENCY	PERCENT	MEAN	STD DEV
3.00	1	6.7	3.74	.313
3.33	1	6.7		
3.67	8	53.3		
4.00	4	26.6		
4.33	1	6.7		
TOTAL	15	100.0		
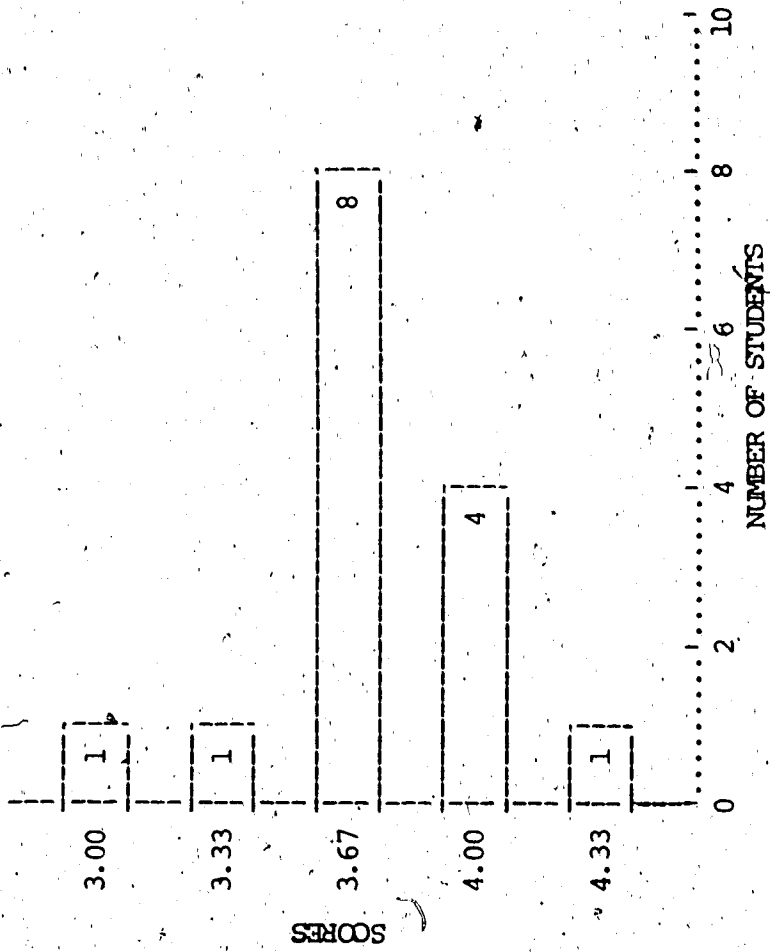
of the subjects' education experience, EFL learning experience and readiness in English for academic studies prior to April, 1984 that the researcher will next describe and characterize the subjects' written syntactic maturity.

B. Subjects' Written English Syntactic Maturity

This section presents a description of the subjects' written English syntactic maturity assessed by using T-unit measures. As an index of maturity, the T-unit is noted for its capability of preserving all the subordination achieved by a subject and all of his/her coordination between words, phrases, and subordinate clauses as well. This section looks into the characteristics of subordination, coordination and modification in the two writings produced by the subjects before the characteristics of written errors found in the subjects' writings are described.

T-unit Indices of Syntactic Maturity

The writings of all subjects* were divided into T-units, and subsequently, the mean length of T-units, the mean length of clauses, and the ratio of clauses to T-units in the two writings were computed for each subject and for the whole sample group.

In Table 5, the sample means and standard deviations for the two writings are displayed. It is observed that the sample mean of the mean T-unit length is 14.98 in Writing One and 16.48 in Writing Two. In percentages, there is a 9 percent increase between Writing One and Writing Two if 16.48 in Writing Two is taken as 100 percent. The group mean of the mean clause length is 9.63 in Writing One and 11.14 in Writing Two while, in percentages, there exists a 14 percent increase in Writing Two when compared with Writing One.

*The first writing was done by the Chinese MBA students in April, 1984 (the beginning of the twelve-week ESL preparation) prior to their entry into MBA programs while the second one was produced by them during their MBA Programs.

Table 5
Sample Means of Mean T-unit Length, Mean Clause Length
and Mean Number of Clauses per T-unit within Two Writings

Measure	Valid N	Writing One		Writing Two	
		Mean	SD	Mean	SD
Words / T-unit	17	14.98	2.31	16.48	3.16
%		91%		100%	
		t-value -2.13		p=0.049 (Sig)	
Words / Clause	17	9.63	1.22	11.14	1.99
%		86%		100%	
		t-value -2.98		p=0.009 (Sig)	
Clauses / T-unit	17	1.56	0.15	1.49	0.19
%		100%		96%	
		t-value 1.63		p=0.124 (NS)	

Although there are observed increases in the subjects' written syntactic maturity as indicated by such T-unit indices as the mean T-unit length and the mean clause length, there is, however, an observed drop of four percent in Writing Two when it comes to the sample mean of the mean number of clauses per T-unit. This observation suggests that in Writing Two the subjects wrote longer clauses and longer T-units than they did in Writing One despite a slight decrease in embedding subordinate clauses into T-units. In other words, a small drop of four percent in the ratio of clauses to T-units in Writing Two, since it was not statistically significant, was insufficient to affect the subjects' tendency to expand clause length and T-unit length, perhaps indicating that the mean clause length and the mean T-unit length are better measures of syntactic maturity

Error-free T-unit Indices of Syntactic Maturity

In addition, the mean length of error-free T-units, the mean length of error-free clauses and the ratio of clauses to error-free T-units in the two writings were also computed for each subject and the whole sample group.

Presented in Table 6 are the group means and standard deviations of the three error-free T-unit indices for the two writings. The group mean of the mean error-free T-unit length is 13.9 in Writing One and 15.86 in Writing Two, indicating an increase of

twelve percent in Writing Two as compared with Writing One. At the same time, the group mean of the mean error-free clause length is 8.98 in Writing One and 10.68 in Writing Two, reflecting an increase of 16 percent in Writing Two as compared with Writing One.

However, when it comes to the group mean of the mean number of clauses per error-free T-unit, there exists a decrease of four percent, which is also true of the group mean of the mean number of clauses per T-unit as shown in Table 5. This finding suggests that the subjects tended to produce longer T-units and longer clauses in Writing Two than in Writing One even though they attached comparatively fewer subordinate clauses to the main clauses in Writing Two. It is assumed on the basis of this observation that grammatical elements other than subordinate clauses must have given rise to the increase in the subjects' mean T-unit length and mean clause length whether these indices take into consideration the presence of errors or not.

Nevertheless, the ratio of clauses to T-units or error-free T-units provides by direct inspection an indication of how frequently a subordinate clause was added by the subject to a main clause in writings. Since one clause is always the main clause in each T-unit, the ratio, minus one, results in the average number of subordinate clauses per main clause.

Thus, as the group ratio number was 1.56 for the subjects in Writing One, it can be said that 56 percent of the time the subjects added a subordinate clause to a main clause. The same holds true for the subjects with regard to how frequently a subordinate clause was added to an error-free main clause in Writing One.

Since the group ratio of clauses to T-units was 1.49 and the group ratio of clauses to error-free T-units was 1.50 for the subjects in Writing Two, it can be said that 49 percent of the time the subjects attached a subordinate clause to a main clause while 50 percent of the time they attached a subordinate clause to an error-free main clause in Writing Two.

Table 6
Sample Means of Mean Error-Free T-unit Length,
Mean Error-Free Clause Length, and Mean Number of
Clauses per Error-Free T-unit within Two Writings

Measure	Valid N	Writing One		Writing Two	
		Mean	SD	Mean	SD
Words/Error-free T-unit	17	13.90	2.73	15.86	3.55
%		88%		100%	
		t-value -3.18		p=0.006 (Sig)	
Words/Error-free Clause	17	8.98	1.15	10.68	2.05
%		84%		100%	
		t-value -3.68		p=0.002 (Sig)	
Clauses/Error-free T-unit	17	1.56	0.20	1.50	0.20
%		100%		96%	
		t-value 1.33		p=0.202 (NS)	

In summary, on the basis of inspection, the subjects were found to have written significantly longer T-units, longer clauses, longer error-free T-units and longer error-free clauses in Writing Two than they did in Writing One even though they attached slightly fewer subordinate clauses to main clauses and to error-free main clauses in Writing Two than in Writing One. This finding first supports the hypothesis that the length of T-units and the length of clauses, regardless of whether errors are accounted for or not, are better indices of syntactic maturity and more reflective of adult ESL learners' increased experience in using English as a second language. Second, the finding also supports the assumption that the expansion of T-units not only results from clausal embedding but also from non-clausal embedding. As Yau and Belanger (1984:71) suggest, "inasmuch as Hunt's procedures for counting clause length preclude the expansion of average clause length by clausal embedding, these longer clauses must result from non-clausal embedding. These non-clausal embeddings are made by deletion transformations which result in compressed thought units (cf., Hunt 1970)." As Hunt (1965:44) indicates, as the student's syntactic maturity develops, the T-unit length expands, first depending upon both the clause length and the ratio of clauses to T-units, and then more and more depending upon the clause length than the ratio. "In any event,

the developmental evidence ... suggests that grammatical difficulties lie inside the T-unit, and, for the higher levels, down inside the clause" (1965:68). Although this can be generalized in the case of the native English learners with regard to their development in syntactic maturity, as far as the subjects involved in the present study are concerned, there is still much room for them to expand their T-unit length through clause-embedding inasmuch as their ratio of clauses to T-units at the level of 1.49 is not at all high enough for graduate students at the university level.

Depth of Subordination in T-units

Depth of clause subordination is used here as an index of syntactic maturity because it further elaborates upon how in each of the two writings the subjects put a certain proportion of clauses into multi-clause T-units. Figure 15 and Figure 16, respectively, give profiles of how in each of the two writings the subjects distribute clauses among single-clause T-units (with only a main clause), 2-clause T-units (with one subordinate clause), 3-clause T-units, 4-clause T-units, etc.

As shown in Figures 15 and 16, the subjects wrote single-clause T-units and 2-, 3-, 4- and 5-clause T-units more frequently in Writing One than they did in Writing Two even when considering the fact that a total number of 8300 words from the first writing and a total number of 8205 words from the second writing were actually analyzed by means of T-unit measures. In percentages, however, they wrote almost a similar proportion of single-clause T-units. In Writing One the single-clause T-units they produced take up 59.3 percent of the total number of T-units, whereas in Writing Two the single-clause T-units constitute 61.4 percent of the total number of T-units, which suggests a slight increase. Likewise, while the 2-clause T-units in Writing One make up 29.7 percent of the total number of T-units, the 2-clause T-units in Writing Two account for 31.5 percent of the total number of T-units, also reflecting a small increase. Only 3- and 4-clause T-units produced in Writing One account for a proportion of the total

Figure 15   DEPTH OF SUBORDINATION IN WRITING ONE (N=17)

VALUE	FREQUENCY	PERCENT
1-CLAUSE T-UNITS	334	59.3
2-CLAUSE T-UNITS	167	29.7
3-CLAUSE T-UNITS	48	8.5
4-CLAUSE T-UNITS	12	2.1
5-CLAUSE T-UNITS	2	.4
TOTAL	563	100.0

1-CLAUSE T-UNITS 334

2-CLAUSE T-UNITS 167

3-CLAUSE T-UNITS 48

4-CLAUSE T-UNITS 12

5-CLAUSE T-UNITS 2

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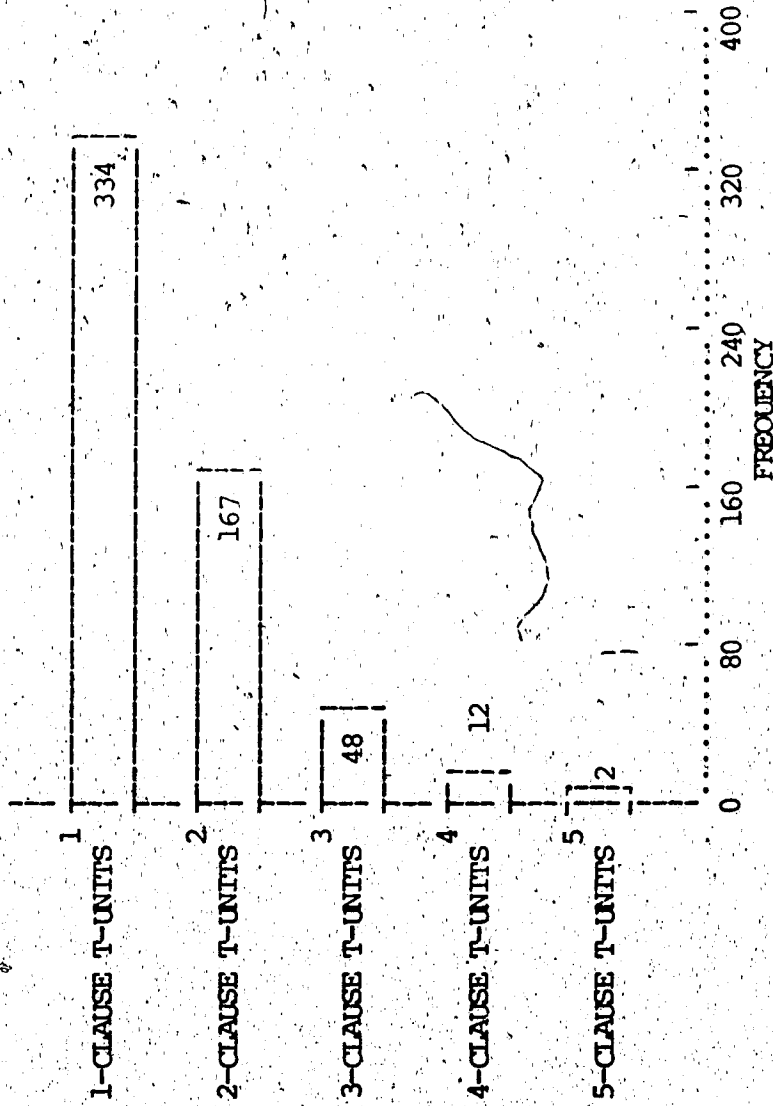
FREQUENCY

Figure 16   DEPTH OF SUBORDINATION IN WRITING TWO (N=17)

VALUE	FREQUENCY	PERCENT
1-CLAUSE T-UNITS	306	61.4
2-CLAUSE T-UNITS	157	31.5
3-CLAUSE T-UNITS	26	5.2
4-CLAUSE T-UNITS	7	1.4
5-CLAUSE T-UNITS	1	.2
6-CLAUSE T-UNITS	1	.2
TOTAL	498	100.0

1-CLAUSE T-UNITS   306
2-CLAUSE T-UNITS   157
3-CLAUSE T-UNITS   26
4-CLAUSE T-UNITS   7
5-CLAUSE T-UNITS   1
6-CLAUSE T-UNITS   1

FREQUENCY

0   80   160   240   320   400
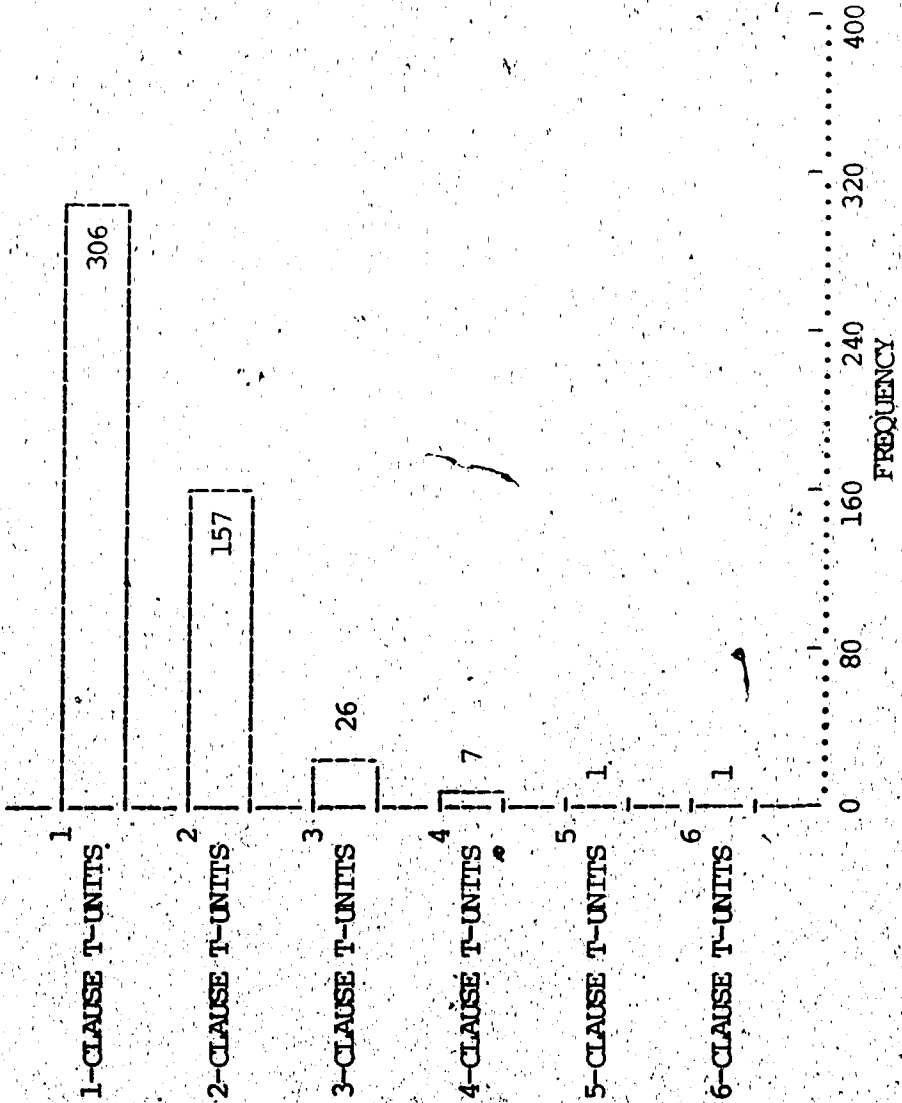
number of T-units which is comparatively larger than that in Writing Two.

The frequencies displayed in Figures 15 and 16 present an interesting elaboration of how the subjects distribute clauses among multi-clause T-units with respect to the two writings. It seems unlikely, however, that depth of clause subordination will be more revealing than the measures of T-unit length, clause-length, error-free T-unit length and error-free clause length. Nonetheless, what merits close attention here is the observation that as the second language learner matures in the target language, s/he tends to produce fewer, yet longer T-units with either more subordinate clauses or non-clausal grammatical elements embedded in them. This, in fact, is evidenced by the difference between the number of T-units in Writing Two as shown in Figure 16 and the number of T-units in Writing One as displayed in Figure 15. It was found that fewer T-units were produced in the second writing.

Kinds of Subordinate Clauses Within T-units

In conventional terminology, clauses are described as structures containing a finite verb as well as a subject (see Quirk and Greenbaum 1973:167). Subordinate clauses just like superordinate (main) clauses must have the same basic elements, but in the sense that subordination designates "a non-symmetrical relation, holding between two clauses in such a way that one is a constituent or part of the other" (Quirk and Greenbaum 1973:309). Consequently, it is the device of subordination that enables us to organize multiple clause structures. As each subordinate clause itself may become superordinate to one or more other clauses, "a hierarchy of clauses, one within another, may be built up, sometimes resulting in sentences of great complexity" (Quirk and Greenbaum 1973:309).

Traditionally, subordinate clauses fall into three categories: noun clauses, adjective clauses and adverbial clauses. Noun clauses can normally act as subject, direct object, subject complement, appositive and adjectival complement or object of a

preposition. Adjective clauses always modify the nouns that precede them, whereas adverbial clauses, unlike the other two kinds, may precede, follow, or interrupt main clauses to which they are attached.

Figure 17 displays the number of occurrences of the three kinds of subordinate clauses found in the first writing while Figure 18 shows the number of occurrences of the three kinds of subordinate clauses found in the second writing.

It is observed that the subjects embedded more noun clauses, adjective clauses and adverbial clauses in main clauses in Writing One than they did in Writing Two, even when considering the number of words from each of the two writings. In percentages, the subjects increased the use of adverbial clauses in Writing Two, but decreased the use of the other two types of clauses. This gives a further elaboration of why the subjects were found to have produced a higher ratio of clauses to both T-units and error-free T-units in Writing One than in Writing Two.

Words Used to Introduce Subordinate Clauses

Tables 7 through 9 give us a picture of the kinds of words used by the subjects to introduce the three kinds of subordinate clauses.

As far as introducers are concerned, there are basically two kinds of noun clauses. One is introduced either by *that* or with *that* deleted, and appears in positions where a noun may occur. Such noun clauses can be referred to as *That*-clauses.' The other one introduced by *wh*-words "occurs in the whole range of functions available to the *That*-clause and in addition can act as prepositional 'complement" (Quirk and Greenbaum 1973:317). These clauses can be called *Wh*-interrogative clauses because,

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' A *that*-clause with *that* deleted is called a "zero" *that*-clause. According to Quirk and Greenbaum (1973:317), "when the *that*-clause is object or complement, the conjunction *that* is frequently omitted in informal use, leaving a 'zero' *that*-clause":
1. I knew *he was wrong.*
2. I told him *he was wrong.*
3. I'm sure *he was wrong.*

Figure 17   OCCURRENCE OF THREE KINDS OF SUBORDINATE CLAUSES IN WRITING ONE
(N=17)

VALUE	FREQUENCY	PERCENT
NOUN CLAUSES	109	35.5
ADJECTIVE CLAUSES	80	26.1
ADVERBIAL CLAUSES	118	38.4
TOTAL	307	100.0

```
               1 |------------------------------o---------|
NOUN CLAUSES     |                                  109   |
                 |---------------------------------------|

               2 |-----------------------------|
ADJECTIVE CLAUSES|               80            |
                 |-----------------------------|

               3 |---------------------------------------|
ADVERBIAL CLAUSES|                         118           |
                 |---------------------------------------|

                0        40        80       120      160      200
                                    FREQUENCY
```
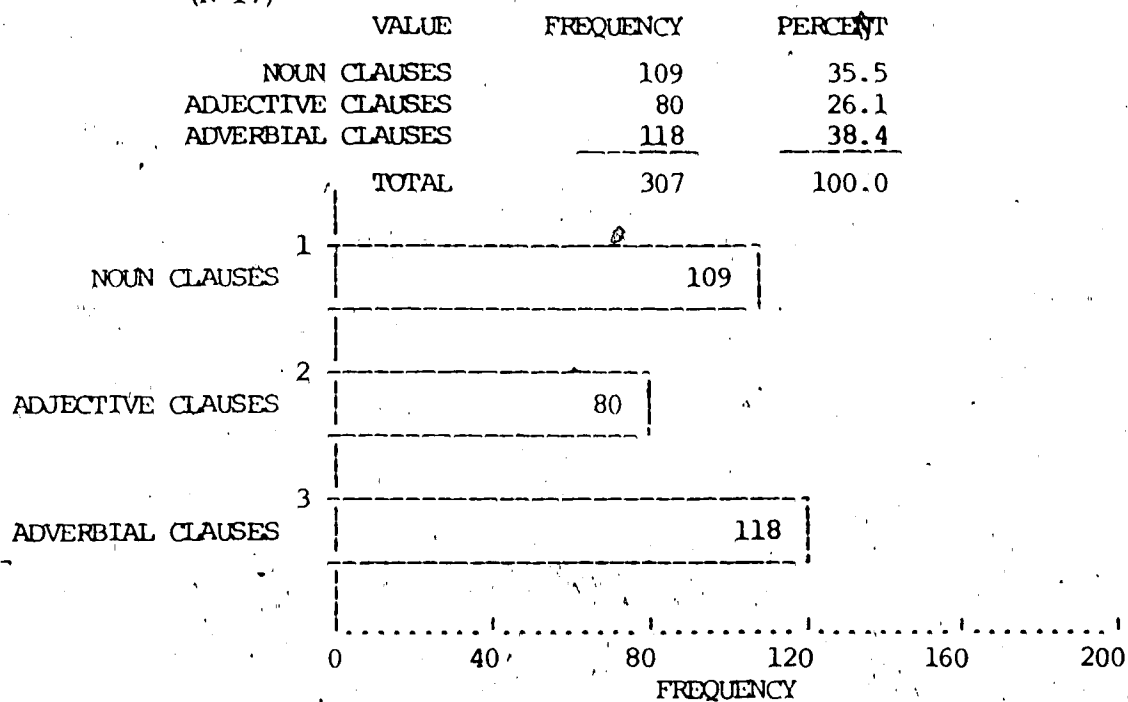
Figure 18   OCCURRENCE OF THREE KINDS OF SUBORDINATE CLAUSES IN WRITING TWO
(N=17)

VALUE	FREQUENCY	PERCENT
NOUN CLAUSES	71	29.7
ADJECTIVE CLAUSES	57	23.8
ADVERBIAL CLAUSES	111	46.4
TOTAL	239	100.0

```
               1 |------------------------|
NOUN CLAUSES     |            71          |
                 |------------------------|

               2 |-------------------|
ADJECTIVE CLAUSES|        57         |
                 |-------------------|

               3 |-------------------------------------|
ADVERBIAL CLAUSES|                    111              |
                 |-------------------------------------|

                0        40        80       120      160      200
                                    FREQUENCY
```
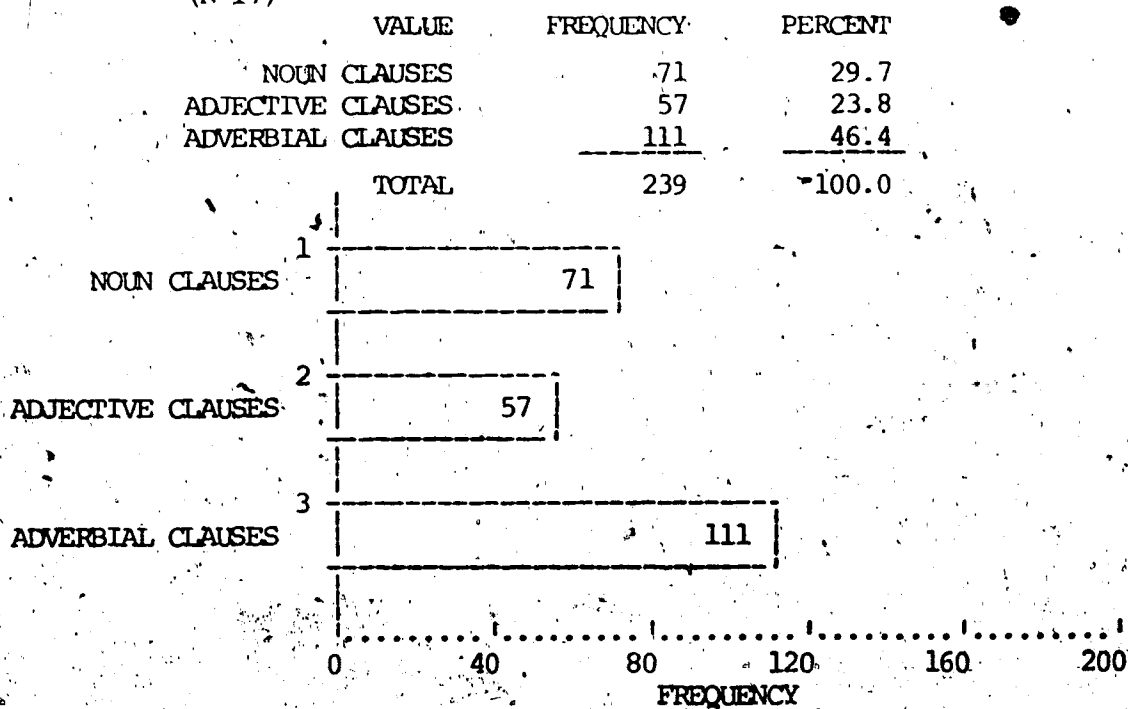
as regards meaning, these clauses resemble wh-questions in several respects. Samples of *Wh*-interrogative clauses include: 1) *How the book will sell* depends on its author; 2) I can't imagine *what made him do it.* (Quirk and Greenbaum 1973:317)

Table 7 shows the number of occurrences of words that were used by the subjects to introduce noun clauses. In both writings subjects used *that* or *zero-that* more frequently than they used *wh*-words to introduce noun clauses.

Table 8 presents an analysis of the functions of noun clauses within main clauses. The table shows that on most occasions *that*-clauses and *wh*-interrogative clauses were used by the subjects to function as direct object. In percentages, these clauses constitute 65 percent - nearly two-thirds of the total number of noun clauses in Writing One, whereas such clauses account for only 56 percent of the total number of noun clauses in Writing Two. The noun clauses that functioned as subject make up 14 percent of the total number of noun clauses in Writing One and 16 percent in Writing Two. Meanwhile, other functions fulfilled by the noun clauses occurred less frequently. Thus, in the subjects' writings noun clauses were observed to function most frequently as direct object while the second most frequent function was subject.

Just as the T-unit may be infinitely complex, so may the noun phrase. This may be so, since independent clauses can be reshaped so as to come within noun-phrase structure. Such reshaping depends upon adjective clauses.

In the first language acquisition literature, it was reported by Hunt (1965:78) that in school-age children the frequency of adjectival clauses indeed increased from the fourth to the eighth grade and from the eighth to the twelfth grade. However, as far as the Chinese MBA students are concerned, within the twelve-month time span under consideration, the frequency of adjective clauses decreased in the second writing. Although it may be explained that a twelve-month time span was not sufficient enough for these Chinese MBA students to demonstrate any drastic increase in the use of adjective clauses, we still need to determine what gave rise to such a decrease. One

Table 7
Words Used to Introduce Noun Clauses

(N=17)	Writing One	Writing Two
that	46	41
that (deleted)	35	17
Interrogative pronouns		
what	16	6
who	1	0
whom	0	0
whoever	0	0
whatever	0	0
Interrogative adverbs		
when	0	0
where	0	0
how	2	2
why	3	0
if	1	0
whether	3	2
Total:	109	71

Table 8
Functions of Noun Clauses within T-units

(N=17)	Writing One	Writing Two
that-clauses		
0-that-clauses		
subject	11	11
direct object	58	31
subject complement	0	7
appositive	5	9
adjective complement	7	0
Interrogative pronouns		
subject	4	0
direct object	6	4
subject complement	3	1
appositive	1	0
adjective complement	0	0
prepositional complement	3	1
Interrogative determiners		
subject	0	0
direct object	2	2
subject complement	0	0
appositive	0	0
adjective complement	0	0
prepositonal complement	0	1

Interrogative adverbs		
subject	0	0
direct object	5	3
subject complement	2	0
appositive	0	0
adjective complement	1	0
prepositional complement	1	1
Total:	109	71

possible explanation is that the decrease could be attributed to the effect of different modes of writing required of the subjects in the two writings.

Table 9 lists the various relative pronouns and adverbs used to introduce adjective clauses. Two observations can be made. First, *whom* and *whose* were never used by the subjects in the two writings. Second, in addition to the frequent deletion of the relative *that*, subjects used more of the relative pronoun *who* in the first writing than in the second writing. This observation can be the result of the samples, since in the first writing the subjects were simply told to write about themselves. As a result, they tended to mention and describe quite a number of people as they traced their experience. This tendency simply disappeared in the second writing because what the subjects wrote were business reports and written assignments associated with their MBA courses. Consequently, they mainly discussed and analyzed certain business situations and problems as regards products, market potential and decision-making processes in business companies. A difference like this between the two writings could account for the number of occurrences of the relative pronoun *who* in the two writings.

What is the case with adverbial clauses? What types are there, and where do they occur? "Adverbial clauses, like adverbials in general, are capable of occurring in a final, initial, or medial position within the main clause (generally, in the order of frequency, medial position being rare)" (Quirk and Greenbaum 1973:322). In conventional terminology, adverbial clauses have been subclassified into those designating time, condition, concession, cause, etc. Usually time and cause clauses are reported to be

Table 9
Words Used to Introduce Adjective Clauses

(N=17)	Writing One	Writing Two
Relative pronouns		
deleted relative	10	6
that	10	10
who	20	3
whom	0	0
whose	0	0
which	32	33
prep. + which	3	2
Subtotal:	75	54
%	100%	72%
Relative adverbs		
where	5	2
when	0	1
(reason) why	0	0
Total:	80	57
%	100%	71%

most common" (Hunt 1965:80).

In this study, all words introducing adverbial clauses have been tabulated and presented in Table 10.

The following observations can be made. First, in the order of frequency, for both of the two writings, time and cause clauses indeed occurred most frequently when adverbial clauses were used. Third in the order of frequency were conditional clauses. Another interesting observation is that while the subjects tended to use adverbial clauses of time more often in Writing One than in Writing Two, they nevertheless tended to show a preference for adverbial clauses of reason in Writing Two. In fact, their use of cause clauses increased by 50 percent in Writing Two as compared with that in Writing One. In addition, their use of condition clauses also increased by 29 percent in Writing Two.

The observations mentioned above indicate that in the first writing the subjects recalled many events dating back to their childhood and adolescent years and described

Table 10
Words Used to Introduce Adverbial Clauses

(N=17)	Writing One	Writing Two
Subordinators of Time		
when	29	13
once	0	1
as soon as	4	0
after	3	2
before	3	1
since	1	0
until	6	1
whenever	2	1
while	4	6
as	3	5
Subtotal:	55	30
%	100%	55%
Subordinators of Condition		
if	9	16
unless	1	0
as long as	1	0
as far as	1	1
Subtotal:	12	17
%	71%	100%
Subordinators of concession		
(even)though	4	3
although	4	5
Subtotal:	8	8
Subordinators of reason		
because	4	17
as	5	7
since	3	12
for	6	0
Subtotal:	18	36
%	50%	100%
Subordinators of		
purpose		
in order to	1	7
so as to	2	2
result		
such ... that	1	1
so ... that	6	3
comparison		
more than	2	0
as if	4	0

as though	1	0
manner		
as	4	5
proportion		
the more ... the	2	2
conditional-concessive		
no matter wh-word	2	0
Subtotal:	25	20
%	100%	80%
Total:	118	111
%	100%	94.1%

their individual experience as they grew older. It is for this reason that they preferred time clauses in the first writing. Although they still used a reasonable number of time clauses in the second writing, what was required of them this time in the business-related reports and assignments was more reasoning and analysis. Consequently, they tended to use more reason and condition clauses as well. As shown in Table 10, for example, the subjects used *because* 17 times in Writing Two as opposed to merely 4 occurrences in Writing One. The same is true of the occurrence of *since* in Writing Two. Although on the whole the subjects used fewer adverbial clauses in Writing Two than in Writing One, their preference for certain kinds of adverbial clauses in each of the two writings can be attributed to the specific mode of each writing.

Table 11 summarizes whether or not the three kinds of subordinate clauses increase from Writing One to Writing Two, taking into consideration the total number of T-units in each of the two writings. First, there is a 27 percent decrease in the number of noun clauses per T-unit from Writing One to Writing Two. Second, there is a 20 percent decrease in the number of adjective clauses per T-unit from Writing One to Writing Two. Only in the number of adverbial clauses per T-unit is there a 6 percent increase from Writing One to Writing Two.

Table 11
Summary of Three Kinds of Subordinate Clauses

(N=17)	Writing One	Writing Two
Noun Clauses/T-unit	0.194	0.143
%	100%	73%
Adjective Clauses/T-unit	0.142	0.115
%	100%	80%
Adverbial Clauses/T-unit	0.210	0.223
%	94%	100%

Characteristics of Coordination Inside T-units

It has already been seen that, whether error-free or not, the clauses and T-units produced by the subjects in Writing Two were longer while, however, the mean number of clauses per T-unit decreased in Writing Two. In view of this finding, it is assumed that non-clausal grammatical elements other than subordinate clauses must also have contributed greatly to clause lengthening. This subsection, therefore, examines those clauses in the two writings to see, if possible, what it is that the subjects did to make their clauses longer and consequently their T-units longer even though fewer subordinate clauses were used in the second writing. To begin with, the characteristics of coordination inside T-units will be described.

Coordination, like subordination, also involves the linking of units, but it differs from subordination in the sense that the coordinated units are conventionally regarded as being on the same footing without having one subordinated to the other. Thus, "in *his first and and best novel* each of the coordinated adjectives is a premodifier of *novel*" (Quirk and Greenbuam 1973:254).

In this study, coordination inside T-units refers to all coordinated units within T-units signalled by three coordinators: *and, or, but*. Thus, it excludes *clausal coordination* between T-units in the following examples (Quirk and Greenbaum 1973:254-255):

1. John plays the guitar, *and* his sister plays the piano.

2.   They are living in England *or* they are spending a vacation there.

However, coordination inside T-units still captures the linking of subordinate clauses, which can be considered as one form of clausal coordination. For example:

1.   I wonder *whether* you should speak to him personally *or whether* it is better to write to him.

This is what is meant by coordination inside T-units.

The question posed in this subsection is: On how many occasions did subjects in each writing coordinate various grammatical elements in their T-units? Table 12 lists the number of occasions when various grammatical elements were coordinated inside T-units in each of the two writings. There are basically two observations. First, the subjects tended to coordinate more verbs, nominals as direct objects, and predicate adjectives in the first writing than in the second writing. Second, the subjects tended to coordinate more nominals as subjects, nominals as objects of a preposition, premodifiers, and subordinate clauses in the second writing than in the first writing.

However, mere frequency counts of various kinds of coordinations presented in Table 12 are not sufficient to give a true picture of whether the subjects used those coordinations within T-units more frequently either in Writing One or in Writing Two, considering the difference in the total number of words chosen for analysis from each of the two writings. In this regard, the number of coordinations inside T-units per T-unit, the number of coordinations inside T-units per clause, the number of words per coordination inside T-unit are viewed as better indices. Table 13 summarizes the occurrence of coordinations inside T-units in terms of these indices.

Surprisingly, in both writings, the subjects' performance in using the number of coordinations within T-units per T-unit is almost identical. This is also true of their performance in using the number of coordinations inside T-units per clause. Only in the number of words per coordination inside T-units were the subjects found to have increased the use of coordinations inside T-units by 1.1 percent in Writing Two.

Table 12
Number of Occasions When Certain Grammatical
Elements Were Found Coordinated inside T-units

(N=17)	Writing One	Writing Two
No. of occasions when		
nominals coordinated as subjects	13	24
verb phrases coordinated	59	32
nominals coordinated as direct objects	40	29
nominals coordinated as objects of a preposition	42	59
predicate adjectives coordinated	15	5
adverbs coordinated	9	9
predicate nominals coordinated	8	6
premodifiers coordinated	18	20
postmodifiers coordinated	8	4
subordinate clauses coordinated	2	9
non-finite clauses coordinated	4	3
object complements coordinated	5	5
Total:	236	208

Table 13
Summary of Coordinations inside T-units

(N=17)	Writing One	Writing Two
No. of Coordinations inside T-units per T-unit	0.419	0.418
%	100%	100%
No. of Coordinations inside T-units per Clause	0.271	0.273
%	99%	100%
No. of Words per Coordination inside T-unit	35.17	39.45
%	89%	100%

Thus, based on the observations described above, coordinations between words and phrases and subordinate clauses are not found to be the factors that contribute to the clause-lengthening to any extent in the subjects' Writing Two. It should be assumed that the clause-lengthening found in the subjects' second writings must be attributed to some non-clausal elements rather than coordination inside T-units and subordination.

Depth of Modification Inside T-units

It was expected that the depth of modification comprising many kinds of non-clausal elements around "complicated" nominals that could provide the answer. This subsection, therefore, intends to elaborate upon this characteristic associated with the subjects' two writings in a comparative way. A question that arises here is whether or not in the second writing the subjects used more modifiers in general and more premodifiers and postmodifiers in particular. Presumably, if the subjects used more of the modifiers in Writing Two, the nominals would be longer and consequently, so would be the clauses.

To assist in this discussion it may help to clarify certain features of complex noun phrases (nominals). In describing these structures, it is advisable to distinguish three basic grammatical components:

1. *The noun*, around which the other components cluster and which determines subject-verb agreement and other kinds of congruence with the rest of the clause[10] outside the noun phrase. This is exemplified by a. and b. as follows:

    a.   The major *weakness* facing GonRad ... *is* ...

    b.   The major *weaknesses* facing GonRad ... *are* ...

2. *Premodification*, which includes all the items preceding the noun except articles, demonstratives, genitive, numerals – notably adjectives and noun-modifiers as exemplified below:

    a.   The *major* weakness ...

    b.   The major *information control* weakness ...

3. *Postmodification*, referring to all the clausal or non-clausal elements following the noun – notably prepositional phrases[11], non-finite clauses, postpositive adjectives

---

[10] *Clause* is used here instead of *sentence* so as to refer to both superordinate clauses and subordinate clauses because they may comprise noun phrases normally subclassified into norminals/functioning as subjects, direct objects, objects of a preposition and predicates.

[11] Although the of-genitives may be subclassified as one of the types of postmodification, in this study they are included within prepositional phrases.

Table 14
Types of Premodification within T-units

(N=17)	Writing One	Writing Two
adjective	392	551
%	71%	100%
-ing participle	8	25
%	32%	100%
-ed participle	21	58
%	36%	100%
s-genitive	14	44
%	32%	100%
noun-modifiers	131	391
%	34%	100%
adverbial	4	8
sentence-modifier	1	0
Total	571	1077
%	53%	100%

and adjective clauses, which are exemplified as follows:

a. Any decision *concerning the future purchasing plan* should take the effectiveness *of competition* into account.

b. The major information control weakness *facing GonRad* was insufficient information flow between departments.

c. Puritan's offer included the lowest price *available* at the present time.

d. Information *that is mainly qualitative* is not sufficient for the task.

It was basically following these guidelines that the depth of modification was quantified. Presumably, if the subjects used more of the modifiers in Writing Two, the nominals would be longer and consequently, so would be the clauses.

Table 14 presents the frequency of occurrence of seven types of premodifiers in the two writings, enabling a number of observations to be made. In the first place, generally speaking, almost all types of premodifiers were used more frequently by the subjects in Writing Two than in Writing One. Second, the number of premodifiers in

Writing Two was nearly double as compared with the number in Writing One.

Specifically, the subjects used 551 adjectives in Writing Two as opposed to 392 adjectives in Writing One - indicating a 29 percent increase. As regards -ing participles, the increase was from 32 percent in Writing One to 100 percent in Writing Two - more than three-fold. The same is true of the increase in using s-genitives. The number of -ed participles and noun-modifiers in Writing Two enjoyed nearly a three-fold increase. Thus, the subjects used substantially more noun-premodifiers in Writing Two, thereby contributing greatly to the clause lengthening previously described but unexplained.

Table 15 presents the frequency of occurrence of eight types of postmodifiers in the two writings, allowing the researcher to make several observations. In general, the number of postmodifiers was 418 in Writing One and 525 in Writing Two, showing a 20 percent increase. In particular, the number of -ing participle clauses reflects a 60 percent increase while the number of infinitive clauses shows a 70 percent increase in Writing Two. Furthermore, the number of prepositional phrases in Writing Two also demonstrates an increase of 27 percent. Apart from these increases, other types of postmodifiers either increased or decreased within the limit of 25 percent. Thus, although the number of clausal postmodifiers (adjective clauses) showed a decrease of 29 percent, to be more accurate, a decrease of 20 percent was shown when viewed in terms of of the number of adjective clauses per T-unit. Non-clausal postmodifiers further subclassified into "non-finite clauses" and "other elements", nevertheless, increased by 40 percent and 25 percent respectively. In short, in addition to the increase in using the premodifiers, the subjects also employed subtantially more postmodifiers of nouns in Writing Two, which not only gave rise to the increase in both clause length and T-unit length, but also managed to offset the effect of the decrease in noun clauses and adjective clauses on the clause length and T-unit length in Writing Two.

Table 15.
Types of Postmodification within T-units

(N=17)	Writing One	Writing Two
adjective clauses	80	57
subtotal	80	57
%	100%	71%
non-finite clauses		
-ing participle clauses	8	20
%	40%	100%
-ed participle clauses	16	15
%	100%	94%
infinitive clauses	6	21
%	29%	100%
appositives	10	11
%	91%	100%
non-restrictive postmodifiers	1	1
Subtotal	41	68
%	60%	100%
other elements		
prepositional phrases	285	389
%	73%	100%
postpositive adjectives	9	7
%	100%	78%
adverbs	3	4
%	75%	100%
Subtotal	297	400
%	74%	100%
Total	418	525
%	80%	100%

It has already been seen that as, regards both premodification and postmodification significant increases were found in the subjects' second writing. Table 16 summarizes these developmental increases in terms of the following indices:

1. the number of modifiers per T-unit;

2. the number of modifiers per Clause;

3. the number of words per modifier.

In summary, in Writing Two the number of modifiers per T-unit indicates a 45 percent increase while the number of modifiers per clause shows a 46 percent increase. As regards the occurrence of modifiers, in Writing Two the subjects used a modifier every five words in contrast to Writing One where the subjects used a modifier every eight words. These figures suggest that the decrease in number of adjective clauses may not affect clause length greatly when the clauses are viewed in close connection with the increased number of non-clausal modifiers of nouns. Although adding clausal modifiers may be effective as a means of lengthening T-units, adding non-clausal modifiers may be just as effective as a means of lengthening T-units and clauses in view of the findings in this study. Thus, adding non-clausal modifiers is not just merely more effective in achieving conciseness (Hunt 1965;108), it also dictates the length of clauses and T-unit to a considerable extent. For adult second language learners, adding non-clausal modifiers may be a very important means of providing more information in writing when they are not proficient enough in the target language to resort to the use of clausal modifiers for the same purpose. Unless they are trained in the target language, their ability to use clausal modifers and their ability to use non-clausal modifiers may not go hand in hand developmentally.

Other Non-clausal Elements Inside T-units

This subsection examines the characteristics of other non-clausal elements that might have contributed to the clause lengthening in varying degrees as observed in the subjects' second writing. The elements to be examined are as follows:

1. non-finite clauses used adverbially;

2. words and prepositional phrases used adverbially;

3. prepositional phrases and infinitives used as adjective complements;

4. non-clausal or "near-clausal" nominals.

Table 16
Summary of the Depth of Modification

(N=17)	Writing One	Writing Two
Modifiers / T-unit	1.757	3.217
%	55%	100%
Modifiers / Clause	1.137	2.100
%	54%	100%
Words / Modifier	8.39	5.12
%	100%	61%

This subsection first subclassifies each of these four non-clausal elements and then examines them by reporting their frequency as observed in the two writings and the number of each subclassified element per T-unit and per clause computed for the whole sample group.

Non-finite clauses used adverbially are subclassified into *infinitive*, *-ing participle*, *-ed participle, and verbless clauses*, which, in contrast to finite clauses, imply a subject which, though absent, is co-referential with that of the superordinate clause. Examples of these non-finite clauses are given below (Quirk and Greenbaum 1971:311, 313, and 329):

1. infinitive: He opened his case *to look for a book*.

2. -ing participle: *Leaving the room,* he tripped over the mat.

3. -ed participle: *Stimulated by our enthusiasm,* he took up anthropology.

4. verbless clause: *When ripe, the oranges* are picked and sorted.

Table 17 shows that the total number of non-finite clauses was respectively 59 in Writing One and 53 in Writing Two. Though the frequency obtained was apparently smaller in Writing Two, the number of non-finite clauses per T-unit conversely was larger in Writing Two than in Writing One by a small margin. Similarly, the number of non-finite clauses per clause was also marginally larger in Writing Two than in Writing One. These observations suggest that though the subjects used comparatively a few more non-finite clauses in Writing Two, this characteristic was not the major factor that

gave rise to the clause lengthening in the second writing done by the subjects.

In addition to adverbials that relate to the verb within their own clause, there are adverbials which relate one T-unit to the preceding T-units. In conventional terminology, these adverbials are referred to as transitional words or phrases, which are important in writing because they help connect and show the relationship of the various parts and paragraphs, clauses, sentences, and paragraphs. In other words, they are transitional devices intended to help the reader move from one topic to another, from one point of view to another, or from one example to another. Since they play such an important role in the written discourse not only in an organizational sense but also as non-clausal elements conducive to clause lengthening, it is worthwhile examining this particular characteristic in connection with the T-unit indices.

For this study, adverbials that relate to the verb within their own clause were not counted. However, prepositional phrases used adverbially as adjuncts were counted following the examination of the above-mentioned transitional devices which are defined as sentence adverbials (SAs) and subclassified into both adverbs and prepositional phrases that designate various transitional functions. As regards adverbs, examples are *generally, perhaps, maybe, also, especially, furthermore, moreover, however, nevertheless, clearly, certainly, etc.* In respect to prepositional phrases, examples are *after all, above all, in addition, on the contrary, as a result, in other words, on the other hand, etc.* Although these words and prepositional phrases may be regrouped into disjuncts and conjuncts (Quirk and Greenbaum 1971:242-50) in accordance with their finer functions, ~~this study~~ follows the more general distinctions.

As Quirk and Greenbaum (1971:207-8) state, "adverbials may be *integrated* to some extent into the structure of the clause or they may be *peripheral* to it. If integrated, they are termed *adjuncts.* If peripheral,[11] they are termed *disjuncts and*

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[11] Being peripheral means operating outside the mainframe of the main clause (T-unit) but being, nevertheless, connected to it and still important at the discourse level.

Table 17
Non-finite Clauses Used Adverbially
by the Subjects in their Two Writings

(N=17)	Writing One	Writing Two
infinitives of purpose	20	24
-ing participle	25	21
-ed participle	9.	7
verbless clause	5	1
Total:	59	53
No. of non-finite clauses per T-unit	0.105	0.106
%	.99%	100%
No. of non-finite clauses per clause	0.068	0.072
%	.94%	100%

conjuncts, the distinction between the two being that conjuncts have primarily a connective function." Following these guidelines, Table 18 lists the frequency counts of sentence adverbials (SAs) chiefly as disjuncts and conjuncts and prepositional phrases chiefly as adjuncts observed in each of the two writings. While sentence adverbials are those subclassified in the preceding paragraph, prepositional phrases used as adjuncts are divided into such semantic classes as *time, place, process, recipient/target, agentive and others*. Time adjuncts include such semantic subclasses as *point of time, duration of time and frequency of time* while place adjuncts comprise those prepositional phrases denoting *static position, direction, location, etc.* Process adjuncts refer to those prepositional phrases that can be divided into three semantic subclasses: *manner, means, and instrument.* The agentive refers to any "by"-phrase in a passive voice while other classes of prepositional phrases comprise those denoting *source, purpose, etc.*

As shown in Table 18, the subjects used sentence adverbials more frequently in Writing Two than in Writing One. The total number was respectively 57 in Writing One and 135 in Writing Two. This comparison is more accurately reflected in terms of the number of sentence adverbials (SAs) per T-unit and per clause. If Writing Two is taken

Table 18
Sentence Adverbials and Prepositional Adverbials Used by the Subjects in their Two Writings

(N=17)	Writing One	Writing Two
Sentence Adverbials		
adverbs	26	85
prepositional phrases as disjuncts and conjuncts	31	50
Subtotal:	57	135
No. of SAs per T-unit	0.101	0.271
%	37%	100%
No. of SAs per clause	0.066	0.183
%	36%	100%
Prep. Phrases as Adjuncts		
time	92	63
place	107	57
process	45	56
recipient/target	25	33
agentive	13	27
others	51	64
Subtotal:	333	300
No. of prepositional adjuncts per T-unit	0.591	0.602
%	98%	100%
No. of prepositional adjuncts per clause	0.383	0.407
%	94%	100%
Total:	390	435

as 100 percent, the number of sentence adverbials increased 63 percent while the number of sentence adverbials per clause increased 64 percent. This observation suggests that in Writing Two the subjects tended to use more sentence adverbials in the form of both adverbs and prepositional phrases to connect the expressed ideas in the written discourse. These transitional devices not only sustained their written communication with clarity but also helped clause-lengthening.

The following example, taken from one subject's second writing,[13] is intended to illustrate the point. The subject wrote:

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[13] The errors are not corrected in the passage while the sentence adverbials appear in italics.

First, for HAI which both own and manage hospitals, government legislation
is a double edged sword. *On one hand*, imposition of allowable increases in
hospital revenues would place a damper on profitability. *On the other hand*,
such regulation would place greater priority on cost control and management
skills. This may create some new buyers and delay the maturity of HMI. For
HAI with most emphasis on management contract, this would pluses its
competitive position.

Second, National Health Insurance could also threaten to reduce the profits of
hospitals. *However*, it is highly unlikely that the government would undertake
to shoulder the entire burden of health care which could be rather
embarrassing on the U.S. budget deficit.

Third, in the past, ...

The passage clearly shows how the subject used sentence adverbials in his writing. For

one thing, he used such adverbs as *First, Second, Third*, ... as enumerative conjuncts to

hold together the ideas expressed in sequential paragraphs and to sustain his analysis at

the discourse level. For another, he also, within the first paragraph, used such

prepositional phrases as *On the one hand*, ... and *On the other hand*, ... as antithetic

conjuncts to draw the contrast between the opposite effects of "government

legislation." The adverb *However* is a similar case.

These observed characteristics suggest that both adverbs used singly as

sentence adverbials and prepositional phrases used as sentence adverbials not only

improve the quality of written organization implicit between paragraphs and T-units at

the discourse level; but also contribute to the clause lengthening substantially, especially

considering that prepositional phrases used as sentence adverbials range from two-word

combinations to four-word combinations, which double, triple and even quadruple the

length of sentence adverbials compared with adverbs in the role of sentence adverbials.

This implies that the fact that subjects demonstrated longer T-units and clauses in

Writing Two can be, at least, partly attributed to the more frequent use of sentence

adverbials as transitional devices.

Table 18 also shows that the total number of prepositional phrases used as

adjuncts was respectively 333 in Writing One and 300 in Writing Two. Although the

frequency of occurrence was apparently smaller in Writing Two, the number of

prepositional adjuncts both per T-unit and per clause was, however, marginally larger in Writing Two than in Writing One. In fact, upon closer examination, only time adjuncts and place adjuncts were used more frequently by the subjects in Writing One than in Writing Two.

This observed characteristic is interesting when examined in light of the finding reported by Hunt (1965) that not only when-clauses but also non-clausal adverbials of time and place declined significantly in frequency by grade in his study. Hunt (1965:133) interpreted such an overall reduction in both when-clauses and adverbials of time and place as being partly due to a shift away from narratives in his subjects' writings about people doing things in times and places. In the present study, the reduction in prepositional time and place adjuncts may also be regarded as being owing to a shift away from narratives about the themselves in the first writing to concerns about business topics in the second writing. In any case, the number of prepositional adjuncts respectively observed in the two writings cannot be described as contributing to the clause lengthening as did other non-clausal elements such as sentence adverbials and depth of modification.

In addition to the non-clausal elements described in Tables 17 and 18, what is the case with prepositional phrases and infinitives used as adjective complements? Examples of these non-clausal elements are given below:

1. *prepositional phrases*: They are conscious of *their responsibility* (Quirk and Greenbaum 1973:354).

2. *Infinitive*: Bob is slow *to react* (Quirk and Greenbaum 1973:356).

Table 19 indicates that the total number of adjective complements was 36 in Writing One and 32 in Writing Two. The number of adjective complements per T-unit was identical in the two writings. Only the number of adjective complements per clause increased marginally by 5 percent in Writing Two. These observations show that prepositional phrases and infinitives used as adjective complements were not the major

Table 19
Prepositional Phrases and Infinitives
Used as Adjective Complements in Two Writings

(N=17)	Writing One	Writing Two
Adjective Complements (ACs)		
prepositional phrases	27	25
infinitives	9	7
Total:	36	32
No. of ACs per T-unit	0.064	0.064
%	100%	100%
No. of ACs per clause	0.041	0.043
%	95%	100%

factors that gave rise to the clause lengthening found in the subjects' second writing.

In the following, what remains to be examined are non-clausal nominals. Non-clausal nominals refer to *interrogative infinitiyals, factive infinitivals and gerunds*. Hunt (1965:110) described these nominals as "near clauses" because they are essentially different from noun clauses in the sense that they only have non-finite verbs. These non-clausal or "near-clausal" nominals are exemplified as follows: .

1. *interrogative infinitival*: He told me *how to get to the airport*.

2. *factive-infinitival*: The best thing is *to let the police handle it*. .

3. *gerund*: *Their quarrelling over pay* was the reason for his resignation (Quirk and Greenbaum 1973:391).

Table 20 shows that these three non-clausal or "near-clausal" nominals were not used very frequently by the subjects in either of the writings, the total number of occurrences being 6 in Writing One and 18 in Writing Two, indicating a three-fold increase. Also, the number of these nominals per T-unit was 0.011 in Writing One and 0.036 in Writing Two. In percentages, the number increased by 69 per cent in Writing Two. Meanwhile, the number of these nominals per clause was 0.007 in Writing One and 0.024 in Writing Two. In percentages, the number increased by 71 per cent in Writing Two. These observations suggest that the clause lengthening found in the subjects' second writing was related to the increased use of non-clausal nominals in

Table 20
Non-clausal Nominals
Observed in the Subjects' Two Writings

(N=17)	Writing One	Writing Two
interrogative infinitival	1	2
factive infinitival	1	5
gerund	4	11
Total:	6	18
No. of non-clausal nominals per T-unit	0.011	0.036
%	31%	100%
No. of non-clausal nominals per clause	0.007	0.024
%	29%	100%

Writing Two.

In summary, this subsection has described four types of non-clausal elements in connection with the clause lengthening found in the subjects' second writing. As the observations suggest, both sentence adverbials and non-clausal nominals invariably contributed to the clause lengthening because they both increased subtantially in Writing Two, whereas the subjects' use of non-finite clauses, prepositional phrases used adverbially as adjuncts, and prepositional phrases and infinitives used as adjective complements did not.

Characteristics of Developmental Errors

This subsection gives a description of various kinds of errors committed by the subjects in the two writings. First, it intends to quantify the errors in terms of percentage of error-free T-units and number of words per error. Next, it intends to quantify both global errors and local errors in detail and subsequently provide some examples of these errors.

Table 21 summarizes the subjects' errors in terms of percentage of error-free T-units and average number of words per error. A T-unit was judged to be error-free if it was correct in terms of syntax and function words. Lexical errors were also counted.

This was the criterion by which Scott and Tucker (1974:91) conducted error-analysis in their research study. The number of error-free T-units and the number of words were counted for each subject and then for the whole sample group in each writing so that group means could be obtained.

As shown in Table 21, the group mean of the percentage of error-free T-units increased from 76 percent in Writing One to 84 percent in Writing Two. Taking 84 percent in Writing Two as 100 percent; the increase from Writing One to Writing Two was 10 percent. As regards the number of words per error, the group mean increased from 65 words per error to 162.7 words per error. Taking 162.7 words per error in Writing Two as 100 percent, the increase from Writing One to Writing Two was 60 percent, which is substantially different than the percentage of error-free T-units.

This difference can easily be accounted for. Although satisfaction has been expressed with the use of percentage of error-free T-units as an index of second language development because "a number of researchers (Scott and Tucker, 1974; Gaies 1976; Larsen-Freeman and Strom 1977; Larsen-Freeman 1978; Vann 1978) have recognized that errors, while not characteristic of first language data, do occur relatively frequently in adult second language data, and an index of language growth ought in some way to reflect the incidence of developmental errors" (Gaies 1980:55), the percentage of error-free T-units may somehow obscure the fact that second language learners very often make more than one error inside each T-unit they produce. This can be shown in the following T-units taken from the subjects' writings:

1. It really costed me many a day to adjust myself to university life.
2. But my confidence was waning with each passing day, and at last, I was in a terrible fidgets (final letter is an error).
3. It takes six and ( ) half years for me ( ) go to primary school and four and ( ) half years to middle school.

Table 21
Percentage of Error-Free T-units and
Number of Words per Error in the Two Writings

Measures	N	Writing One	Writing Two
% of error-free T-units	17	0.76	0.84
%		90%	100%
	t-value -3.07	p=0.007	Significant
Words/Error	17	65	162.7
%		40%	100%
	t-value -2.91	p=0.010	Significant

Upon close examination, the incorrect T-units in the three examples listed above contain more than one error. As regards the first example, the subject, in fact, made two errors. The first one has to do with the verbal usage 'cost' as it deviates from the idiomatic usage 'took' in English, considering the context. The second error lies in the subjects' overgeneralization of English verb tense because he added the regular verb inflection in the past tense, '-ed', to the irregular verb 'cost'. Concerning the second example, in the second T-unit, the subject wrongly used the prepositional phrase 'at last', for, judging from the context, 'in the end' should have been used. The second error rests with the plural 's' which should have been left out.

The third example reveals more than two errors inside one T-unit, too. The first error is the verb tense with 'take' and the second is associated with the indefinite article which should have been used twice in the T-unit but was omitted. The third error rests with the verbal phrase 'go to'. As a result, four errors were committed in one T-unit. These three examples suffice to explain why there is a substantial difference between the two indices which reflect the gradual process of error elimination in second-language development.

Table 22 lists the types and frequency counts of both global errors and local errors. The former are errors such as those involving words used to introduce subordinate clauses, verbal or lexical usage, and word order. The latter includes errors such as those concerning verb tense, articles, prepositions, subject-verb agreement,

plural 's', 3rd person singular, copula 'to be', possessive 's' and auxiliary. At the bottom of the table, the percentage of global errors and the percentage of local errors are displayed.

As shown in Table 22, the number of global errors committed by the subjects decreased from 51 in Writing One to 25 in Writing Two - reflecting a 49 percent drop in Writing Two. Specifically, the subjects made more errors in verbal and lexical usages among global errors in the first writing. In both writings errors involving words introducing subordinate clauses showed relatively the lowest frequency. The following are just a few examples taken from the two writings produced by the subjects.

1. *I don't know ( ) it was because of her kindness or because of my untamed nature that I was much more naughty than many other children.*

2. *My father, nearly 70 now, has retired for many years and my mother has been a housewife after she married.*

3. *Looking back upon my terrible experience during that period, I found myself in a dilemma, like a small boat in a heavy see which fate depended largetly on it luck or at the mercy of nature.*

4. *On writing here, I don't know what I will spell out the next, as if I am suddenly exposed to a place full of ( ) fog that I couldn't identify the road.*

5. *Liquor drinkers are evenly distributed among both sexes, more likely under 45, have a minimum of a college degreee, in the higher income groups, in the manager sales type occupations and live in the urban areas.*

6. *Since the interarrival rates are different from location to location, from time to time. So are the service times for each individual server. The objective of this project is to give a general model and procedure to evaluate the performance of existing restaurants.*

The first sentence reveals the omission of an obligatory interrogative adverb *whether*, which should have been used to introduce a noun clause acting as direct object

Table 22

Global Errors and Local Errors

Types of Errors	Writing One	Writing Two
Global Errors		
words introducing subordinate clauses	11	6
verbal and lexical usages	22	5
structure and word order	17	14
subtotal:	51	25
%	100%	49%
Local Errors		
verb tenses	34	29
articles	31	24
prepositions	18	7
subject-verb agreement	9	9
plural 's'	6	2
3rd person singular	4	1
possessive 's'	3	2
copula 'to be'	5	1
auxiliary	2	0
subtotal:	112	75
%	100%	67%
Total:	163	100
%	100%	61%
% of Global Errors	31%	25%
% of Local Errors	69%	75%

of the main clause. The second sentence shows the incorrect use of a subordinator of time *after*, which should have been replaced by *since*. The third erroneous sentence indicates an incorrect use of the relative pronoun *which*, which should have been avoided by using *whose* instead. The fourth sentence suggests that the subject failed to use correctly the compound subordinator *so ... that*. The fifth sentence also shows that the subject lacked the skill to use an adjective clause, judging from the context, which would have made the whole sentence read better. The last sentence indicates an inappropriate use of the subordinator of cause *since*, which, if correctly used, would have introduced a subordinate clause attached to a main clause. These incorrect sentences exemplify the first type of global errors which entail words used to introduce three kinds of subordinate clauses.

With respect to errors involving verbal or lexical usages, the following are a few instances taken from the two writings produced by the subjects.

1. *Under the nurse with best of care, I was able-bodied and very happy at that time.*

2. *Though I have said good-by to my hometown for years, I still never forget that I spent my golden childhood on this attractive and rural land.*

3. *It is required that I touch with different people from different regions, i.e., those with different culture and education.*

4. *He only said to me "you should learn not only from books and teachers but also from life, from other students. Do have self-confidence," which have deeply impressed into my mind.*

5. *In application, it can be built into more sophisticated by incorporating much more characteristics of the produnction system into the model according to different situations.*

6. *The evolution of the industry can be interpreted into two stages: fast growth and mature.*

The first sentence involves a prepositional usage seemingly indicating a reason, but it is by no means idiomatic in English. Probably, what the subject meant to say is: *Taken good care of by the nurse, I was able to become healthy and strong.* The second sentence reveals the incorrect use of a verb phrase, which is found to be illogical in the context because the act of saying goodbye to his hometown could not have lasted for years. What he ought to have said is: *Though it has been years since I said goodbye to my hometown, I can never forget ....* : The third sentence indicates the incorrect use of a phrasal verb expression, which usually reads as: *I stay (keep, get) in touch with people ....* . The fourth sentence also shows the incorrect use of a verb phrase, which might have been written correctly as: *which has left a deep impression on me.* In the fifth sentence, the pronoun "it" was used by the subject to refer to "a general simulation model which", as he described, "can be applied to most fast-food restaurants either

directly or with minor revision." Judging from the discourse, what the subject meant to say is: *The model can be built with such sophistication that it incorporates many characteristics of the production system according to different situations,* (thus catering to the needs of customers at various locations and during different service hours). The last sentence involves two errors. The first one is associated with the verb phrase "interpret" and the second is related to the part of speech of the word 'mature' which is incongruent with the noun "growth". Thus, the whole sentence may be rewritten as: *The evolution of the industry can be interpreted as comprising two stages: fast growth and maturity.* The sentences briefly analyzed above exemplify the second type of global errors which are characterized as involving verbal or lexical usages.

In order to illustrate errors in structure and word order, the following sentences are cited as examples.

1. *When I was seven I entered the primary school which was an attached one to a teachers' university.*

2. *At my tenth birthday I thought on my home way that I would sure have the same gift as that last year.*

3. *I was very much proud of my ghostly stories I heard from my grandmother, which often made other boys not be able to go home alone in the dark.*

4. *Under such circumstance, selling franchises is a better alternative at least for the time being, for the following reasons: (1) there is the above-mentioned uncertain economic climate; (2) is a good source of capital inflow; (3) reduces KFC's financial risk; (4) allows rapid market expansion.*

5. *Slow growth caused the competition go for market share rather than overall fast growth.*

The first sentence is incorrect because the word 'attached' can only be used as a postmodifier rather than a premodifier. The second sentence contains an error in word order relating to the adverb 'home' which can be used as a postmodifier rather than a

premodifier in the idiomatic usage: *on my way home*. The third sentence suggests that the subject was unaware of the rule that the object complement either takes the form of a bare infinitive phrase or an adjective phrase which should not be preceded by the copula 'to be'. The fourth sentence is comprised of five T-units. The third T-unit lacks an introductory word 'there' while the fourth T-unit and the fifth T-unit simply have no subjects at all. The last sentence reveals an omission of the infinitive 'to'. Although the sentences mentioned above may also entail other errors, they are neither in the category of global errors nor in the category of the third type of global errors. Nevertheless, these incorrect sentences suffice to exemplify the third type of global errors.

As displayed in Table 22, the subjects made a total number of 112 local errors in Writing One and a total number of 75 local errors in Writing Two. The decrease was found to be 33 percent in Writing Two compared with Writing One. Specifically, in terms of frequency, verb tenses and articles were the two areas where the subjects made the most errors. The next two areas where the subjects made relatively more errors than in other areas were prepositions and subject-verb agreement. Since these local errors are rather straightforward, no examples will be given here. But, it should be noted that the subjects made more errors in verb tenses and aspects in both writings than in any other category of errors. This may be attributed to the fact that the Chinese language has no tense proper. Thus, the difficulty Chinese ESL learners have with English tenses and aspects is that they have to cope with inflectional features, which are unfamiliar to them.

As shown at the bottom of Table 22, the subjects made a total number of 163 errors in Writing One and 100 errors in Writing Two, indicating a 39 percent decrease in the second writing. This suggests that thanks to the subjects' increased experience in using English as a second language, they tended to make fewer errors in the second writing. Since there was twelve months of ESL practice between the two writings, the positive effect of the ESL training on the subjects' English language proficiency can be

inferred in addition to the effect of natural and academic exposure to the English language since their arrival in Canada.

On the whole the subjects made more local errors than global errors in the two writings. In the first writing, the number of global errors constitutes nearly one-third of the total number of errors while in the second writing a quarter of the total number of errors were global errors. This finding suggests that the errors committed by the subjects in the two writings are not qualitatively different, but as the subjects' experience in using the target language increases, their tendency to make various kinds of errors due to the strategies of overgeneralization and transfer may be quantitatively different.

In summary, this subsection has described the errors made by the subjects in two of their writings. The descriptive statistics indicate that over the period of 12 months between the end of April, 1984 and the end of the first academic year in April, 1985 the subjects involved in this study increased in written English syntactic maturity in their second writing. One explanation for this finding is that the subjects' overall English language proficiency increased as their exposure to and use of the target language accumulated.

C. Subjects' Syntactic Maturity Compared to Comparative Data

The purpose of this section is to describe the subjects' written English syntactic maturity in comparison with that revealed by the comparative data in the related literature. First, it intends to examine the subjects' written English syntactic maturity in comparison with that in the comparative data adapted from the first language acquisition research studies. Next, it plans to compare the subjects' written English syntactic maturity with those comparative data taken from the second language acquisition research studies involving secondary school students. Finally, it will compare the subjects' written English syntactic maturity with the comparative data taken from the

second language acquisition research studies involving students at the university level. The purpose of doing so is to establish comparative data for further studies and to identify the developmental level of syntactic maturity in English at which the subjects managed to complete their MBA programs in Canadian universities.

Subjects' Written English Syntactic Maturity Compared to L1 Comparative Data

Table 23 presents the subjects' syntactic maturity in terms of three T-unit measures: mean T-unit length, mean clause length and mean number of clauses per T-unit. The comparative data are adapted from Hunt (1956:56; 1970:9) and from Morenberg et al. (1978:254).

The statistics displayed in Table 23 suggest that, as regards mean T-unit length, the subjects in two writings seem to be superior to the Grade 12 native learners of English. Judging by their mean T-unit length in Writing One, the subjects also prove to be at a very similar level of syntactic maturity to the college freshmen of the control group involved in Morenberg et al.'s study. The subjects' mean T-unit length in Writing One was, however, shorter than that demonstrated by the college freshmen of the experiental group in Morenberg et al.'s study while their their mean T-unit length in Writing Two was longer than that shown either in the pre-writing or in the post-writing by the college freshmen of both the control group and the experimental group in Morenberg et al.'s study.

As far as the mean clause length is concerned, the subjects in their first writing not only proved to be above the syntactic maturity level of the Grade 12 native speakers in Hunt's study, but also showed themselves to be superior to Morenberg et al.'s college freshmen freshmen in the control group when compared with both their pre-writing and post-writing. Although they also surpassed Morenberg et al.'s college freshmen in the experimental group as compared with their pre-writing, the subjects were still slightly behind Morenberg et al.'s experimental group if compared with their post writing. The

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Table 23 CHINESE MBA STUDENTS' WRITTEN ENGLISH SYNTACTIC MATURITY COMPARED TO L1 COMPARATIVE DATA

| Measures | Grade Level | | | | | | College Freshmen | | Superior |
	3	4	5	7	8	12	Pre	Post	adult
W/TU									
O'Donnell	7.67		9.34	9.77					
Hunt		8.51			11.34	14.40			20.30
Morenberg (control)							15.00	14.95	
et al (exp.)							15.31	16.05	
Chinese MBA Students							Prior to 14.98	During MBA Programs 16.48	
W/CL									
O'Donnell	6.50		7.40	7.70					
Hunt		6.60			8.10	8.60			11.50
Morenberg (control)							8.80	8.67	
et al (exp.)							8.75	9.64	
Chinese MBA Students							Prior to 9.63	During MBA Programs 11.14	
CL/Tu									
O'Donnell	1.18		1.27	1.30					
Hunt		1.29			1.42	1.68			1.71
Morenberg (control)							1.72	1.73	
et al (exp.)							1.76	1.68	
Chinese MBA Students							Prior to 1.56	During MBA Programs 1.49	

Source: Hunt, 1965:56; Hunt, 1070:9; Morenberg et al, 1978:254.

subjects in their second writing, nevertheless, surpassed Morenberg et al.'s college freshmen in both the control and the experimental groups and in both the prewriting and postwriting.

With reference to the mean number of clauses to T-units, the Chinese MBA students in both their writings seem to be less mature than Hunt's Grade 12 native students and Morenberg et al.'s college freshmen regardless of the groups and the writings. It is obvious that the subjects' ability to attach subordinate clauses to main clauses in their writing still leaves much to be desired.

The subjects' syntactic maturity compared to the L1 comparative data gives a clear picture of the developmental level of written English syntactic maturity at which the subjects in this study may cope with written assignments in their MBA graduate work. They have been observed to be syntactically mature when measured in terms of mean T-unit length and mean clause length, whereas they have been also found to be syntactically less mature in terms of mean number of clauses per T-unit. Despite all their strengths and weaknesses, in each of the three T-unit indices the subjects are well behind the superior adult native speakers in Hunt's study.

Subjects' Written English Syntactic Maturity Compared to L2 Comparative Data

Table 24 describes the subjects' written English syntactic maturity in comparison to that of secondary school students at three grade levels in Hong Kong. The comparative data are adapted from Yau and Belanger's (1984) study.

As indicated in Table 24, the subjects measured by the mean T-unit length in Writing One were found to be syntactically more mature than the grade 9, 11, and 13 Hong Kong secondary school students in the narrative mode of writing. Although, with regard to their mean T-unit length in Writing One, they also surpassed the grade 9 and 11 Hong Kong secondary school students in the expository mode of writing, the subjects were observed to be behind the grade 13 Hong Kong secondary school

Table 24 CHINESE MBA STUDENTS' WRITTEN ENGLISH SYNTACTIC MATURITY COMPARED TO L2 COMPARATIVE DATA

Measures	Secondary Students in Hong Kong Roughly Equivalent Grade Level			Chinese MBA Students Graduate Level	
	9	11	13	Prior to	During MBA Program
W/TU					
Narrative	9.00	10.00	11.48	14.98	16.48
Expository	11.04	12.71	15.64		
W/CL					
Narrative	7.16	7.19	7.57	9.63	
Expository	7.93	8.87	10.40		11.14
CL/TU					
Narrative	1.26	1.38	1.52	1.56	
Expository	1.40	1.45	1.52		1.49

Source: Yau and Belanger, 1984:68.

students in the same mode of writing. Nevertheless, the subjects measured by the mean T-unit length in Writing Two proved to be superior to the Hong Kong secondary students at all three grade levels in both modes of writing.

As regards the mean clause length, the same result emerges. The subjects in Writing Two surpassed the Hong Kong secondary school students at all three grade levels in both modes of writing. The subjects in Writing One, likewise, also surpassed the Hong Kong secondary school students at all other grade levels in both modes of writing except those at the grade 13 level in the expository writing.

As far as the mean number of clauses per T-unit is concerned, the subjects in Writing One surpassed the Hong Kong secondary school students in all three grade levels in both modes of writing. But, in Writing Two, the subjects only surpassed the Hong Kong secondary school students at grade 9 and 11 in both modes of writing. Though the subjects measured by the mean number of clauses per T-unit are found to be behind Hong Kong grade 13 students in both modes of writing, the difference is rather marginal. Thus, the Chinese MBA students seem to be at a developmental level of written English syntactic maturity which is superior to the secondary school subjects in Yau and Belanger's study.

Table 25 displays the subjects' syntactic maturity found in the two writings in comparison to the L2 comparative data which involved ESL students at the university level. The first half of the comparative data in Table 25 is adapted from Larsen-Freeman's (1978) study in which

1. the analysis of 212 compositions written as part of the Placement Examination by university ESL students was undertaken;

2. the subjects were placed into one of the five groups according to their performance on the entire Placement Examination: Group 1 being those who had scored the lowest and requiring a great deal of ESL instruction before being permitted to join the academic mainstream; Group 5 being those students who

scored high enough on the placement Examination to have all ESL requirements waived.

The second half of the comparative data in Table 25 is adapted from Larsen-Freeman and Strom's (1977) study, which analyzed compositions written also as part of the UCLA English as a Second Language Placement Examination by 48 non-native speakers of English who were undergraduate students at UCLA. On an impressionistic basis, two researchers independently assigned each composition to one of the five levels of proficiency: poor, fair, average, good, or excellent.

As illustrated in Table 25, while the subjects' mean T-unit length in Writing One was found to be superior to that of the group 1 and group 2 subjects in Larsen-Freeman's study, the subjects' mean T-unit length found in Writing Two was observed to be above those of the five groups of ESL students in Larsen-Freeman's study.

As regards the mean error-free T-unit length, in both their writings the Chinese MBA students surpassed all the five groups of ESL students in Larsen-Freeman's study. Likewise, with respect to the mean T-unit length, in both of the writings, the subjects were found to be superior to those five groups of ESL students in Larsen-Freeman and Strom's study.

In summary, this section has compared the Chinese MBA students' written English syntactic maturity with both the L1 comparative data and L2 comparative data. The statistics presented in the tables are meant to be descriptive and by no means intended to make any strong claims.

To interpret the information displayed in this study it is necessary to be aware of one important difference between the data in this study and comparative data in the literature. For example, while the comparative data adapted from Hunt's study were described by Hunt as what the subjects in his study normally had to write in-school, other L1 and L2 comparative data were derived from compositions written under

Table 25 CHINESE MBA STUDENTS' WRITTEN ENGLISH SYNTACTIC MATURITY COMPARED TO L2 COMPARATIVE DATA
INVOLVING ESL STUDENTS AT THE UNIVERSITY LEVEL

Group Measures	ESL Students at UCLA					Chinese MBA Students	
	1 (N=37)	2 (N=39)	3 (N=45)	4 (N=56)	5 (N=35)	Prior to (N=17)	During MBA Programs (N=17)
W/TU Larsen-Freeman	12.02	13.72	15.23	15.25	15.67	14.98	16.48
W/EF TU Larsen-Freeman	4.61	7.52	9.26	10.77	13.20	13.90	15.86

Group Measures	ESL Students at UCLA					Chinese MBA Students	
	poor (N=11)	fair (N=12)	average (N=6)	good (N=14)	excellent (N=5)	Prior to (N=17)	During MBA Programs (N=17)
W/TU Larsen-Freeman & Strom	11.58	12.50	12.92	14.28	14.46	14.98	16.48

Source: Larsen-Freeman, 1978:445-446; Larsen-Freeman and Strom, 1977:130.

controlled conditions or rather within the time limit set for the writing task. Morenberg et al.'s college freshmen wrote two papers in two-hour periods. Yau and Belanger's secondary school students in Hong Kong wrote on assigned topics under controlled conditions while ESL students at UCLA wrote on given topics within thirty minutes. Since the Chinese MBA students in this study did not produce the two writings under such time restrictions, the difference obviously has to be taken into consideration when their written English syntactic maturity is compared with that adapted from the L1 and L2 comparative data.

However, the results presented in this section are still very revealing with regard to the subjects' syntactic maturity in particular and in relation to their overall English language proficiency in general. As Gaies (1980:54) has pointed out:

> There are many who feel that, while second language acquisition by adults does not parallel other developmental processes as in the case of first language acquisition, the development of syntactic maturity in a second language nonetheless proceeds much along the same line as in first language acquisition.

The findings in this study as a result of comparing the subjects' syntactic maturity with that of the college freshmen in Morenberg et al.'s study corroborate Gaies' argument. The subjects' written English syntactic maturity is developing at a level commensurate with that of the college freshmen if measured by the mean T-unit length and the mean clause length. In view of this it can be assumed that although in terms of these T-unit indices they may be still behind native speakers at the university graduate level, this does not refute Gaies's argument. It is still correct, considering the EFL learning background experienced by the subjects, to say that the Chinese MBA students' development of syntactic maturity in English proceeds much along the same line as in first language acquisition even though it does not parallel the development of syntactic maturity in first language acquisition.

In spite of the observations above, it should still be noted that the subjects were weak in using subordinate clauses as shown in both writings analyzed in the study.

D, Unsuccessful Subjects' Written English Syntactic Maturity

This section examines the written English syntactic maturity of the two subjects who did not complete the MBA programs. Their success is judged on the criterion of whether or not they eventually obtained the master's degree in Business Administration.

Table 26 displays two pairs of the six syntactic maturity factors observed in both Writing One and Writing Two for each of the seventeen subjects. The group means that have been reported before in Table 3 and Table 4, respectively, appear at the bottom of the table. But, in Table 26 the group means of the six syntactic maturity factors in the subjects' second writing are marked with the statistical information indicated by the presence and absence of either '*' ($p < .05$) or '**' ($p < .01$), which are the significance levels of the difference between the two pairs of the six syntactic maturity factors as a result of the matched t-tests.

The observations suggest that although the subjects used subordinate clauses less frequently in Writing Two than in Writing One, the difference was not significant. Nevertheless, the tendency among the subjects in Writing Two to pack more information into longer clauses and longer T-units was significantly different than that in Writing One. As regards the mean clause length and the mean error-free clause length, the significance levels are both at $p < .01$. As for the mean T-unit length and the mean error-free T-unit length, the significance levels are respectively at $p < .05$ and $p < .01$.

The two subjects who failed to succeed in the MBA programs may have had some deficiency in their L2 cognitive/academic language skills, including their written English syntactic skills. It can be noted in Table 26 where the I.D. numbers of the unsuccessful candidates appear in boldface that both of them were weak in the use of subordinate clauses in their second writing. Even though their number of clauses per

Table 26. Six Written English Syntactic Maturity Factors Associated with Chinese MBA Students in Two Writings

Time I.D.	CL/T [1]	CL/T [2]	W/CL [1]	W/CL [2]	W/T [1]	W/T [2]	CL/EF-T [1]	CL/EF-T [2]	W/EF-CL [1]	W/EF-CL [2]	W/EF-T [1]	W/EF-T [2]
1	1.41	1.47	9.67	10.70	13.59	15.72	1.40	1.42	9.09	9.89	12.72	14.08
2	1.27	1.31	9.04	13.71	13.50	17.97	1.24	1.31	8.76	13.82	10.32	18.08
3	1.53	1.34	9.09	12.67	13.88	17.03	1.35	1.39	8.57	11.91	11.54	16.56
4	1.66	1.46	10.44	13.08	17.27	18.40	1.64	1.44	10.10	12.33	16.56	17.69
5	1.54	1.58	8.89	9.94	13.45	15.67	1.50	1.60	8.36	8.90	12.54	14.24
6	1.68	1.44	9.77	11.11	16.39	15.97	1.64	1.42	9.11	10.72	14.91	15.27
7	1.50	1.59	11.27	9.79	16.90	15.57	1.52	1.62	10.39	9.52	15.80	15.38
8	1.88	1.85	10.77	13.97	20.24	25.85	2.17	1.89	10.05	13.75	21.77	26.05
9	1.77	1.50	8.27	7.55	14.66	11.33	1.65	1.45	6.67	6.71	11.00	9.72
10	1.46	1.55	9.84	7.38	14.34	11.41	1.41	1.60	9.41	7.22	13.31	11.55
11	1.61	1.71	11.36	10.46	18.25	17.93	1.55	1.68	10.73	10.62	16.59	17.84
12	1.51	1.35	8.35	11.02	12.63	14.91	1.41	1.26	8.27	10.38	11.68	13.07
13	1.42	1.37	9.69	12.73	13.76	17.40	1.48	1.42	9.37	11.50	13.90	16.29
14	1.40	1.19	12.09	13.08	16.92	15.53	1.44	1.22	10.46	12.74	15.11	15.53
15	1.64	1.35	8.72	10.89	14.31	14.73	1.61	1.36	8.12	10.63	13.10	13.14
16	1.62	1.46	7.71	12.17	12.48	17.82	1.68	1.48	7.56	12.20	12.74	18.07
17	1.61	1.87	8.79	9.04	14.16	16.87	1.62	1.96	7.55	8.72	12.24	17.11
Means:	1.56	1.49	9.63	11.13***	14.98	16.48*	1.55	1.50	8.97	10.68***	13.90	15.86**

1. Significant differences are the results of matched *t*-tests based on paired samples: *=p<.05 and **=p<.01.

T-unit in Writing One were found to have reached a reasonable level of syntactic maturity, the number of clauses per T-unit in Writing Two dropped markedly. In one case, the number of clauses per T-unit dropped from 1.40 in Writing One to 1.19 in Writing Two, which is only commensurate with the level of the same syntactic maturity factor of third graders in O'Donnell et al.'s (1967) study.

One might be curious as to whether a subject with control of sentence-level writing skills at this level could handle academic writing adequately at the graduate level in the Canadian university. To provide a true picture of this subject's writing it is worth looking closely at the 497-word sample taken from the subject's report, as this was the data analyzed by the researcher.

I. STATE OF THE INDUSTRY

The distilling industry had long established comsumer loyalty in North American market since early 1930's, and had built many plants with large capacity. The evolution of the industry can be interpreted into two stages: fast growth and mature. In the fact growth period, Canadian distillers adopted a strategy of developing as much production capacity as they could, as quickly as they could, feeling assured of continued demand. As a result, large plants were built, large numbers of small competitors were attracted. Large companies continually absorbed small competitors to achieve economies of scales. Then came the mature stage. Slow growth caused the competition go for market share rather than overall fast growth. As for the last 15 years, the number of corporations has remained relatively constant at 30, heavily concentrated in Ontario, and the concentration rate is high (c4=79.7, in 1972). Market had been segmented to very fine degrees, and the objective became competing and protecting market niches. Right now the industry is at the brink of declines.

Within the liquor industry, companies are competing with each other in a declining market. Slow growth rate and market segmentation are the indication of market share oriented industry. This type of competition, especially under the intensive government control, causes the polarization of brand strategy: either the best or the cheapest, the middle range brands are the losers. On the other side of the competition, the substitute goods, wine, beer and soft drink have two distinct advantages: price which is taxed at a lower rate than liquor and more advertising and promotion freedom. They are enjoying a higher rate of growth and making their way into the market which is occupied by the distilleries. Besides, competition from foreign countries

has been stable for many years. From 1971-83, imported spirits took approximately 20% of total volume of sales each year. However they have taken significant market share in the liqueurs, gins brandy and cognac classes, 100% in scotch whisky (by definition).

KEY FACTORS FOR SUCCESS IN DISTILLING INDUSTRY

1. SALES FORCE. Because of government regulation, spirits can not be advertised through television and radio. And retail channels are controlled by the provincial governments. Therefore, the sales force becomes a very important promotional tool.

2. ESTABLISHED BRAND NAMES. To be the first in the industry and built up brand names and consumer loyalty of products create and protect market niches for companies.

3. MARKET NICHES (share). Over 80% of the retail price is composed of tax. As a consequence, the producers have little control over retail prices. Therefore the created and well protected market niches are very important for success.

4. SUPPLIERS. The monopoly of glass suppliers means that the backwards vertical intergration is important to distilleries.

5. TARGET CONSUMER GROUPS. Liquor drinkers are evenly distributed among both sexes, more likely under 45, have a minimum of a college degree, in the higher income groups, in the manager sales type occupations and live in the urban areas. The young generation prefers beer while the older generation drink more wine and spirit.

6. PRODUCT INNOVATION. This is the most important way of competing for new market share and new niches, and for protecting established ones.

It can be noted that the subject used subordinate clauses only six times among the 497 words that were written. Yet, the subject's writing cannot be described as being very poorly written because, for one thing, some of the writing techniques learned during the twelve-week ESL training were applied to this particular writing task. For example, on the essay level, headings, subheadings and enumerative devices to structure the whole paper were used. On the paragraph level, the subject used sentence adverbials and prepositional conjuncts nine times to connect ideas between and across T-units. On the other hand, the subject failed to employ subordination so as to embody his ideas in a more economic and succinct way. Thus, a closer examination of this sample reveals that the effect of the ESL training on the handling of academic discourse was clearly reflected in this paper while, on the other hand, the use of organizational

techniques was only accompanied with very infrequent use of subordination, which gives one the feeling that the subject paid more attention to the structuring of the paper beyond the paragraph level rather than to the development and consolidation of ideas between and within T-units.

Clearly, the subject was still having difficulty with sentence-level writing decisions and relied on simple prose style which is inappropriate in university-level writing, especially at the graduate level. In fact, the immaturity and unsophistication of the subject's writing skill may be well illustrated in the following sentence:

> Liquor drinkers are evenly distributed among both sexes, more likely under 45, have a minimum of a college degree, in the higher income groups, in the manager sales type occupations and live in the urban areas.

Although there should have been an explanation as to why target consumer groups are among the key factors for success in distilling industry, the subject simply characterized them in terms of their sex, age, education level, income level, occupation type and residential area, which was not coherent with the subheading. In addition, several ideas were compressed into one long sentence without consideration of the syntactic alternative: namely subordination. For example, the subject might have revised the sentence to the effect that:

> Liquor drinkers, who are evenly distributed among both sexes and mostly under the age of 45, usually have a minimum of a college degree and belong to the higher income groups. They work as sales managers while living in urban areas.

These ideas might have been consolidated both through clausal expansion and nonclausal expansion. The subject's inability to do so resulted in a writing style which was inconsistent with the subject' tendency to use essay-level writing mechanics. As a result, the subject handled academic written discourse at the higher cognitive level with low cognitive/academic language skills.

The analysis above suggests that, in spite of the subject's control of some essay-level mechanics in Writing Two, an understanding of sentence-writing processes is still required because it does provide a basis for developing mature writing both at the paragraph level and the essay level. In the simplest terms, this understanding would include: (1) constituents that make up a complete sentence, (2) modification, (3) clause expansion through addition, coordination, embedding and/or subordination, (4) transition between T-units. Actually, it is not only the two unsuccessful subjects who are in need of such an understanding but also the successful subjects, considering that for eight of them, the number of clauses per T-unit decreased in Writing Two even when the academic discourse was more cognitively demanding.

Given these considerations, it is necessary to see if the successful subjects' syntactic maturity in Writing Two increased even when the unsuccessful subjects have been removed from the sample group. Table 27 displays two pairs of six syntactic maturity factors observed in Writing Two for each of the fifteen subjects who succeeded in MBA programs. The group means appear at the bottom of the table. As regards the mean clause and the mean error-free clause length, the significance levels are at $p<.05$ and $p<.01$ respectively. As for the mean T-unit length and the mean error-free T-unit length, the significance levels are also at $p<.05$ and $p<.01$ respectively. Although the subjects were still found to use subordinate clauses less frequently in Writing Two than in Writing One, the difference was not only insignificant but also was reduced a little if compared to the difference in Table 26. The group mean number of clauses per T-unit decreased from 1.56 in Writing One to 1.52 in Writing Two while the group mean number of clauses per error-free T-unit decreased from 1.56 in Writing One to 1.53 in Writing Two.

In summary, as indicated in Table 27, the result is positive, suggesting that the subjects' increased their syntactic sophistication and resourcefulness in the second writing while revealing that one aspect of their syntactic maturity (the number of clauses

Table 27. Six Written English Syntactic Maturity Factors Associated with Chinese MBA Students in Two Writings

Time I.D.	CL/T [1]	CL/T [2]	W/CL [1]	W/CL [2]	W/T [1]	W/T [2]	CL/EF-T [1]	CL/EF-T [2]	W/EF-CL [1]	W/EF-CL [2]	W/EF-T [1]	W/EF-T [2]
1	1.41	1.47	9.67	10.70	13.59	15.72	1.40	1.42	9.09	9.89	12.72	14.08
2	1.27	1.31	9.04	13.71	11.50	17.97	1.24	1.31	8.76	13.82	10.32	18.08
3	1.53	1.34	9.09	12.67	13.88	17.03	1.35	1.39	8.57	11.91	11.54	16.56
4	1.66	1.46	10.44	13.08	17.27	18.40	1.64	1.44	10.10	12.33	16.56	17.69
5	1.51	1.58	8.89	9.94	13.45	15.67	1.50	1.60	8.36	8.90	12.54	14.24
6	1.68	1.44	9.77	11.11	16.39	15.97	1.64	1.42	9.11	10.72	14.91	15.27
7	1.50	1.59	11.27	9.79	16.90	15.57	1.52	1.62	10.39	9.52	15.80	15.38
8	1.88	1.85	10.77	13.97	20.24	25.85	2.17	1.89	10.05	13.75	21.77	26.05
9	1.77	1.50	8.27	7.55	14.66	11.33	1.65	1.45	6.67	6.71	11.00	9.72
10	1.46	1.55	9.84	7.38	14.34	11.41	1.41	1.60	9.41	7.22	13.31	11.55
11	1.61	1.71	11.36	10.46	18.25	17.93	1.55	1.68	10.73	10.62	16.59	17.84
12	1.51	1.35	8.35	11.02	12.63	14.91	1.41	1.26	8.27	10.38	11.68	13.07
13	1.42	1.37	9.69	12.73	13.76	17.40	1.48	1.42	9.37	11.50	13.90	16.29
16	1.62	1.46	7.71	12.17	12.48	17.82	1.68	1.48	7.56	12.20	12.74	18.07
17	1.61	1.87	8.79	9.04	14.16	16.87	1.62	1.96	7.55	8.72	12.24	17.11
Means:	1.56	1.52	9.53	11.02*	14.90	16.65*	1.56	1.53	8.93	10.55***	13.88	16.07***

1. Significant differences are the results of matched t-tests based on paired samples.*=p<.05 and ***=p<.01.

per T-unit) still leaves much to be desired.

E. Discussion

In the previous two sections, the subjects are described as having improved their syntactic maturity in terms of mean T-unit length, mean error-free T-unit, mean clause length and mean error-free clause length during Writing Two. In addition, they also tended to have more non-clausal elements embedded in fewer T-units and to have made fewer errors in Writing Two. Such an improvement cannot be discussed without pointing to the possible effect of the twelve-week ESL training program offered to the subjects under the instruction of four Canadian instructors. As a result of this intensive ESL training, the subjects must have received a great deal of the English language input from their Canadian instructors. In fact, as illustrated in the Teaching Schedule shown in Table 2, the subjects were trained not only in reading but also in writing, questioning and conversational skills. In addition, they were also given opportunities to learn to comprehend lectures and develop note-taking and other study skills in the target language. Moreover, in order for them to get a feel for the type of activities they would be likely to experience during their prospective MBA courses, they were also introduced to accounting lectures, case study methods and group exercises followed by group presentations.

Thanks to this unique ESL training program, the subjects' total amount of exposure to the target language throughout their English learning experience increased greatly. Figure 19 shows the total number of hours experienced by each subject in the learning of English and displays the average number of hours in the learning of English as a Second Language for the whole sample group. As revealed by the summary in Figure 19, in contrast to that displayed in Figure 6, for each subject a total number of 300 hours, which was computed on the basis of the information given by the Teaching Schedule shown in Table 2, was added to his/her overall intensity of formal

Figure 19   OVERALL INTENSITY OF FORMAL UNIVERSITY-LEVEL ESL STUDY
UPON COMPLETION OF THE TWELVE-WEEK ESL PREPARATION (N=17)

NUMBER OF HOURS	FREQUENCY	PERCENT	MEAN	STD DEV
428	1	5.9	658.71	193.33
444	1	5.9		
460	1	5.9		
492	1	5.9		
540	1	5.9		
556	3	17.6		
584	1	5.9		
588	1	5.9		
644	1	5.9		
812	2	11.8		
840	1	5.9		
876	1	5.9		
942	1	5.9		
1068	1	5.9		
TOTAL	17	100.0		

university-level ESL study (updated upon completion of the twelve-week ESL preparation). The figures indicate that by the time they entered their MBA program in various Canadian universities all the subjects had studied English for more than 320 hours, which was the average number of hours of EFL instruction Yu (1984) described the Chinese university students as having normally received during their entire four-year undergraduate programs. Furthermore, the mean number of hours of ESL/EFL instruction for the whole sample group increased from 375 hours (in Figure 6) to 658 hours, which is well above Yu's (1984) figure. Such intensive ESL training undoubtedly increased the possibility for the subjects of succeeding in their prospective MBA programs.

In light of the observation presented above, it may be useful to raise questions as to what factors might account for the subjects' improved written English syntactic maturity and increased error elimination in Writing Two on the one hand and what concepts should have also received close attention during the training on the other. It should be noted, for example, that the twelve-week ESL training program adopted a teaching approach which was quite different from the way the subjects were taught English during their undergraduate study in Chinese universities. In the first place, the training was organized in a way such that it intended to balance the subjects' development in all English skills while catering to their academic needs in MBA programs. Secondly, it was obviously committed to the view that language development is an integrated process such that language skills are not mutually exclusive in the way they are acquired, which is congruent with Pearson's (1981) argument that "reading and writing well are in many ways inextricably tied to listening and speaking well. All require the creative and integrative powers of the mind that every normal adult has." In the final analysis, the twelve-week ESL training program was concerned with enabling the subjects to come to grips with the nature of English langauge use and can be described as being based on the assumption that a teaching methodology "should be based not only

on insights as to the nature of 'knowledge of a language', but also on those concerned with the process involved in its use" (Johnson 1982:147). Thus, all this may account for the improvement found in the subjects' second writing.

On the other hand, what also merits close attention here is the finding that in the second writing one aspect of the subjects' written English syntactic maturity measured by the mean number of clauses per T-unit in the subjects' second writing decreased. Furthermore, compared to L1 comparative data, in both of the two writings the subjects seem to be less mature than Hunt's (1965) grade 12 students and than Morenberg et al.'s (1978) college freshmen with regard to the mean number of clauses per T-unit. Also, even though the subjects had seldom practised writing before they wrote about themselves in the first writing, nonetheless they demonstrated a basic level of written English syntactic maturity.

These findings reflect a number of issues related to adult ESL learners' syntactic maturation. First, they suggest that the ability to write requires a certain ability to manipulate grammar. "Since syntactic maturity is developmental growth, associated with cognitive development ..." (Morenberg 1981:403), adult second language learners could benefit greatly from transformational sentence combining exercises of the sort described by Mellon (1969) in his work on syntactic fluency and subsequently modified by O'Hare (1973) (who obtained similar results without the grammatical terminology that Mellon built into his approach). Since the acquisition of mature structures "increases the possibility of a student's making the best choice consistent with his purpose), the practice of consciously transforming sentences from simple to complex structures (and vice versa), of compounding the parts of sentences, of transforming independent clauses into dependent clauses, of collapsing clauses into phrases or words" . (Shaughnessy 1977:77) could undoubtedly help students cope with syntactic complexity and perceive forms as another kind of meaning. Thus, a certain amount of time spent during the ESL training program on such exercises could have been well invested as long

as the students did not lose sight of the point that the purpose of their performance was to communicate with a specific audience in writing. Practices mentioned above indeed could have sharpened the student's "sense of the simple sentence as the basic, subterranean form out of which surface complexity arises, and this insight gives him a strategy for untangling any sentence that goes wrong, whether simple or complex" (Shaughnessy 1977:78).

Second, the finding in this study that the subjects in the second writing improved in some aspects of written English syntactic maturity while they failed to improve in another aspect of written English syntactic maturity suggests that although they may have learned to collapse clausal-elements into non-clausal elements such as phrases and words, they were still not syntactically mature enough to transform independent clauses into dependent clauses. In fact, the twelve weeks devoted to the ESL training program was a short time which was insufficient to attend to all the components of writing ability. This is exemplified in the ESL training program design which reads: "Writing will include: writing for specific audiences, logical development of a theme, rhetorical, forms, organization, revision, surface features of writing." If examining this program design from the perspective that writing ability comprises both *competence* which is the ability to manipulate mature structures and *performance* which is the ability to activate "an effective composing process, techniques for planning and revising and for development of ideas" (Krashen 1984:32), then the design for the ESL training program only emphasized one component of the writing ability. This may account for why subjects' written English syntactic maturity in terms of the mean number of clauses per T-unit and the mean number of clauses per error-free T-unit decreased rather than increased in their second writing. Thus, an appropriate proportion of transformational sentence combining exercises might have helped the subjects achieve a control of complex structures as another form of conveying meaning.

Third, the observations reported in this study should also be examined in light of the view expressed by Hake and Williams (1985) and summarized by Daiker et al. (1985) as follows:

> as students move from 'a relatively concrete-operational level of discourse to a formal operational level, they will be cognitively 'overloaded' and their performance will degrade. Hence a theory based on a "crude" measurement of students progress according to a 'linear correspondence between quality and (syntactically measured) length' is inadequate, perhaps wrong, and needs to be integrated with the theory of cognitive development. (xvi)

This view makes an important point because it allows for the relationship between language development and cognitive development to be conceptualized in terms of syntactic development. Clearly, it would be appropriate to argue that syntactic maturation is a crucial part of language development that is indispensable to cognitive development, and that a command of more mature syntax should, at some point, show qualitatively in writing (O'Hare 1973:14). What really merits adequate attention in this regard is Hake and Williams' argument that the modes of discourse are linked within a hierarchy of increasing rhetorical and cognitive demands: describing, narrating, informing, explaining, convincing and persuading. The experimental evidence they cite suggests that writers' performance on these rhetorical tasks reflects the increasing difficulty: syntactic complexity regresses and already solved problems resurface.

The theoretical framework of increasing cognitive demands associated with various modes of written discourse helps explain two observations made in this study. First, it accounts for why the subjects could write about themselves at a certain level of syntactic maturity even when they had seldom written in English before. Second, it helps clarify why the subjects' use of subordination and particularly the two unsuccessful subjects' use of subordination decreased rather than increased in the second writing when it had to be performed at a higher academic/cognitive discourse level during their MBA courses.

Obviously, these issues suggest that the Chinese MBA students in this study, like first language basic writers in Shaughnessy's (1977:5) sense, still need help in developing the cognitive skills required by academic discourse. In particular, they ought to grasp those skills involved in "ranging widely but in fairly predictable patterns between concrete and abstract statements, between cases and generalizations (Shaughnessy 1977:240), because without such ability, they would be unable to produce the kinds of writing that the academic situation demands. Emig (1977:122-23) points out that this very ability is a product of and is learned through written language, in part through reading, but more especially in the act of writing; that is, it is through writing itself that learners develop the cognitive skills required to engage in literate discourse (see Farrell 1977:450).

Indeed, the issue of the interrelationship between reading ability and writing ability and the effect of the act of writing by itself, other than reading, on the development of cognitive skills are most relevant not only for the Chinese MBA students but also for many adult ESL learners. Though their deep conceptual ability developed in the first language may help to compensate for the lack of surface skill in English commensurate with that of native speakers (Perkins and Pharis 1980:250), these ESL learners still face the challenge of developing L2 cognitive/academic language skills (Cummins 1978, 1980a, b), one of which is the ability to activate an effective writing process, to embody ideas through syntactic alternatives in writing and to arrange them logically and succinctly. Viewed from Cummins' (1976, 1978, 1980a, b) theoretical perspective, in order for the deep conceptual ability already developed by adult ESL students in their first language to benefit them optimally in academic settings requires formal ESL preparation and still depends upon the attainment of a minimal level (threshold) of cognitive/academic language proficiency in the target language. At least, certain aspects of this 'threshold' level in the target language may be conceptualized in terms of syntactic maturity factors. The second language learner's syntactic ability

below that 'threshold' level might see him through academic studies only with difficulty.
The two unsuccessful subjects in this study are cases in point.

As already mentioned, to engage successfully in academic discourse, ESL learners need help in developing both language competence and discourse strategies. This is borne out by one observation in this study, which suggests that some subjects might have developed a written English syntactic maturity not commensurate with their control of discourse strategies. In Hays' (1980) view, in writing instruction, time spent on language competence need not be time divorced from discourse. She suggests "something even more fundamental: that many of the cognitive operations involved in the skillful manipulation of syntax are the same as those involved in discourse itself ..." (p. 147). However, where do the concerns of syntax and discourse overlap? Hays points out that Shaughnessy (1977:79) has discussed the difficulties faced by first language writers operating at a basic level not only with syntactical consolidations but with the "seams," "joints," and "points of intersection" in sentences, and in another place has analyzed the difficulty the beginning writers have with the convention of academic discourse that engages the writer in "explicitly marking the logical and rhetorical relationships between sentences, paragraphs, and larger units of composition (1977:240)." "It is here," says Hays (1980:147), "that concerns of syntax and discourse overlap and that we can teach the one even as we teach the other." Her point obviously carries an important implication for ESL writing instruction. The observation in this study corroborates Hays' point of view in the sense that adult ESL learners may, as some subjects did in this study, still be plagued with sentence-writing decisions, while paying more attention to larger discourse-level mechanics. Another piece of evidence obtained in this study is that the subjects' syntactic maturity increased not only as a result of the dependency on the increased clause length, T-unit length and depth of modification, but also partly as a result of the use of sentence adverbials which are closely related to both syntax and academic discourse.

In conclusion, the observations made in this study suggest that although the development of written syntactic maturity in English as a second language basically may proceed along much the same line as in first language acquisition, this development may be affected by the unbalanced EFL instruction foreign students normally receive. Thus, to help them learn to engage in academic discourse by using cognitive/academic language skills, they need to be exposed to the written language through a heavy component of reading and, more important, through the very act of writing reflective of various modes of discourse within a hierarchy of increasing cognitive demands. In the course of so doing, they may benefit from an appropriate proportion of sentence-combining so that they may perceive a control of complex structures as another form of meaning indispensable to connecting ideas in the process of writing. Only in this way can writing instruction help such students come to grips with L2 cognitive/academic language skills and enable them to live up to the rigorous language demands made on them in academic settings such as the MBA programs.

V. CONCLUSIONS AND IMPLICATIONS

A. Conclusions

This section summarizes the observations of the characteristics associated with the subjects involved in this study.

Summary of Subjects' Education and EFL Study Background

The present study began with an examination of the characteristics associated with the subjects in reference to their education background as undergraduate students in Chinese universities and to their English as a foreign language (EFL) learning experience prior to the end of April, 1984, when an intensive ESL training program began to prepare them for the prospective MBA programs at various Canadian universities.

As regards their education background, the examination reveals that:

1. the subjects entered the university after having taken the National University Entrance Examination which was restored in 1977,

2. by the time they had applied for graduate study in MBA programs at Canadian universities, they had already completed four-year undergraduate studies in Chinese universities.

This experience indicates their high cognitive/academic language proficiency (CALP) in Chinese and potential for further academic studies.

With reference to their EFL learning experience, the subjects have the following characteristics.

1. First, 58.8% of the subjects reported having actually learned English for only 5 years while 35.3% reported having 6 years of EFL study. The mean number of years in EFL study is 5.6 years.

2. Second, the subjects' overall intensity of formal university EFL study is 375 hours according to the mean number of hours of EFL instruction reportedly received by

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the students as required by the undergraduate programs (see Figure 5).

3. Third, it was found that the ultimate objective of the EFL program attended by the subjects at Chinese universities was reading taught with a heavy component of grammatical analysis.

4. Fourth, there was no well-coordinated and well-balanced development of all language skills. Writing assignments, for example, were virtually non-existent.

5. Fifth, the way the subjects were taught English was clearly reflected in their test scores on the Test of English for Academic Purpose (EAP) as the subjects performed best on the reading comprehension subtest while their writing subtest performance was the worst. For the whole sample group, the mean average score obtained by the subjects was only 3.74, which was well below the standard set by the C/CLTC at 4.60.

The observations summarized so far characterize the subjects' education background and their English as a foreign language (EFL) learning experience. It was against this background that characteristics of the subjects' written English syntactic maturity were analyzed.

Summary of Subjects' Written English Syntactic Maturity

An examination of the subjects' writings reveals that, with an interval of both the twelve-week intensive ESL training and several months' natural academic exposure (first academic year) between the two writings produced by the subjects, Writing Two differs from Writing One primarily in the increased mean length of T-unit, error-free T-units, clauses and error-free clauses despite a slight decrease in the number of clauses per T-unit and in the number of clauses per error-free T-unit. The observations lend support to the assumption that the expansion of T-unit length not only results from clausal embedding, but also from non-clausal embedding.

An examination of the depth of clause subordination illustrates how the subjects in the two writings distributed clauses among multi-clause T-units, while a description of the words used to introduce three kinds of subordinate clauses reveals the extent to which the subjects preferred the use of certain kinds of adverbial clauses in each of the two writings. The summary of three kinds of subordinate clauses indicates that if the total number of T-units in each of the two writings are taken into account, only the number of adverbial clauses per T-unit shows a six percent increase from Writing One to Writing Two.

The characteristics of coordination inside T-units show that as far as the number of coordinations per T-unit is concerned, the subjects' performance in the two writings was almost identical. As regards the number of coordinations per clause, there was a marginal increase from Writing One to Writing Two. Nevertheless, the number of words per coordination inside T-units increased by 11 percent in Writing Two. The indication was that coordinations inside T-units in subjects' writings could not be the factor that contributed greatly to the clause and T-unit expansion.

An examination of the depth of modification observed in the subjects' two writings indicates that in addition to the depth of subordination this characteristic is indeed indispensable to the subjects' written English syntactic complexity in light of the following evidence:

1. Almost all types of premodifiers were used more frequently by the subjects in Writing Two than in Writing One. In fact, the number of premodifiers in Writing Two is nearly double that of Writing One.

2. The number of postmodifers increased from 418 in Writing One to 525 in Writing Two, showing a 20 percent increase.

3. The number of non-clausal postmodifiers subclassified into non-finite clauses and "other elements" increased by 40 percent and by 26 percent respectively.

4. A summary of the depth of modification reveals that in Writing Two the number of

modifiers per T-unit indicates a 45 percent increase while the number of modifiers per clause showed a 46 percent increase. In fact, the subjects used a modifier every five words in Writing Two in contrast to Writing One where they used a modifier every eight words.

An examination of other non-clausal elements in T-units shows that the subjects used subtantially more sentence adverbials and non-clausal nominals in Writing Two, while their use of non-finite adverbial clauses, prepositional phrases used as adverbial adjuncts, and prepositional phrases and infinitives used as adjective complements increased marginally.

A description of various kinds of errors committed by the subjects in the two writings indicates that the percentage of error-free T-units increased by 10 percent while the number of words per error increased by 60 percent. The difference between these two measures could be accounted for by the fact that the subjects, like many second language learners, tended to make more than one error inside a T-unit. Thus, the number of words per error is more capable of revealing the difference if it is used in close connection with the percentage of error-free T-units as a general measure of developmental errors.

In sum, an examination of both global and local errors indicates that the errors committed by the subjects in the two writings were not qualitatively different, but as their experience in using the target language accumulated, their tendency to make various kinds of errors due to the stategies of either overgeneralization or transfer was quantitatively different.

Summary of Comparisons with Other Comparative Data

Compared to the comparative data adapted from first language acquisition studies, two major observations were made.

1. First, with regards to both the mean T-unit length and the mean clause length, the

subjects not only surpassed Hunt's (1965) average twelfth graders, but also proved to be equal or even superior to Morenberg et al.'s (1978) college freshmen in both control and experimental groups and in both pre- and post-writings.

2. Second, with reference to the mean number of clauses per T-unit, the subjects were observed in both of their two writings to be less mature than either Hunt's average twelfth graders or Morenberg et al.'s college freshmen in both control and experimental groups and in both pre- and post-writings.

When the Chinese MBA students were compared to the Hong Kong secondary school students at three grade levels involved in Yau and Belanger's (1984) study, the following observations were made:

1. First, when measured by the mean T-unit length in Writing One, the subjects surpassed Yau and Belanger's grade 9 and 11 Hong Kong secondary school students only in the narrative and expository modes of writing, while they were observed in Writing Two to be superior to Yau and Belanger's subjects at all three grade levels in both modes of writing.

2. Second, when measured by the mean clause length, the same result was found.

3. Third, when measured by the mean number of clauses per T-unit in Writing One, the subjects were above the Hong Kong secondary school students at all three grade levels in both modes of writing, whereas in Writing Two, subjects surpassed the Hong Kong secondary school students who were at the Grade 9 and 11 levels.

When the subjects were compared to the comparative data adapted from second language acquisition studies involving university-level ESL learners, the following three observations were made.

1. First, the subjects' mean T-unit length in Writing One was found to be superior to that of the group 1 and group 2 subjects in Larsen-Freeman's study (1978:445-6).

2. Second, in both of their two writings the Chinese MBA students surpassed all five

groups of ESL students in Larsen-Freeman's study with regard to the mean error-free T-unit length.

3. Third, in both of their two writings the Chinese MBA students were found to be superior to the five groups of ESL students in Larsen-Freeman and Strom's (1977) study with reference to the mean T-unit length.

Summary of the Unsuccessful Subjects' Written English Syntactic Maturity

The analysis of the unsuccessful subjects' written English syntactic maturity reveals that their syntactic maturity measured by the mean number of clauses per T-unit and per error-free T-unit dropped markedly in the second writing, indicating their precarious control of syntactic skills in more cognitively-demanding academic writing activities. The analysis also suggests that their control of essay-level writing mechanics is more developed than their sentence-writing processes.

The observations summarized so far characterize the developmental stage of written English syntactic maturity of the subjects in this study who successfully managed their MBA graduate work and finally completed their programs either in April, 1984 or in a later month of the year.

Summary of Statistically Signficant Indices of Written English Syntactic Maturity Factors between the Subjects' Two Writings

In the course of this study, pairs of group means of pre- and post-written English syntactic maturity factors were compared for differences. The result is that nineteen indices of these written English syntactic maturity factors have been found statistically signficant at the .05 or .01 level. They are listed in Table 28. Since the differences may be as much due to intervening variables related to the mode of written discourse as to the effect of the twelve-week ESL training received by the subjects, it is recognized that strong claims must be tempered by common sense in interpreting

Table 28 A Summary List of Statistically Significant Indexes of Written English Syntactic Maturity Factors between Subjects' Two Writings (N=17)

Measures	Writing No. 1 Means	SD	Writing No. 2 Means	SD	t-value	p
Words per clause	9.63	1.22	11.14	1.99	-2.98	0.009
Words per T-unit	14.98	2.31	16.48	3.16	-2.13	0.049
Words per error-free clause	8.98	1.15	10.68	2.05	-3.68	0.002
Words per error-free T-unit	13.90	2.73	15.86	3.55	-3.18	0.006
Modifiers per clause	1.15	0.38	2.18	0.71	-6.32	0.000
Modifiers per T-unit	1.80	0.67	3.22	1.14	-6.00	0.000
1) premodifiers						
a: adjectives	23.06	7.63	32.41	9.04	-3.17	0.006
b: -ing participles	0.47	0.72	1.47	1.51	-2.61	0.019
c: -ed participles	1.24	1.20	3.41	2.98	-2.80	0.013
d: s-genitives	0.82	1.02	2.59	2.48	-2.95	0.009
e: noun-modifiers	7.71	4.73	23.00	9.92	-6.69	0.000
2) postmodifiers						
a: adjective clauses	4.71	2.54	3.35	2.12	2.26	0.038
b: -ing participles	0.47	0.87	1.18	1.51	-2.14	0.048
c: infinitives	0.35	0.70	1.24	1.09	-2.76	0.014
d: prepositional phrases	16.29	7.77	22.88	8.30	-3.43	0.003
Sentence adverbials	1.53	1.77	4.94	2.84	-4.59	0.000
Prepositional phrases used as conjuncts and disjuncts	1.82	1.55	2.94	1.64	-2.72	0.015
Percentage of error-free T-units	0.77	0.09	0.84	0.09	-3.07	0.007
Words per error	64.64	45.48	162.70	159.70	-2.91	0.010

these *t*-test findings.

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Recapitulation on the Consolidation of T-units in ESL Learners' Writing

Even though English as a second language learners may have been learning English for a number of years, they still may have difficulty in writing English clearly and relatively freely. Such a problem usually comes to a head when they are admitted into university graduate programs where competence in written work will constitute part of the basis on which their grades will be determined. The difficulty lies partly in their inability to employ an effective composing process and partly in their inability to use structures that connect and focus their ideas in written discourse. These structures are called "consolidation" structures by Shaughnessy (1977) and can be accounted for by T-unit indices as first introduced by Hunt (1965).

This study has described a group of Chinese MBA students by measuring their written English syntactic maturity. The observations indicate that the subjects showed enhanced mean T-unit length and mean clause length in Writing Two, not as a result of more clausal subordination, but as a result of more non-clausal modification, non-clausal nominals, coordination inside T-units, sentence adverbials, etc. Hunt (1965:142) reports that:

> the amount of T-unit expansion that can occur through the addition of subordinate clauses seems to have fairly definite practical limits, and those limits seem to be reached already by the average twelfth grader. If further expansion of the T-unit does occur--and already we have seen that it does occur--that expansion must be achieved in the other way: by increasing the number of nonclause optional elements that are added to the minimal essentials of the clause such as subject and finite verb, etc.

While as far as native students are concerned such a description of their syntactic maturation is accurate, it is necessary to recognize that ESL learners may tend to be different from native learners in the sense that in their writing the amount of T-unit expansion does not resemble a well coordinated maturation both through the addition of

subordinate clauses and the addition of increased nonclausal optional elements to the minimal essentials of the clause. The comparison made in this study to the comparative data adapted from first language acquisition studies corrorborates this conclusion because the Chinese MBA students in this study were found to be behind Hunt's (1965) average twelfth graders in terms of the mean number of clauses per T-unit while they appeared to be above Hunt's average twelfth graders in terms of both the mean T-unit length and the mean clause length.

The above-mentioned observation and the observation that the subjects produced their two writings under uncontrolled conditions and with sufficient time at their disposal to proofread their writing suggest that there is indeed a need on part of the subjects to develop written English syntactic maturity further through clausal subordination. At least a part of the writing instruction they had received could have been concerned with the intention to realize such a development.

Along these lines, Judith Wrase (1984:6) discusses a way of teaching consolidation structures to ESL writers and transferring the structures to their own writing immediately during the revision stages in the process of writing. To some extent, her method can be conceptualized within the framework of T-unit analysis. The method is exemplified by her eight ways of connecting ideas as listed below:

1. embedding words within a sentence;

2. coordination using *and, but, so, or, yet*;

3. embedding with relative pronouns;

4. embedded questions;

5. embedded sentence with optional or obligatory *that* and optional and obligatory object;

6. *-ing and -ed* constructions;

7. subordination using subordinating conjunctions;

8. sentence connectors or transitions such as *however, consequently,* etc.

Wrase (1984) believes that to the extent that ESL writers are cautioned against the naive belief that good writing is only good combining, their developing the ability to combine sentences as a means of consolidating ideas at the revision stage of the writing process will ensure that a piece of writing will be read with the clarity and emphasis intended by the ESL writer.

In any case, the expansion of the T-unit is a conscious process on the part of adult ESL learners, which can indeed be aided by their prior learning of a language, their greater memory span, their full cognitive development and their predisposition to analyze new information (Butterworth and Hatch 1978:231-45). In this regard, Swain (1985) also argues that output may be an important factor in successful second language acquisition. In particular, one function which she suggests output may have is to create the necessity for the learner to perform a syntactic analysis of the language. She notes that through attention to vocabulary and extralinguistic information, "it is possible to comprehend input – to get the message" (p. 249) with such an analysis. Producing one's own messages in the target language, nevertheless, "may be the trigger that forces the learner to pay attention to the means of expression needed in order to successfully convey his or her intended meaning" (p. 249).

Undoubtedly, writing is a case in point. Wrase's method for teaching ESL writers how to grasp consolidation structures in writing is relevant for many ESL learners, especially those at the university level. This is because writing demands both grammatical skills and thinking skills as well in a conventional rhetorical sense. Thus, the consolidation of T-units in ESL learners' writing is a crucial component of writing ability as the ideas and thinking have to be, in the final analysis, anchored by words and syntactic structures in written discourse.

B. Implications for EFL Programs in China

Implications for the English for Academic Purposes Curriculum in Universities

This study has observed the characteristics associated with a group of Chinese MBA students with regard to their EFL learning experience before April, 1984. The observations reveal that the EFL instruction received by the subjects was such that reading as the ultimate objective of the instruction was taught with a primary focus on grammar, to the exclusion of development in other language skills and in the absence of sufficient comprehensible language input in Krashen's terms and of task-oriented communicative activities. Clearly, such an approach to EFL instruction in Chinese universities can give many Chinese students a precarious linguistic preparedness not only for MBA programs in Canadian universities but also for other academic programs in North American universities. Such an approach results in underdeveloped productive skills and creates a discrepancy between the receptive and productive skills, which is undesirable for those Chinese students who must use English for academic purposes.

One implication of the present study for the EFL program in Chinese universities is that the EFL instruction should reflect an EFL curriculum that more properly meets students' needs in future academic settings. Thus, English should not be taught chiefly as a subject matter, but rather as a medium through which the students learn to acquire knowledge and inquire "for conceptualizing, drawing abstract generalizations and expressing complex relationships in speaking and writing" (Swain 1981:5). Curriculum developers should be aware that productive skills are just as important as receptive skills, for academic performance at the university graduate level most frequently draws upon productive skills in handling course work and research. All in all, a teaching methodology under an English for Academic Purposes (EAP) curriculum in Chinese universities will work to the benefit of Chinese students if it is "based not only on insights as to the nature of 'knowledge of a language', but also on those concerned with

the process involved in its use" (Johnson 1982:47). Only under such circumstances can we enable Chinese EFL students to acquire English to the point where they can not only function effectively over a range of contexts for a variety of communicative purposes, but also succeed in academic settings where English is the medium of instruction.

Implications for EAP Writing Instruction in China

This study has observed the characteristics of the Chinese MBA students with regard to their written English syntactic maturity and found their weakness to lie in the consolidation of written English structures. Since the ability to write effectively is essential to a student's success in many university courses and particularly at the graduate level, for Chinese students attempting to complete graduate work in programs such as the MBA program in English-speaking universities, such an ability is all the more important. Thus, overcoming the above-mentioned weakness will enhance their writing competence and facilitate their graduate work.

The review of first language acquisition literature reveals that, since the main body of original research was completed and disseminated, sentence combining, which initially was a project of applied linguists, has become more and more known to first language composition teachers. In O'Hare's (1973:76) view, "teachers of writing surely ought to spend more time teaching students to be better manipulators of syntax. Intensive experience with sentence combining should help to enlarge a young writer's repertoire of syntactic alternatives and to supply him with practical options during the writing process." Thanks to O'Hare's successful experimental study in which he concentrated on the sentence-combining exercises by using signals rather than formal linguistic terms, his seventh graders made impressive gains not only in syntactic fluency but also in overall writing quality over a period of eight months. Sentence combining practice has, therefore, been established as a means for developing English native students' syntactic skills.

If sentence combining practice can accelerate and improve English native students' syntactic maturation and resourcefulness, there is no reason why such practice cannot benefit adult ESL learners and EFL Chinese learners. The point is that if sentence combining works because it trains a learner to hold longer discourse in his head – to embed and subordinate at greater depth as a means of expressing thought, such practice utilized by any ESL writing instruction will inevitably accelerate adult ESL learners' English syntactic maturation. Their L2 linguistic needs will be more satisfactorily met because they are cognitively mature and can already "enter into a wider range of topics and communication situations" (Butterworth and Hatch 1978:244). According to Strong's (1976:60) comment, sentence combining,

> is a means to intervene in cognitive development and perhaps to enhance it. O'Hare sees sentence combining in this way. And I do too. And for the same reasons, I think. From personal and professional experience, it makes sense to regard increased syntactic maturity as a means for thinking, speaking, and writing with increased complexity and competence; moreover, intuition suggests that access to varying levels of abstraction is as much as a function of syntax as it is vocabulary.

Thus, one obvious implication for writing instruction available in the English for Academic Purposes training programs in China is that Chinese students bound for overseas studies at English-speaking universites can be trained in such a way that they will benefit immensely from their growing resourcefulness of English syntactic skills as a result of the appropriate amount of sentence-combining practice in the training.

However, sentence combining is only one aspect of writing instruction. Thus, another implication for writing instruction in English for EAP training programs is to help the Chinese trainees realize the importance of content in a truly effective writing process. Of practical relevance here is the suggestion (Wrase 1984:6) of teaching students how to combine sentences so that they can connect their ideas during the revision stages of the writing process. The integration of syntactic manipulative skills into an effective writing process consequently will enable trainees to become more at

ease in writing the structures to express their ideas and most important, enable them to know the appropriate time to begin connecting their ideas, that is, after they have worked through the content of these ideas. This integrated writing instruction can thus caution trainees against self-consciously decorating their thoughts rather than developing them (Shaughnessy 1977:77). This avoids any uncritical equation of good writing with complexity which would blur the whole communication process.

C. Implications for the Replication of the Study

There are a number of implications for the replication of the study. First, future studies should increase the sample size so as to establish comparative data more representative of a larger population. This would also allow for conducting correlational analyses of English syntactic maturity factors with other variables. Second, future studies might wish to start with descriptive research designs and then switch to experimental research designs. Third, future studies might be designed to control variables such as writing conditions, time limit and topics in the course of collecting written data. Fourth, future studies might choose an identical amount of writing from all written samples for T-unit analysis. Ideally, the minimum length is four hundred words in order to make T-unit analysis meaningful. Finally, future studies of EFL/ESL learners' written English syntactic maturity might use both T-unit indices and error-free T-unit indices.

D. Implications for Further EFL Research

While the T-unit analysis has widely been employed in both first language acquisition studies and second language acquisition studies, it has rarely been used for English as a foreign language acquisition studies in China. In view of this fact, some possible research may be recommended on the basis of the questions that follow:

1. what is the difference in the developmental rate of English syntactic maturity

between English-major students and science-major students in the Chinese context where English is taught as a foreign langauge?

2. what is the relationship between Chinese students' EFL learning variables and their developmental rate of English syntactic maturity?

3. what is the difference between Chinese EFL students" oral English syntactic maturity and their written English syntactic maturity?

4. what is the difference in the developmental rate of English syntactic maturity between Chinese EFL students who have received a rhetorically-based sentence-combining treatment and those who have not?

5. what is the difference between Chinese EFL learners' written syntactic maturity when they write under time constraint and their written syntactic maturity when they write for take-home assignment?

6. what is the difference between Chinese EFL learners' oral syntactic maturity in informal conversations and their oral syntactic maturity in formal presentations?

7. what is the relationship between Chinese EFL learners' syntactic maturity factors and their performance scores on English language proficiency tests?

8. How can T-unit measures be improved so as to provide evidence for O'Hare's (1973:72) argument that "rhetoric and sentence-combining practice should be viewed not as mutually exclusive or even discrete but rather as complementary"?

All these questions can be of interest to those who are teaching English as a foreign language in the Chinese context. Undoubtedly, future research studies inspired by these questions will generate answers so that an understanding will be obtained of the development rate at which Chinese EFL learners acquire English in terms of its syntactic complexity when they are aided by their cognitive maturity and their first language learning experience.

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APPENDIX A

SOURCE: Belfiore, E., Hunter, J. and Allen, W. 1983.

Teacher's Guide for EAP Course in Business Administration

Component One: Performance Objectives

I. READING

A. PERFORMANCE, OBJECTIVE

'To skim assigned readings to get the general impression of the text in order to select areas of high priority for careful reading

1. Skill: Skimming - getting the gist of the reading and the placement of information within the reading

1.1 identifying features of layout (headings, numbered sections, table of contents, abstracts) and evaluating these sources according to the amount and types of information they provide

1.2 identifying organization of the text (topic sentence, introduction, conclusion)*

1.3 identifying different discourse types (textbook, academic paper, case study)

1.4 predicting where information will be found in a text using features of layout and organization and knowledge of discourse types

1.5 recognizing the function of the text (description of processes, presentation of theories)

B. PERFORMANCE OBJECTIVE

To find supporting evidence for one's point of view for group discussions, reports and presentations

2. Skill: Scanning

2.1 skimming

2.2 locating factual information in a text (texts and figures)*

2.21 recognizing vocabulary, statistics and other information which contextualizes specific information ("established in 1960." contextualizes the history of the company)

2.3 finding information in charts and graphs

---

* The starred parentheses indicate that suggestions for the relevant tasks can be referred to in the Appendix of the document.

C. PERFORMANCE OBJECTIVE

To identify and relate main and supporting ideas in readings on Business Administration by highlighting in text, making notes/ outlines, summarizing

3. Skill: Reading for main idea and supporting ideas

3.1 recognizing important information when explicitly marked (*most important..., attention to...*) and when not explicitly marked by highlighting in the text and outlining*

3.2 recognizing supporting ideas and their relationship to the main idea when explicitly marked (*for example..., evidence for this is...*) and when not explicitly marked by highlighting in the text and outlining*

3.3 identifying key words in the text

  3.31 getting the meaning of key words and phrases through context, word analysis (suffix, prefix) (see also Compensatory and Learning Strategies).

3.4 paraphrasing and summarizing ideas in text or sections of the text to check comprehension (cause and effect, sequence of events)

D. PERFORMANCE OBJECTIVE

To evaluate and analyse information, concepts and models from the readings in preparation for problem-solving activities in the classroom

4. Skill: Reading analytically

4.1 distinguishing fact from opinion and interpretation when explicitly marked (*in my mind..., the facts are..., it seems ..., apparently...*) and when not explicitly marked

4.2 understanding the writer's opinion and intention*

  4.21 understanding grammatical and lexical items which relate to opinions

   ● subordination (*although ___, I think..., despite ___, I still think...*)

   ● "it" sentences (*it seems..., it appears that...*)

   ● attitudinal expressions (*hopefully, fortunately*)

   ● connotation of vocabulary items

4.22 understanding stylistic devices

- figurative language
- analogies

4.23 understanding expressions which carry cultural values

- recognizing common cultural maxims
- understanding cultural values associated with certain words (*individualism, directness*)
- understanding the varying degrees of neutrality of words based on cultural values (*propaganda*)

E. PERFORMANCE OBJECTIVE

To synthesize information, concepts and models from the readings in preparation for problem-solving activities in the classroom

5. Skill: Synthesizing

5.1 distinguishing between relevant and irrelevant material relating to a specific problem

5.2 recognizing similarities/differences in theories, models, points of view from more than one source*

5.3 summarizing information from various sources

F. PERFORMANCE OBJECTIVE *

To summarize and interpret readings incorporating the student's point of view

6. Skill: Reading critically

6.1 evaluating factual information from one or more texts (recognizing inconsistencies, incorrect information)

6.2 evaluating arguments from one or more texts (recognizing inconsistencies, bias, waffling)* _____

6.3 supporting/refuting a text or point in text by drawing on own knowledge

II. LISTENING AND VIEWING

A. PERFORMANCE OBJECTIVE

To understand and follow instructions for classroom activities and assignments

1. Skill: Listening for specific information

   1.1 identifying the steps in a procedure when stated explicitly or when implied*

   1.2 identifying the objective of the activity or the product required*

   1.3 identifying details of instructions (time, date, location) and relating them to the product, topic or activity

   1.4 recognizing warning or negative instructions (*Don't read the introduction* vs *Don't forget to read the introduction*)*

B. PERFORMANCE OBJECTIVE

To get the general idea and relevant details from an audio or audio-visual medium, such as radio, film, video and television, that relates to the course or course activities

2. Skill: Listening for information relevant to the general idea

   2.1 listening or watching for relevant content*

       2.11 identifying different presentation formats (news documentary, PR film) in order to predict content and placement of information

       2.12 recognizing signals of organization (previews, introductions, summing up)

       2.13 getting the gist in order to know when to focus listening on specific information

       2.14 identifying key words in order to focus listening on relevant sections

   2.2 identifying message presented by the visual component (body language, types of shots, techniques such as split screen)

---

* Suggestions for the relevant tasks can be referred to in the Appendix of the document.

2.3 recognizing intention of film/filmmaker

    2.31 looking at credits

    2.32 identifying bias through choice of words, etc.

    2.33 considering information presented and omitted

2.4 summarizing relevant parts of the program, film

C. PERFORMANCE OBJECTIVE

To identify and relate main and supporting ideas in lectures and instructional films by making notes, outlines and by summarizing

3. Skill: Listening for main and supporting ideas

    3.1 recognizing signals of organization (introduction, summaries, conclusions)

    3.2 recognizing main ideas using cues typical of oral presentations such as explicit markers (*the point I want to make is* ...) repetition and changes in speed, loudness, etc.

    3.3 recognizing supporting ideas using cues typical of oral presentations such as explicit markers (*for example..., to illustrate this point...*), organizational patterns (listing, parallelism) and non-verbal signals (pauses, gestures)

    3.4 identifying characteristics of spoken language (performance errors, corrections, false starts, asides, repetition, paraphrasing for clarification) when marked explicitly and when unmarked

    3.5 making notes from a lecture*

    3.6 organizing lecture notes into outline form indicating main and supporting ideas

    3.7 paraphrasing and summarizing a lecture or sections of it

D. PERFORMANCE OBJECTIVE

To follow the main points and supporting ideas presented in a group discussion

4. Skill: Listening for main and supporting ideas

4.1 identifying the point a speaker makes and his/her argument

4.2 interpreting another speaker's response as support or dis-
agreement

    4.21 recognizing veiled disagreement

- superficial agreement (*yes, but...*, *although*___, *I think...*)

- hedging (*that's interesting...*)

- understatement (*I think we have a little problem here*)

- self-effacement (*I never knew that*)

4.3 recognizing attitudinal cues (body language, choice of words) (see Interaction Strategies)*

E. PERFORMANCE OBJECTIVE

To synthesize the ideas expressed in a group discussion

5. Skill: Synthesizing

   5.1 distinguishing between relevant and irrelevant information
in relation to a specific point

   5.2 summarizing the viewpoints expressed by different speakers
in order to introduce a point

F. PERFORMANCE OBJECTIVE

To evaluate and analyse points expressed by different speakers in
a group discussion

6. Skill: Listening critically

   6.1 distinguishing fact from opinion when explicitly marked and
when unmarked

6.2 understanding the speaker's opinions and intentions

    6.21 understanding grammatical and lexical items which relate to opinions

- subordination (*although* ___, *I think*..., *despite* ___, *I still think*...)

- "it" sentences (*it seems*..., *it appears that*...)

- additional expressions (*hopefully, fortunately*)

- connotation of vocabulary items

    6.22 understanding stylistic devices

- figurative language

- analogies

    6.23 understanding expressions which carry cultural values

- recognizing common cultural maxims

- understanding cultural values associated with certain words (*individualism, directness*)

- understanding the varying degrees of neutrality of words based on cultural values (*propaganda*)

6.3 evaluating factual information presented by different speakers

6.4 evaluating arguments presented by different speakers*

III. ORAL INTERACTION

A. PERFORMANCE OBJECTIVE

To make an oral presentation to a group based on readings

1. Skill: Presenting ideas and supporting evidence

 1.1 characterizing differences between written and oral discourse*

 1.11 transcoding written material into oral form

 1.2 making an outline stating main and supporting ideas in note form

 1.3 introducing a presentation by outlining content and method of presentation (I'd like to talk about..., timing, use of A-V)

 1.4 making a point with supporting evidence

 1.41 highlighting the main point throughout the presentation using explicit markers (most importantly..., the main point is...)

 1.42 enumerating and listing items sequentially (first, next, finally)

 1.43 indicating relationship of supporting ideas to main point using explicit markers (the reasons why..., let me illustrate that point...)

 1.44 clarifying and explaining the main point and supporting evidence

 • defining terms using explicit markers (by that I mean..., in this context it refers to...)

 • paraphrasing key ideas for clarity and emphasis

 • explaining and relating information on tables, charts and graphs

 1.45 differentiating between fact, opinions and interpretation using explicit markers (the facts are..., it seems to me..., apparently...)

 1.5 summarizing the argument using explicit markers (so far..., let me review...)

 1.6 stating conclusions using explicit markers (in conclusion..., to sum up...)

1.7 making a presentation from notes incorporating 1.1 to 1.6 above.

1.8 responding to questions, comments

    1.81 clarifying the question asked using explicit markers (*are you asking about...; let me make sure I understand you...*)

    1.82 clarifying previously mentioned main points by paraphrasing (*as I said..., what I meant was...*) or introducing new evidence

    1.83 see items 2.2 and 2.3 for responding to other types of questions/comments (dealing with criticism and new information from the audience)

B. PERFORMANCE OBJECTIVE

To analyse and evaluate information presented in a group discussion on a problem-solving activity (e.g., case study)

2. Skill: Presenting ideas and supporting evidence for analysis and evaluation

2.1 presenting point of view (see previous Performance Objective)

2.2 interpreting others' points of view

    2.21 understanding disagreement stated indirectly (see Listening and Viewing 4.2)

    2.22 summarizing a speaker's point to check understanding (*so you mean..., are you saying...*)*

2.3 responding with one's own evaluation or ideas

    2.31 stating opinions

- agreeing/disagreeing
- qualified agreeing/qualified disagreeing
- approving/disapproving
- qualified approving/qualified disapproving
- recommending/advising

    2.32 reformulating opinions

- compromising
- giving in

C. PERFORMANCE OBJECTIVE

To make recommendations in problem-solving activities that are
validated by supporting arguments based on information obtained
from multiple sources

3. Skill: Presenting a point of view with supporting arguments

3.1 checking ideas and arguments against the facts to establish
relevancy and validity

3.2 stating similarities/differences in points of view and argu-
ments using explicit markers (*you're both saying essentially
the same thing..., we're in agreement except on one point...*)

3.3 drawing conclusions and stating own opinion based on previous
discussion/reading*

IV. WRITING

A. PERFORMANCE OBJECTIVE

To present arguments or ideas in point form for case-analyses, reports and examinations

1. Skill: Presenting main and supporting ideas in point form

   1.1 using appropriate outlining conventions:*

   - layout - spacing, headings
   - numbering systems
   - abbreviations
   - parallel grammatical structures (correct use of gerunds, infinitives).
   - markers (*the following recommendations..., the problem consists of...*)

   1.2 organizing main and support ideas in point form

   1.3 organizing presentation according to Business Administration requirements and conventions:

   - executive summary: main findings, their reasons, statement on implementation
   - statement of intent
   - analysis: body of the text
     - explanation of the problem with supporting evidence
     - identification and explanation of alternatives
   - conclusions: recommendations and justifications for them

B. PERFORMANCE OBJECTIVE

To present arguments or ideas in prose form for examination, reports and case studies

2. Skill: Presenting main and supporting ideas in connected discourse

2.1 using rhetorical devices and related discourse markers

    2.11 expressing main points by

- generalizations, assertions, cause and effect statements (*most of the communication problems are due to...*)

    2.12 organizing and highlighting main points by

- classification (*the first, second*)

- comparison/contrast (*in contrast the environmental factors are...*)

- ordering in terms of importance or by equal ordering (*the last and most important is...*)

    2.13 expressing supporting evidence by

- example (*for instance...*)

- descriptive details (*one feature of X...*)

- expert opinion (*in X's view...*)

- cause and/or effect (*the reasons for X are...*)

- with statistical information (*according to the figures...*)

    2.14 clarifying main and supporting ideas by

- example (*for example*)

- definition (*X, in the context of this report, will mean...*)

- description: process or state

- comparison/contrast (*X, on the other hand, does not exhibit these characteristics*)

2.2 expanding notes into appropriate written discourse

    2.21 comparing treatment of same subject in different contexts (exam, report)

2.3 cohesion: connecting ideas using grammatical and lexical devices

- reference words (*I, my, this, that, better, the*)

- substitution words (*one, ones, do, does, so, some, the same*)

- ellipsis (*he saw the problem but she didn't*)

- conjunctions (*therefore, additionally*)

- lexical cohesion - reiteration, synonyms and related words that frequently occur together (*stop/start*)

- vocabulary which predicts information to follow (*the subsequent*)

2.4 writing the introduction or statement of intent appropriate to discourse type (exam, report)

2.5 writing a conclusion using conventions of discourse **type**

2.6 editing written prose for:*

- organization
- grammar
- spelling
- conciseness

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Our file
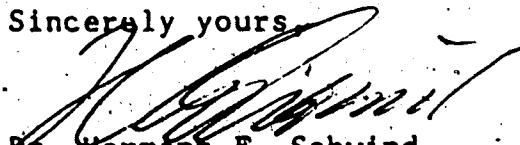
Dear MBA Student::

I would like to ask you for your support of and cooperation in Mr. Mu Hai's study. It is, of course, a very important investigation for him, but it has also very significant implications for the Canada/China Language and Cultural Program.

We would like to be able to select the most suitable candidates from the People's Republic for studies in Canada, and one way to make our selection devices more valid is to check how validly they predict future academic performance. As Mr. Mu Hai mentioned in his letter, no other person than he will have access to the information you provide. After the data have been collected every transcript will be destroyed.

The China Program Office would very much appreciate your kind cooperation. Thank you.

Sincerely yours,

Dr. Hermann F. Schwind
Director
Canada/China Language
and Cultural Program

HFS/dar

DEPARTMENT OF ELEMENTARY EDUCATION

FACULTY OF EDUCATION
THE UNIVERSITY OF ALBERTA

November 7th, 1985

Dear *Ms. Lin Yu:*

Please let me introduce myself to you again as you may still remember the letter I wrote to you at the beginning of this year. My name is Mu Hai. I am a teacher of English from the University of International Business and Economics at Beijing. Currently I have been working towards Ph.D degree at the University of Alberta. Academically, I am interested in Teaching English as a Foreign Language and Adult Second Language Acquisition. Dr. James Patrie who had been with you during the four-month ESL training prior to your entry into MBA programs, is right now supervising my doctoral research.

As my research involves 25 of you as its subjects, I am writing to you to express my sincere thanks for your support and to ask for your further cooperation.

Basically, my research is intended to delve into a number of variables with respect to the relationship between your English as a foreign language proficiency and your academic performance in the first academic year of your study (consisting of the first two terms). I think of your English capacity as a factor so crucial for your academic performance that the research intend ed to explore the factor in relation to your academic success could reveal some implications important and relevant to many Chinese scholars in future. I regard all of you as excellent scholars. I also feel it incumbent upon me search for English education programs that will most adequately prepare many Chinese scholars like you to measure up to the linguistic demands in English speaking Canadian universities and benefit optimally from their academic wor

However, my research will not be able to look into the above-mentioned variables in depth unless you grant me your support and cooperation. For example, your grade-point average during the first two terms is what my re- search needs in order to have a dependent variable, without which the nature of the relationship between your English proficiency and your academic per-

DEPARTMENT OF ELEMENTARY EDUCATION

FACULTY OF EDUCATION
THE UNIVERSITY OF ALBERTA

formance will still remain a mystery. No one will know exactly the nece-
ssary level of English language proficiency only at which can foreign
students benefit optimally from their graduate work and achieve satisfac-
tory results.

I fully understand the kind of ambivalent feeling you may have about
my request of your help. Thus, I attach great value to your support. If
you give me your consent by sending me your transcripts in the first two
academic terms (1984-1985), I promise to keep the information strictly
confidential. No one else will have access to such information. I will be
held responsible for its revelation. None of your names is to be mentioned
in my study. The statistical analysis will be carried out only after all
identifying information is removed.

I have enclosed herewith an envelope stamped and printed with my ad-
dress. Also enclosed in that envelope is the amount of two dollars in case
you need that expense to access your transcripts. Attached to the letter
written to you is the letter from Dr. Hermann F. Schwind, the Director of
the Canada/China Language and Cultural Program.

I am interested in any other information you wish to provide me with
regard to the research question I have been currently studying.

My best regards along with Dr. Patrie's best wishes to you.
Looking forward to hearing from you soon.
(Note:Please send me the transcripts by the middle of December.)

Yours sincerely,

Mu Hai

encl.

cc: Dr. Hermann F. Schwind
Director
Canada/China Language and Cultural Program

November 21, 1985

Dear *Mr. Zhang Hua*

    I would like to extend thanks to you for your support and coor-
peration in my research study. I would also like to ask you again for
assistance in my data collection.

    In addition to the information I requested from you last month,
I decide to get from you a paper written on your own for any one of the
MBA courses you have taken during the first academic year. Since you
were taught intensively some writing techniques during the twelve-week
ESL training last summer, I wish to examine the way you responded to
the academic writing in your MBA program and applied some of the writ-
ing mechanics to the written discourse. Please note that I have no in-
terest at all in the grade you got for the paper, but I do prefer that
the length of the paper is 500 words at minimum.

    Enclosed is an envelope with my current address and the postage.
Attached also is a one-dollar bill for your use in case that you need
to photocopy the paper.

    . My best wishes to you.

    Looking forward to hearing from you soon.

Yours truly,

Mu Hai

APPENDIX C

QUESTIONNAIRE

Dear Chinese MBA scholars:

The attached questionnaire consisting of three sections seeks to gather information about your academic background, English as a Foreign Language (EFL) learning experience, current course work progress in Canadian universities. Some questions are intended to request that you respond on the basis of how you truly feel about the usefulness of your EFL learning experience, not how you think others might feel about them, with regard to your present academic study. For your convenience, the Chinese version of the questionnaire is provided so that you may give relevant information more readily in your mother tongue.

I am aware of the many demands on your time and, thus, appreciate all the more any help you can provide me in this study.

Looking forward to receiving information from you soon!

I wish you good luck in your study.

Yours sincerely,

Mu Hai

Section I:

Name: _____ (in Pinyin) : _____ (in Chinese characters):

Age: _____; Sex: _____; Current Canadian University: _____.

1. You were admitted into (home university) _____

   as undergraduate student in the year of 19____ .

2. Your major of study was _____ .

3. Your first degree obtained in 19_____ was _____ .

4. Before May, 1984, did you ever have any working experience in certain

   area?

   _____: Yes   _____ No

   If yes, please explain briefly the nature of the working experience and

   indicate its length in terms of years or months.

   _____

   _____

   _____

   _____

   _____

   _____

5. Please discuss briefly the extent to which your undergraduate study con-

   tributes to your current academic study. You may give some examples to

   illustrate your points. For instance, in which respect does your study

   at your home university make it easier for you to accomplish the MBA

   program in the Canadian university?

   _____

   _____

   _____

   _____

   _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

6. Please kindly list a few courses which you took as part of your under-
graduate program at your home university and which you believe help
your current MBA program greatly.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Section II:

1. You began learning English as a foreign Language (EFL) in the year of

19____ when you were in grade ____ at:

a: elementary   b: junior high   c: senior high   d: university
   school   school   school

2. How many hours did you spend weekly on the EFL course and how long did

it take to complete the course when you were at:

	No. of hours per week / No. of terms		1, 2, 3, 4, 5, 6, 7, 8, 9, 10
elementary school	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
junior high school	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
senior high school	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
university	1	6	
	2	7	
	3	8	
	4	9	
	5	10	

Circle the appropriate   Tick off in the appropriate
number in these two   space to indicate the number of
columns   hours on a weekly basis.

3. How many hours did you spend weekly learning English on your own and how long did your self-study last when you were at:

	No. of hours per week No. of terms		1. 2. 3. 4. 5. 6. 7. 8. 9. 10
elementary school	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
junior high school	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
senior high school	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
university	1	6	
	2	7	
	3	8	
	4	9	
	5	10	
	Circle the appropriate number in these two columns above.		Tick off in the appropriate space to indicate the number of hours on a weekly basis.

4. Did you ever study any subject which was taught entirely through the medium of instruction in English (before May, 1984)?

_____ Yes _____ No

If yes, please write down its name, length and the number of hours per week spent on the course.

Name of the course	No. of hours per week / No. of terms		1	2	3	4	5	6	7	8	9	10
	1	6										
	2	7										
	3	8										
	4	9										
	5	10										
	1	6										
	2	7										
	3	8										
	4	9										
	5	10										
	1	6										
	2	7										
	3	8										
	4	9										
	5	10										
	1	6										
	2	7										
	3	8										
	4	9										
	5	10										
	1	6										
	2	7										
	3	8										
	5	9										
	5	10										

5. Did you ever take any English course off campus in addition to the

EFL program offered by your high school or your home university?

_____ Yes   _____ No

If yes, please describe:

Name of the English course	Teacher from which university	From Mon/Year	To Mon/Year	No. of hours per week

6. Please state the focus of the English course you took at the different stages of your education experience.

_____

elementary school

_____

junior high
school

_____

senior high
school

_____

university

_____

EFL course off
campus

_____

7. Please list the language activities normally conducted in the EFL class at the different stages of your education experience.

_____

elementary
school

_____

junior high
school

_____

senior high
school

_____

university

_____

EFL course
off campus

_____

8. What language skills were mostly emphasized and drilled in the EFL class?

a: elementary school _____

b: junior high _____

c: senior high _____

d: university _____

e: EFL course off campus _____

9. How often did you write in English (composition, essay, diary, summary, book review, etc)?
   a) twice a week or more b) once a week c) once every other week
   d) seldom e) never

elementary school	a)	b)	c)	d)	e)
junior high school	a)	b)	c)	d)	e)
senior high school	a)	b)	c)	d)	e)
university	a)	b)	c)	d)	e)
EFL course off campus	a)	b)	c)	d)	e)

10. In terms of reading and listening, what were the major sources of material you usually read and listened to in order to improve your comprehension in English?

	reading material	listening material
elementary school		
junior high school		
senior high school		
university		
EFL course off campus		

11. Please discuss which part of your English learning experience was most
beneficial to you for your current MBA study? (before May 1984)

12. In which way do you think English can be most effectively taught and
most efficiently acquired in China with a view to measuring up to the
linguistic demands in the MBA program at Canadian universities?

13. What were advantages and disadvantages of your EFL learning experience
before May 1984? Please discuss.

Section III:

1. How many courses did you originally attempt (register)?

  a) First semester _____ b) Second semester _____

2. What were the specific titles and weight of these courses?

First semester Titles	Credit	Second semester Titles	Credit
1.		1.	
2.		2.	
3.		3.	
4.		4.	
5.		5.	

3. Which of those courses stated above were dropped?

First semester Titles	Second semester Titles
1.	1.
2.	2.
3.	3.

4. How much required reading per week were you expected to do for each course?

  a) 0-20 pages   c) 41-60 pages   e) 81-100 pages
  b) 21-40 pages   d) 61-80 pages   f) over 100 pages

First semester: Second semester:
1.   1.
2.   2.
3.   3.
4.   4.
5.   5.

7. How much active oral participation was required for each course? Note

each appropriate item.

    a: No oral participation -→ students listen only.
    b: Students given opportunity to ask questions if they choose.
    c: Professor asks students questions during the lecture.
    d: Students required to make informal class presentations.
    e: Students required to make formal class presentations.

First semester: Second semester:

1. _____   1. _____

2. _____   2. _____

3. _____   3. _____

4. _____   4. _____

5. _____   5. _____

8. How much written work is required for each course? Note each appropriate

item.

    a: None.
    b: Irregular assignments of short or paragraph answers.
    c: Regular assignments of short or paragraph answers.
    d: Irregular assignments of essays.
    e: Regular assignments of essays.
    f: One or more major term papers.

First semester: Second semester:

1. _____   1. _____

2. _____   2. _____

3. _____   3. _____

4. _____   4. _____

5. _____   5. _____

9. Were you taking any ESL courses? Yes _____ No _____
   If yes, describe these courses.

   _____

   _____

   _____

   _____

   _____

   Were you required to take these courses? Yes _____ No _____

   If yes, by whom? _____

   If no, why did you choose to take this/these courses? _____

APPENDIX D

A COLLECTION OF DATA SHEETS FOR T-UNIT ANALYSIS

Data Sheet 1

Name _____

I.D. _____

Sex _____

A: T-unit information

	Writing No. ___	Writing No. ___
Number of words		
Number of T-units		
Number of subordinate clauses		
Number of clauses (main and subordinate)[1]		
1. T-unit length (W/T)		
2. Clause length (W/CL)		
3. Number of clauses per T-unit (CL/T)		

B: Error-free T-unit information

	Writing No. ___	Writing No. ___
Number of words in error-free T-units		
Number of error-free T-units		
Number of subordinate clauses in error-free T-units		
Number of error-free clauses (main and subordinate)		
1. Error-free T-unit length (W/EF-T)		
2. Error-free clause length (W/EF-CL)		
3. Number of clauses per error-free T-units (CL/EF-T)		
4. Percentage of error-free T-units (% of EF-T)		

The number of main clauses is identical to the number of T-units.

Data Sheet 2

C. Depth of subordination in T-units information

Writing No. _____

Number of 1-clause T-units _____

Number of 2-clause T-units _____

Number of 3-clause T-units _____

Number of 4-clause T-units _____

Number of 5 clause T-units _____

Number of 6 clause T-units _____

Total: _____

Writing No. _____

Number of 1-clause T-units _____

Number of 2-clause T-units _____

Number of 3 clause T-units _____

Number of 4-clause T-units _____

Number of 5 clause T-units _____

Number of 6-clause T-units _____

Total: _____

D: Three kinds of subordinate clauses information

	Writing No. _____	Writing No. _____
Number of noun clauses	_____	_____
Number of adj. clauses	_____	_____
Number of adv. clauses	_____	_____
Total:	_____	Total: _____

Data Sheet 3

E: Words introducing subordinate clauses information

Words used to introduce noun clauses

               Writing No. _____   Writing No. _____

1. conjunction
   a: that _____ _____
   b: 'zero' that _____ _____
2. interrogative pronouns
   a: what _____ _____
   b: who _____ _____
   c: whom _____ _____
   d: whoever _____ _____
   e: whatever _____ _____
3. interrogative adverbs
   a: when _____ _____
   b: where _____ _____
   c: how _____ _____
   d: why _____ _____
   e: if _____ _____
   f: whether _____ _____

Total: _____ _____

Functions of noun clauses inside T-units

               Writing No. _____   Writing No. _____

1. conjunction
   a: subject _____ _____
   b: direct object _____ _____
   c: subject complement _____ _____
   d: appositive _____ _____
   e: adjective complement _____ _____
2. interrogative pronouns
   a: subject _____ _____
   b: direct object _____ _____
   c: subject complement _____ _____
   d: appositive _____ _____
   e: adjective complement _____ _____
   f: prep. complement _____ _____
3. interrogative adverbs
   a: subject _____ _____
   b: direct object _____ _____
   c: subject complement _____ _____
   d: appositive _____ _____
   e: adjective complement _____ _____
   f: prep. complement _____ _____

Total: _____ _____

Data Sheet 4

Words used to introduce adjective clauses

               Writing No. _____   Writing No. _____

1. relative pronouns
   a: deleted relative
   b: that
   c: who
   d: whom
   e: whose
   f: which
   g: prep. + which

   Subtotal:

2. relative adverbs
   a: where
   b: when
   c: (reason) why

   Subtotal:

Total:

Words used to introduce adverbial clauses

               Writing No. _____   Writing No. _____

1. subordinators of time
   a: when
   b: once
   c: as soon as
   d: after
   e: before
   f: since
   g: until
   h: whenever
   i: while

   Subtotal:

2. subordinators of condition
   a: if
   b: unless
   c: as long as
   d: as far as

   Subtotal:

3. subordinators of concession
   a: (even) though
   b: although

   Subtotal:

Data Sheet 5

Writing No. _____   Writing No. _____

4. subordinators of reason
   a: because
   b: as
   c: since
   d: for

   Subtotal:

5. subordinators of purpose
   a: in order to/that ...
   b: so as to

   Subtotal:

6. subordinators of result
   a: such ... that
   b: so ... that

   Subtotal:

7. subordinators of comparison,
   manner, proportion, and
   conditional-concessive:
   a: comparative degree
   b: as if
   c: as though
   d: the more ..., the ...
   e: no matter wh-word

   Subtotal:

Total:

Data Sheet 6

F: Coordination inside T-units information

Number of occasions when grammatical elements were coordinated inside T-units

Writing No. _____   Writing No. _____

nominals coordinated as
  subjects   _____   _____

verbs coordinated within
  finite verb phrases   _____   _____

nominals coordinated as
  direct objects   _____   _____

nominals coordinated as
  objects of a prepositon   _____   _____

predicate adjectives
  coordinated   _____   _____

adverbs coordinated   _____   _____

predicate nominals coordinated   _____   _____

premodifiers coordinated   _____   _____

postmodifiers coordinated   _____   _____

subordinate clauses
  coordinated   _____   _____

non-finite clauses
  coordinated   _____   _____

object complements
  coordinated   _____   _____

Total: _____   _____

Summary of coordination inside T-units

Number of coordinations inside
  T-units per T-unit   _____   _____

Number of coordinations inside
  T-units per clause   _____   _____

Number of words per coordina-
  tion inside T-unit   _____   _____

Data Sheet 7

G: Depth of modification inside T-units information

1. Premodification inside T-units

	Writing No. _____	Writing No. _____
a: adjective		
b: -ing participle		
c: -ed participle		
d: s-genitive		
e: noun-modifiers		
f: adverbial		
g: sentence-modifier		
Total:		

2. Postmodification inside T-units___

	Writing No. _____	Writing No. _____
a: adjective clauses		
subtotal:		
b: non-finite clauses		
a) -ing participle clause		
b) -ed participle clause		
c) infinitive clause		
d) appositive		
e) non-restrictive postmodifier		
subtotal:		
c: other elements		
a) prepositional phrases		
b) postpositive adjectives		
c) adverbs		
subtotal:		
Total:		

3. Summary of the depth of modification inside T-units

a: Number of modifiers per T-unit		
b: Number of modifiers per clause		
c: Number of words per modifier		

Data Sheet 8

H: Other non-clausal elements inside T-units information

Writing No. _____   Writing No. _____

1. non-finite clauses used adverbially

    a: infinitive of purpose   _____   _____

    b: -ing participle   _____   _____

    c: -ed participle   _____   _____

    d: verbless clause   _____   _____

    Total: _____   _____

    e: number of non-finite clauses
       per T-unit   _____   _____

    f: number of non-finite clauses
       per clause   _____   _____

2. words and prepositional phrases used adverbially

    a: sentence adverbials (SAs)
      a) adverbs   _____   _____
      b) prepositional phrases as
         disjuncts and conjuncts   _____   _____

      subtotal: _____   _____

      c) number of SAs per T-unit   _____   _____
      d) number of SAs per clause   _____   _____

    b: prep. phrases as adjuncts

      a) time   _____   _____
      b) place   _____   _____
      c) process   _____   _____
      d) recipient / target   _____   _____
      e) agenitive   _____   _____
      f) others   _____   _____

      subtotal: _____   _____

      g) number of prepositional
         adjuncts per T-unit   _____   _____
      h) number of prepositional
         adjuncts per clause   _____   _____

    Total: _____   _____

3. prepositional phrases and infinitives used as adjective complements (ACs)

    a: prepositional phrases   _____   _____
    b: infinitives   _____   _____
    Total: _____   _____
    c: number of ACs per T-unit   _____   _____
    d: number of ACs per clause   _____   _____

Data Sheet 8 (continued)

4. non-clausal or 'near-clausal nominals

   a: interrogative infinitival   _____   _____

   b: factive infinitival   _____   _____

   c: gerund   _____   _____

   Total: _____   _____

   d: number of non-clausal nominals
       per T-unit   _____   _____

   e: number of non-clausal nominals
       per clause   _____   _____

Data Sheet 9

I: Developmental errors information

Writing No. _____   Writing No. _____

1. percentage of error-free T-units _____   _____

2. number of words per error _____   _____

3. number of global errors

    a: words introducing subordinate
      clauses _____   _____

    b: verbal and lexical usages _____   _____

    c: structure and word order _____   _____

    subtotal: _____   _____

4. number of local errors

    a: verb tenses _____   _____

    b: articles _____   _____

    c: prepositions _____   _____

    d: subject-verb agreement _____   _____

    e: plural 's' _____   _____

    f: 3rd person singular _____   _____

    g: possessive 's' _____   _____

    h: copula 'to be' _____   _____

    i: auxiliary _____   _____

    subtotal: _____   _____

5. total number of developmental
   errors _____   _____

APPENDIX E

Procedures and Criteria for Interraters' Reference

<u>Compute T-unit Information</u>

Count the *number of words* for each subject's writing right from the beginning of his/her written sample and terminate at the end of the sentence closest to the five hundredth word. Please observe the following criteria:[14]

1. A *hyphenated word* is counted as one word. When in doubt about uncommon hyphenations, follow Webster's Unabridged Dictionary (2nd edition); if listed in the dictionary as hyphenated, count as one word; if not listed, count as two words.

2. *Numbers* are counted as words, e.g., in "January 3, 1950," *3* is counted as one word and interpreted as the word *three; 1950* is counted as one word and interpreted as *nineteen-fifty*.

3. *Compound nouns* written as one word are counted as one word. *Compound nouns* written as two words are counted as two words.

4. *Phrasal proper names* are counted as one word.

5. *Contractions* such as *he's* or *shouldn't* are counted as two words.

Count the *number of T-units* for each subject's writing within the 500-word ten sample chosen for analysis. Please observe the following definitions and criteria:

1. The T-unit is one main clause plus any subordinate clause or nonclausal structure that is attached to or embedded in it. Examples are:

    a. Although he is rich, he is unhappy. (1 T-unit)

    b. He heard the explosion and he phoned the police. (2 T-units)

    c. He heard the explosion and immediately phoned the police. (1 T-unit)

2. A T-unit does not include the coordination between two main clauses as exemplified in *Sentence B*, which is a compound sentence. Thus, wherever there is a compound sentence, divide <u>before</u> the connecting conjunction (and, but, etc.) and begin the next T-unit (main clause) with the conjunction. Yet, *Sentence C* is regarded as one T-unit because the T-unit accommondates the coordination between verbs.

---

[14]The criteria No. 1 and 2 are adapted from <u>The Lorge Formula</u> by Irving Lorge (1959:4). The criteria No. 3, 4, and 5 are adapted from O'Hare (1973:49). For specific examples, refer to Quirk and Greenbaum (1973:444-48).

3. When a quote consists of more than one main clause, only the first one is included as part of the first T-unit while the other is counted as a separate T-unit.

   a. My father said "you should study hard. You must have confidence in yourself."

4. Expressions such as "I think," "I believe" are considered part of the T-unit as far as they are integral to the statement.

Count the *number of subordinate clauses* attached to or embedded in main clauses. *Subordinate clauses* include *noun clause, adverbial clause* and *adjective clause* exemplified below:

   a. Hunt discovered <u>that</u> for grades 4, 8, and 12 the best of those indexes of syntactic maturity is T-unit length. (The noun clause introduced by <u>that</u> is the subordinate clause embedded in the main clause *Hunt discovered* ... and serving as its direct object.

   b. <u>Though</u> he is poor, he is happy. (The subordinator <u>though</u> signals the presence of an adverbial clause of concession which is attached to the main clause *he is happy*.)

   c. We need some kind of objective measure <u>that</u> would confirm the intuitions teachers have about maturity of sentence structure. (The relative pronoun <u>that</u> indicates the presence of an adjective clause postmodifying the object in the main clause and in turn, the object in the first adjective clause is again postmodified by another embedded adjective clause—*teachers have (intuitions) about maturity of sentence structure*. Notice that the relative pronoun *which/that* is optional in the second adjective clause because its antecedent <u>intuitions</u> functions as *object* rather than *subject* inside the second adjective clause.)

Compute the *number of clauses* by summing up the *number of T-units* (main clauses) and the *number of subordinate clauses*.

In the course of segmenting T-units and subordinate clauses, the following symbols can be used to indicate meaningful boundaries:

1. / is the T-unit boundary;

2. < is the first subordinate clause boundary;

3. (is the second subordinate clause boundary;

4. # is the third subordinate clause boundary;

5. " is the fourth subordinate clause boundary;

6. ' is the fifth subordinate clause boundary.

For example, the following sentence may be segmented by these symbols: / <What was needed>> was some kind of objective measure (that would confirm the intuitions #teachers feel# about maturity of sentence structure) "and describe the features 'that constitute syntactic maturity in quantifiable terms'"/. This sentence, in fact, is a 6-clause T-unit.

Once T-units and subordinate clauses are segmented and counted, the following computings can be done:

1. Compute *T-unit length* by dividing the *number of words* (which is terminated at the end of the sentence closest to the five hundredth word) by the *number of T-units.*

2. Compute *clause length* by dividing the *number of words* by the *number of clauses.*

3. Compute the *number of clauses per T-unit* by dividing the *number of clauses* (main and subordinate) by the *number of T-units* (main clauses).

Compute Error-free T-unit Information

It is required that a T-unit be considered error-free when it makes sense in a given context and is free both of morphosyntactic and lexical errors.[15]

Whenever an error is noticed, put a "*" on the right top corner of the word (e.g. I will worked* hard to solve the problem). If an article is missing when required in the given context, leave a question mark "?" in its position (e.g. I will work hard to solve ? problem).

Once errors have been noted, count the *number of words* within *error-free T-units*--T-units that contain no such signals as "*" and "?".

Count the *number of error-free T-units* by following the criteria set for the counting of the *number of T-units* in the previous section. Count the *number of subordinate clauses* inside *error-free T-units*. Compute the *number of clauses* (error-free) by summing up the *number of error-free T-units* and the *number of error-free subordinate clauses.*

_____

[15] The criteria is adapted from Vann's (1978) study. Morphosyntactic error will be exemplified and given criteria later.

Once these four countings are done, compute the following four error-free T-unit indices:

1. Compute *error-free T-unit length* by dividing the *number of words* inside *error-free T-units* by the *number of error-free T-units.*

2. Compute *error-free clause length* by dividing the *number of words* inside *error-free T-units* by the *number of clauses* (error-free).

3. Compute the *number of clauses per error-free T-units* by dividing the *number of clauses* (error-free) by the *number of error-free T-units.*

4. Compute the *percentage of error-free T-units* by dividing the *number of error-free T-units* by the *number of T-units* computed in the previous section.

Compute Depth of Subordination Information

To compute the depth of subordination information, the following definitions are useful for your reference:

1. 1-clause T-units are sentences that have no subordinate clause whatsoever and stand as main clauses themselves.

2. 2-clause T-units are sentences that have only one main clause and only one subordinate clause that is attached to or embedded in them. T-units that entail no other symbols than / and < qualify as 2-clause T-units.

3. 3-clause T-units are sentences that have one main clause, but also two subordinate clauses that are attached to or embedded in them. T-units entailing no other symbols than /, <, and (qualify as 3-clause T-units.

4. 4-clause T-units are sentences that have one main clause, but also three subordinate clauses that are attached to or embedded in them. T-units inserted with such symbols as /, <, (, and # qualify as 4-clause T-units.

5. 5-clause T-units are sentences that have one main clause, but also four subordinate clauses that are attached to or embedded in them. 5-clause T-units must entail such symbols as /, <, (, # and ".

6. 6-clause T-units are sentences that have one main clause, but also five subordinate clauses that are attached to or embedded in them. 6-clause T-units must have all symbols (such as /, <, (, #, " and).

Please refer to the example given in the first section of this appendix.

Compute Three Kinds of Subordination Information

Count the *number of noun clauses* which are introduced by:

1. conjunction
2. interrogative pronouns
3. interrogative adverbs.

Count the *number of adjective clauses* which are introduced by:

1. relative pronouns
2. relative adverbs.

Count the *number of adjective clauses* which are introduced by:

1. subordinators of time
2. subordinators of condition
3. subordinators of concession
4. subordinators of reason
5. subordinators of purpose
6. subordinators of result or degree
7. subordinators of comparison, manner, proportion and so on.

It is important that you turn to Data Sheets 3, 4, and 5 for details of the information mentioned above. It is better for you to start counting the words used to introduce *noun clauses* in Data Sheet 3, the words used to introduce *adjective clauses* in Data Sheet 4 and the words used to introduce *adverbial clauses* in Data Sheets 4 and 5. The reason is that, once the information concerning the words used to introduce the three kinds of subordinate clauses respectively is gathered, the information regarding the number of noun clauses, adjective clauses and adverbial clauses is easily derived.

Compute Coordination Inside T-units Information

In this study, coordination inside T-units refers to all coordinated units within T-units signalled only by the presence of three coordinators: *and, or, but*. Note that the ellipsis of the coordinator indicates its absence and thus the implied coordinator is not counted. Various types of coordinated units inside T-units are exemplified below:

1. nominals coordinated as subjects

    e.g. *John* and *Mary* make a pleasant couple.

2. verb phrases coordinated

e.g. Mary has *washed* the dishes, *dried* them, and *put* them in the cupboard.

3.   nominals coordinated as direct objects

e.g. John, Peter, and Robert play *football*, *basketball*, and *baseball* respectively.

4.   nominals coordinated as objects of a preposition.

e.g. John complained to *Mary* and *Peter*.

e.g. He gave all his books to *Tom* and *Alice*.

5.   predicate adjectives coordinated

e.g. He is *clear* and *forceful* in his speech.

e.g. I am *loath* and *afraid* to do it.

6.   adverbs coordinated

e.g. He wrote to them *politely* but *firmly*.

7.   predicate nominals coordinated

e.g. Gregg is a doctor and a hocky player as well.

8.   premodifiers coordinated

a.   adjectives

e.g. His *clear* and *forceful* delivery impressed the audience.

b.   -ing participle[14]

e.g. His *pioneering* and *inspiring* study of literature comprehension among young teenagers identifies six sources of difficulty in literary interpretation.

c.   -ed participle

e.g. The *well-known* and *unidentified* flying object still remains a mystery to scientists.

d.   s-genitive

e.g. Teachers' and students' welfare should be both promoted.

e.   noun-modifiers

e.g. a *city* council, but noun-modifiers are seldom coordinated.

f.   adverbial and sentence-modifier

e.g. his *far-away* cottage

e.g. his *pop-down-for-the-weekend* cottage

[14]Though there are -ing participles regarded as fully adjectival (such as very interesting, reassuring, and entertaining), in this study they are classified as -ing participial premodifies. This also applies to -ed participles.

Adverbial modifiers and sentence-modifiers are seldom coordinated.

9. postmodifiers coordinated

    a.   -ing participle clauses

        e.g. The major information control weakness *facing GonRad* and *threatening its survival, in the business world* was insufficient information flow between its departments.

    b.   -ed participle clauses

        e.g. The price *already adjusted* but *still rejected by the buyers* had to be lowered again.

    c.   infinitive clauses

        e.g. The procedures *to be understood* and *to be followed* are exemplified.

    d.   appositives

        e.g. Any attempt *to be absent* or *to leave early* is against regulations.

    e.   prepositional phrases

        e.g. Any decision *concerning the future purchasing plan* should take into account the effectiveness *of competition on the supplier's part* and *of flexibility on our part.*[17]

    f.   postpositive adjectives

        e.g. Puritan's offer included the lowest price *acceptable* and *accessible* at the present time.

    g.   adverbs

        e.g. The examples *above* and *below* are cited for your reference.

10. subordinate clauses coordinated

    e.g. *If I can find the letter* and *you are interested in it*, I'll let you have it.

    e.g. I wonder *whether you should speak to him personally about the matter* or *whether it is better to write to him.*

---

[17] Postmodifying prepositional phrases should be distinguished from prepositional phrases used adverbially. In such cases, the position of the prepositional phrase determines its function. On the one hand, in the following sentence the prepositional phrase is a postmodifier:
The children *behind the fence* jeered at the soldiers.
On the other hand, in the sentence below the prepositional phrase is an adverbial of position:
Behind the fence, the children jeered at the soldiers.

11. non-finite clauses coordinated[1]

e.g. *Hearing the explosion* and *finding it very serious*, he phoned the police immediately.

e.g. *Caught in the fight between two of his best friends* and *surprised by the hatred they had for one another*, he did not know what to do so that they can make it up.

12. object complements coordinated

e.g. I always have my coffee *black* and *hot*.

e.g. I consider John *a good driver* and *a skilled mechanic*.

Finally, count the *total number of occasions* when coordinations of various kinds inside T-units occurred.

To summarize coordination inside T-units information, follow the procedures below:

1. To compute the *number of coordinations inside T-units per T-unit*, divide the *total number of coordinations inside T-units* by the *number of T-units* found in the subject's 500-word written sample (see Data Sheet 1).

2. To compute the *number of coordinations inside T-units per clause*, divide the *total number of coordinations inside T-units* by the *number of clauses* found in the subject's 500-word written sample (see Data Sheet 1).

3. To compute the *number of words per coordination inside T-unit*, divide the *number of words* (see Data Sheet 1) by the *total number of coordinations inside T-units* (see Data Sheet 6).

Compute Depth of Modification inside T-units Information

Quantify the occurrence of premodification inside T-units by following the examples given in the previous section and using Data Sheet 7.

Quantify the occurrence of postmodification inside T-units by following the examples given in the previous section and using Data Sheet 7.

Count the *total number of modifiers* by summing up the *total number of premodifiers* and the *total number of postmodifiers* in Data Sheet 7.

---

[1] Non-finite clauses refer to participle clauses which are used adverbially and attached to the main clauses.

To summarize the depth of modification inside T-units, observe the following procedures:

1. Compute the *number of modifiers per T-unit* by dividing the *total number of modifiers* (both premodifiers and postmodifiers) by the *number of T-units* found in the subject's 500-word written sample (see Data Sheet 1).

2. Compute the *number of modifiers per clause* by dividing the *total number of modifiers* (both premodifiers and postmodifiers) by the *number of clauses* found in the subject's 500-word written sample (see Data Sheet 1).

3. Compute the *number of words per modifier* by dividing the *total number of words* (see Data Sheet 1) by the *total number of modifiers* (both premodifiers and postmodifiers quantified in Data Sheet 7).

Compute Other Non-clausal Elements inside T-units Data

Non-finite Clauses Used Adverbially

Non-finite clauses used adverbially are subclassified into *infinitive of purpose, -ing participle, -ed participle, and verbless clauses,* which, in contrast to finite clauses, imply a subject which, though absent, is co-referential with that of the superordinate clause. They are exemplified as follows:

1. infinitive of purpose: *He* opened his case *to look for a book.*

2. -ing participle: *Leaving the room, he* tripped over the mat.

3. -ed participle: *Stimulated by our enthusiasm, he took up anthropology.*

4. verbless clause: *When ripe, the oranges* are picked and sorted.

When you sum up the *total number of non-finite clauses used adverbially,* do the following two computings:

1. To compute the *number of non-finite clauses per T-unit,* divide the *total number of non-finite clauses used adverbially* (see Data Sheet 8) by the *number of T-units* (see Data Sheet 1) found in the subject's 500-word written sample.

2. To compute the *number of non-finite clauses per clause,* divide the *total number of non-finite clauses used adverbially* by the *number of clauses* (see Data Sheet 1) found in the subject's 500-word written sample.

Words and Prepositional Phrases Used Adverbially

Words and prepositional phrases used adverbially refer to *sentence adverbials* on the one hand and *prepositional phrases as adjuncts* on the other.

1. sentence adverbials (SAs) include the following:

    a. adverbs

    e.g. *generally, perhaps, maybe, also, especially, furthermore, moreover, however, nevertheless, clearly, certainly, etc.*--words that function as transitional devices in written discourse and are indicative of style, attitude, etc.

    b. prep. phrases as disjuncts and conjuncts

    e.g. *to one's regret, to one's surprise, in all frankness, of course, etc*--words that are style and atitudinal disjuncts.

    e.g. *For one thing, ... for another...; in the first place ... (enumerative). In addition, above all (reinforcing). In the same way (equative). In all, in short, in conclusion (summative). In other words, for example, for instance (appositive). As a result, as a consequence. In that case (inferential). On the contrary, in contrast, by comparison, (on the one hand ...) on the other hand (antithetic). In any case, at any rate, in spite of that, after all, on the other hand (concessive). In the meantime (temporal).*

2. prep. phrases used as adverbial adjuncts and indicative of:

    a. time

    e.g. I was awarded my Bachelor of Arts degree *in 1978.*

    e.g. I will be going back *by the end of next month.*

    e.g. I have been in Canada *for three years* (duration).

    b. place/position

    e.g. I took the papers *from his desk* (direction).

    e.g. He lives *in a small village* (position).

    e.g. She was whispering softly *into the microphone* (direction).

    c. process

    e.g. *By pressing this button* you can stop the machine.

    e.g. He spoke *in a way* (manner) that reminded me of his father.

    e.g. She replied to questions *with great courtesy* (manner).

e.g. I go to school *by car* (means).

e.g. You can cut the bread *with that knife* (instrument).

d. recipient/target

e.g. He made a beautiful doll *for his daughter* (intended recipient).

e.g. He gave a beautiful doll *to his daughter* (actual recipient).

e.g. After aiming carefully *at the bird* (target), he missed it completely.

e. agentive

e.g. The window was broken *by a boy*.

f. others

e.g. Jock, *with several of his friends* (accompaniment), was drinking till 2 am.

e.g. (source, purpose, etc).

When you sum up the *total number of sentence adverbials* and the *total number of prepositional phrases as adjuncts*, do the following computings:

1. To compute the *number of SAs per T-unit* (see Data Sheet 8), divide the *number of sentence adverbials* by the *number of T-units* (see Data Sheet 1).

2. To compute the *number of SAs per clause*, divide the *number of sentence adverbials* by the *number of clauses* (see Data Sheet 1).

3. To compute the *number of prepositional adjuncts per T-unit* (see Data Sheet 8), divide the *number of prepositional adjuncts* by the *number of T-units* (see Data Sheet 1).

4. To compute the *number of prepositional adjuncts per clause*, divide the *number of prepositional adjuncts* by the *number of clauses* (see Data Sheet 1).

Prepositional Phrases and Infinitives as Adjective Complements

Prepositional phrases and infinitives as adjective complements are exemplified as follows:

1. *prepositional phrases*: They are conscious *of their responsibility*.

2. *infinitive*: Bob is slow *to react*.

Once you sum up the total number of these adjective complements, do the following two computings:

1. To compute the *number of adjective complements per T-unit*, divide the *number*

of *adjective complements* (see Data Sheet 8) by the *number of T-units* found in the subject's 500-word written sample.

2. To compute the *number of adjective complements per clause*, divide the *number of adjective complements* by the *number of clauses* found in the subject's 500-word written sample.

Non-clausal or "Near-clausal" Nominals

Non-clausal nominals refer to *interrogative infinitivals, factive infinitivals and gerunds*. The following are the examples:

1. *Interrogative infinitival*: He told me *how to get the airport*.

2. *factive infinitival*: The best thing is *to let the police handle it*.

3. *gerund*: *Their quarrelling over pay* was the reason for his resignation.

Next, compute the *number of non-clausal nominals per T-unit* and the *number of non-clausal nominals per clause*.

Gather Developmental Errors Information.

In this study developmental errors are subclassified into *global* errors and *local* errors. The former comprises errors such as those involving *words used to introduce subordinate clauses, verbal or lexical usages, and word order*. The latter includes errors such as those concerning *verb tense, articles, prepositions, subject-verb agreement, plural 's', 3rd person singular, copula 'to be', possessive 's' and auxiliary*.

Quantify both the *number of global errors* and the *number of local errors* first and then sum up the *total number of developmental errors*. Next,

1. compute the *number of words per error* by dividing the *number of words* (which terminates at the end of the sentence closest to the five hundredth word) by the *total number of developmental errors* (see Data Sheet 9).

2. percentage of error-free T-units need not be computed because it is already available in Data Sheet 1.

```
$list -d
  $4.38,   $13.08T


$rename -d er$$ oh
File "ER$$" already exists.
  $.00,   $13.08T


$truncate er$$
Current size 1 page, no truncation possible.
  $.00,   $13.08T


$signoff
```