THE EFFECT OF MODE VARIATION ON SYNTACTIC COMPLEXITY IN ADULT E.S.L. COMPOSITION WRITING

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ABSTRACT

The purpose of this study was to determine whether variation in mode of discourse would produce significant differences in syntactic complexity, as measured by mean number of words per T-unit, in compositions written by adult students of English as a second language.

To answer this question, compositions were collected from eight classes of Advanced level students in the English Language Training Department at King Edward Campus in Vancouver. Each student in the study wrote eight compositions over an eight week period in the Fall of 1981. Two different topics were assigned in each of four modes with the topics assigned to class in random order. The compositions of those students who wrote on every topic at the appointed time (N=61) were divided into T-units, words were counted and words per T-unit calculated. The mean number of words per T-unit per mode was then determined for description, narration, argument, and exposition.

Differences in mean number of words per T-unit for six pairs of modes were tested for significance at the .05 level. The six pairs, narration-description, narration-exposition, narrationargument, description-exposition, description-argument, and exposition-argument were analyzed using a t-test for dependent measures. The results indicated that there were significant differences in W/TU between five of six pairs with no significant difference only for narration-description. The order of complexity indicated from these results was N=D< A< E. The order of

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first and second language studies, in that argument and exposition were shown to produce greater syntactic complexity than either narration or description.

Other results found in this study showed that a high proportion of students wrote "out of mode" when given tasks in argument and exposition whereas almost all subjects remained "in: mode" when writing in description or narration.

The results of this study showing syntactic complexity to be a function of mode of discourse suggests strongly that where complexity is a factor of consideration either in research or evaluation, mode must be controlled or results interpreted with the recognition of a potential mode effect.

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CHAPTER ONE

INTRODUCTION

The purpose of this study was to examine the effect of variation in mode of discourse on the syntactic complexity of compositions written by adult students of English as a Second Language (E.S.L.). It was hoped that information from this study, determining whether mode of discourse can affect syntactic complexity, would be useful to instructors involved in composition teaching and testing and researchers who are investigating syntactic complexity in E.S.L. composition.

One important area of inquiry pursued by researchers working with both first and second language learners is the growth in syntactic complexity in the writing of public school and college students. First language research has established that syntactic complexity in the written composition of public school children increases as those children progress from grade to grade (e.g., Hunt, 1965; O'Donnell et al, 1967; Blount et al, 1969; Stewart & Grobe, 1979), and that university and professional writers use more complex syntax than do public school students (e.g., Hunt, 1970; Witte & Sodowsky, 1978; Stewart, 1978).

Similar results have been reported in second language research. Higher grade public-school students studying a foreign language have been found to write sentences with higher syntactic complexity than have students at lower grades (Yau, 1983). Also, adult second language learners at higher proficiency levels write sentences which are syntactically more complex than those written by learners at lower proficiency levels (e.g., Gaies, 1976; Larsen-Freeman & Strom, 1977; Flahive & Snow, 1979).

The investigation of syntactic complexity has been on going for many years. The problem in first language research has been to find a measure which correlates well with either age or grade. Before 1965, the common units of measurement were mean sentence length, clause length, and the ratio of dependent clauses to all clauses, also referred to as the subordination ratio... Various problems were found with each of these measures. Mean sentence length was found to be inadequate because of problems with excessive use of coordination and faulty punctuation (Hunt, 1964, p. 27). Clause length was found not to be a significant measure of language development for children in grades four to 12 (LaBrant, (The same researcher did find that the subordination 1933). ratio correlated with age for children in grades four to nine.) A subsequent study by Anderson (1937) failed to find a significant relationship between age and the subordination index in a study analyzing the writing done by college students ranging in age from 16 to 24 years. A more complete review of early studies of language development and the use of various measures of syntactic development can be found in Hunt (1965) and in O'Donnell et al. (1967).

In 1965, Hunt reported research using what he called the T-unit or minimal terminal unit. This now well-known item is defined as, " ...one main clause plus any subordinate clause or non-clausal structure that is attached to or embedded in it"

(Hunt, 1970, p. 4). At first look, one might say that is the definition of a sentence. However, it is different in that it is insensitive to punctuation but is sensitive to co-ordination. Hunt explains,

... grammar textbooks usually say that a sentence must have one main clause but may also have one or more subordinate clauses and various kinds of phrases attached to or embedded in it. So cutting a passage into T-units will be cutting it into the shortest units which it is grammatically allowable to punctuate as sentences. In this sense, the T-unit is minimal and terminable. Any complex or simple sentence would be one T-unit, but any compound or compound-complex sentence would consist of two or more T-units. (p. 4)

Other studies quickly followed (O'Donnell, Griffin & Norris, 1967; Blount, Fredrick & Johnson, 1968;), and the T-unit became accepted as a reliable index of the development of complexity in writing. T-unit analysis became an extremely popular research tool despite some awareness that situational factors might work to confound the results. Hunt, in his 1965 study, had acknowledged the possibility that syntactic complexity was to an extent a function of the writing task involved and attempted to compensate by using a very large writing sample.

That different factors could affect syntactic complexity in composition writing had been suggested earlier by Frogner (1933) and by Seegars (1933) both of whom reported studies indicating that the kind or mode of writing affected the complexity of sentence structure. Later, San Jose (1972), Perron (1977), and Crowhurst (1978, 1980) showed that T-unit length was sensitive to mode of discourse. Additional studies have been done investigating the effects of topic (e.g., Witte and Davis, 1980) and audience (e.g., Crowhurst, 1978). Yet to be done are studies investigating other factors such as knowledge of topic, purpose, time for writing, teacher's expectation, and the form or type of stimulus.

A. The use of T-unit analysis in second language research

The T-unit quickly gained popularity with second language (L2) researchers. It seemed to be especially well suited to their purpose and their subjects, in part because punctuation and sentence definition can be major problems in L2 writing, perhaps more so than in first language (L1) writing. Moreover, T-unit analysis would allow for meaningful numerical comparisons between first and second language learners (Gaies 1980, p. 54), indicating to some degree the parallels between the development of syntactic complexity in first and second language learners (Flahive and Snow, 1980). When more and better research has been conducted, eventually it might be possible to say that a particular group of adult E.S.L. students write at the equivalent of a grade 6, 8, or 10 level with regard to syntactic complexity.

Some similarity between the development of syntactic complexity in the writing of second language learners and in that of first language learners is to be expected considering that:

- the progression in E.S.L. structural syllabi is from the simple to the complex;
- 2) other areas of research suggest that acquisition may be more of a developmental process similar to first language acquisition than had been previously thought (Ervin-Tripp, 1974; Dulay & Burt, 1974; Larsen-Freeman, 1976;

Bailey et al., 1974; Wode, 1976);

3) there is evidence that the progression in writing in other languages is from the simple to more complex structures (Reesink, 1971; Monroe, 1975; Cooper, 1976).

It seems reasonable to assume that if the development of complexity in second language writing parallels the development of complexity in first language writing, then there may also be variables besides the proficiency of the writer which will affect syntactic complexity. The factors which affect syntactic complexity in the writing of first language subjects should be the same as those which affect syntactic complexity in the writing of second language subjects.

B. An overview of the experimental procedures

This study examined differences in syntactic complexity among four modes in the written composition of adult E.S.L. students at an advanced level of study. Advanced students were chosen because at that level students begin to participate regularly in composition writing and also students can be expected to produce on the average between 150 and 200 words per composition.

Eight classes of students wrote eight different compositions, two in each of four modes, over an eight week period. The four modes were narration, description, exposition, and argument. Each class of students wrote once on each of eight different topics. Composition topics were assigned to classes in random order and all compositions were written under standardized conditions. Compositions were written on a regular class day usually used for free writing. In addition, students did not know they were participating in a study and, therefore, it was expected that they would not produce writing different from what they would normally produce under classroom conditions. Compositions from each student who wrote all eight compositions at the appointed times were included in the study.

To test for differences in syntactic complexity among modes, compositions were analyzed using mean T-unit length. Mean T-unit length was chosen because it has been shown to be a valid and reliable measure of syntactic complexity in previous first and second language composition studies, and because it was hoped that data obtained from this study would be useful for comparisons with other groups of both first and second language learners. Studies using T-unit analysis are discussed in Chapter Two and a fuller description of procedures and method of analysis is presented in Chapter Three.

Selection of modes

The four traditional modes of discourse were selected for this study because they had been used previously in the several studies of first language acquisition, and it was hoped that the results of this present study could then be used for comparison with the results from those first language studies. It was decided to use all four modes to gain as much information as possible about the effect of mode.

It is recognized that students do not usually or perhaps ever write totally in a single mode (Kinneavy, 1971) and as Kantor

(1976) suggested, most writing contains a mixture or overlapping of modes. Also, there are no rigorous definitions for mode. However, Perron's (1977) definitions have been used and follow the general understanding of what writing in the four traditional modes should produce. Perron says:

By modes of discourse, I refer to the classical differences among arguing a point of view (argumentation), explaining a process (exposition), telling a sequence of events (narration), and depicting details (description). (p. 1)

Perron's extended definitions of mode of discourse and those used in this study were given in Perron, 1977, p. 8, and are included here in Chapter Three.

Writing Out of Mode

Something which has to be taken into account when studying mode and complexity or when conducting studies in which it is necessary to control for mode is that some students do not necessarily write in the mode suggested by the topic assigned. For example, a student may be given an assignment to explain the usefulness of the automobile in that student's native country but will write a story about a holiday trip taken by car. While the story may be related to the topic, the student has not responded to the assignment in the mode expected, which would be exposition. Rather, the student has written a narrative telling a sequence of events over time.

While it is true that it is extremely unlikely that anyone can write purely in one mode and produce natural writing, some writers will produce work which is primarily out of mode. There are many possible reasons for this phenomenon. It may be that one mode of discourse is naturally more difficult to write in than 7.

another; the particular topic may be difficult or difficult to get into; a student may lack knowledge of how to write in the assigned mode; or a student may have a perceived adequate but different method of attacking the topic. There may be a cultural conflict which precludes a certain type of expression. It may be because of a misunderstanding of what is expected or perhaps a lack of syntactic resources necessary to write in the particular mode. In L1 research, the problem of students writing out of expected mode has been noted by Kantor (1976), Perron (1977) and Crowhurst (1978) and in L2 research by Yau (1983). It is necessary to be aware of this phenomenon because, if it is true that mode will affect the degree of complexity, the results could be interpretted erroneously. A true result of a significant difference between modes could be masked by an excessive intrusion of or an overlapping of modes in the sample.

There are several factors which have to be taken into account when conducting research on syntactic complexity in composition writing and, specifically, when conducting research on the effects of mode variation on syntactic complexity. In addition to the problem of students writing out of mode, there is topic effect and the minimum number of words required for a reliable sample. Selection of topics

For this study two topics were selected for each mode. It has been shown that topic is a variable which must be considered. when conducting research on syntactic complexity (Crowhurst, 1978, p. 80), and one of the major criticisms of previous research on mode effect is that by using only one topic per mode, mode and

topic may have been confounded. It is true that the only way to eliminate the problem is to use one topic across modes as Crowhurst (1978) did, or to use all topics possible in a particular mode. In the circumstances it was not possible to use a single topic nor, of course, all topics; therefore, two topics per mode were used, thus attempting to reduce the probability of topic effect and increasing the validity of the results.

Minimum sample size

A second reason for choosing two topics was to ensure a large enough sample to get a reliable mean T-unit count. One of the major criticisms of past complexity research has been that composition length was often too short, being in the range of 100 to 200 words. Whereas the minimum number of words required per mode has not been definitely established, various suggestions have been given.

Based on the information available, it is difficult to say with any certainty what the minimum sample size should be for comparing syntactic complexity between modes in compositions written by E.S.L. students. One might assume that a reliable sample need not be as large as that required in a study using a mixed sample of writing. Wynn's (1978) study indicated that, for a mixed sample, a minimum number of words should be 20 T-units or 20 sentences. This can be translated into 200 or 300 words depending on the grade level of the subjects and the mode of discourse. A "safe" figure, then, for mode comparisons might be a minimum of 200 words. A more detailed review of word counts used in various studies is given in Chapter Two. The average

number of words per mode in this study ranged from 389 in argument to 515 in narration.

C. Research predictions

The current study examines the following predictions:

- As measured by mean T-unit length, there will be a significant difference between the syntactic complexity of compositions written in the modes of narration and description.
- 2. As measured by mean T-unit length, there will be a significant difference between the syntactic complexity of compositions written in the modes of narration and exposition.
- 3. As measured by mean T-unit length, there will be a significant difference between the syntactic complexity of compositions written in the modes of narration and argument.
- 4. As measured by mean T-unit length, there will be a significant difference between the syntactic complexity of compositions written in the modes of description and exposition.
- 5. As measured by mean T-unit length, there will be a significant difference between the syntactic complexity of compositions written in the modes of description and argument.
- 6. As measured by mean T-unit length, there will be a significant difference between the syntactic complexity of compositions written in the modes of exposition and argument.

For statistical analysis, the research questions were given in the form of null hypotheses and tested at the .05 level of significance. Negative statements of the prediction are stated in Appendix A. The statistical procedure used was a two-tailed test for correlated measures to determine significant differences between each pair for six pairs of modes.

The purpose of this study, then, is to investigate, using mean T-unit length as the measure for analysis, the effects of mode variation on syntactic complexity in composition writing of adult E.S.L. students at an advanced level of study. In addition, this study hopes to provide information on norms of syntactic complexity for writing done in four different modes by adult E.S.L. subjects at one specific proficiency level.

The questions to be addressed in this study are:

- Will there be significant differences, as measured by mean T-unit length, in the syntactic complexity of compositions written in the four discourse modes of narration, description, exposition, and argument?
- 2) If there are differences in complexity, will the direction of increased complexity in the four different modes be similar to that found in first language and other second language studies?

This study, to an extent, replicates studies done with first language children (Perron 1976a, 1976b, 1976c; Crowhurst 1978, and 1980) and with second language high school students (Yau, 1983). However, there has been no published research on the effect of mode of discourse on syntactic complexity in the writing of adult E.S.L. subjects.

CHAPTER TWO

A REVIEW OF RELATED RESEARCH

There are two major areas of research in both first and second language learning which are relevant to the present study: studies examining syntactic development in the writing of children and adults and studies examining the effect of situational factors on syntactic complexity, specifically the effect of mode of discourse and topic.

As one aspect of language development, the investigation of syntactic complexity in the writing of children and adults in both first language (e.g., La Brant, 1933; Anderson, 1937; Hunt, 1965, 1970; O'Donnell et al, 1967) and more recently in second language (e.g., Cooper, 1976; Larsen-Freeman, 1978) has been a major area of interest in research. Since Hunt's (1965) introduction of the T-unit, the primary measure used to determine syntactic complexity has been mean number of words per T-unit (W/TU). In first language studies, research has concentrated mainly on differences in or growth of syntactic complexity in composition writing at different grade levels (e.g., Braun and Klassen, 1973; Stewart, 1978) while in second language studies, similar research has compared syntactic complexity with levels of proficiency (e.g., Vann, 1978; Flahive and Snow, 1979).

One of the problems affecting both the validity and reliability of the results from previous studies has been that researchers have not controlled for situational factors such as mode of discourse or topic, which in first language studies have been shown to affect syntactic complexity (e.g. Crowhurst, 1978). In second language study, Yau (1983) demonstrated that mode can affect syntactic complexity in composition writing.

Although it had been recognized quite early that situational factors such as the kind of writing might affect complexity (e.g., Frogner, 1933), many researchers since then have either ignored that possibility or used large samples of mixed writing to compensate for those_potential=effects.

A second problem which may have affected the validity and reliability of results from previous studies is sample size. Although the minimum size required for determining syntactic complexity in a writing sample has not been established, guidelines have been suggested, and based on those guidelines (e.g., Crowhurst, 1978; Wynn, 1978; Yau, 1983), the results given in some studies must be questioned as to reliability.

A. First language studies investigating the T-unit as an index of development

Researchers have long known that older children write sentences which are more complex than those written by younger children and have searched for the best way to define and determine that complexity. One of the earlier researchers in this area of investigation was La Brant (1933, Cited in Anderson, 1937). She devised and tested the index of subordination, which is obtained by dividing the number of subordinate predicates by the total number of predicates. In a study examining the compositions of 4th to 12th graders, she found that the subordination index increased with both mental and chronological age. However, as reported by Anderson (1937), there was a methodological shortcoming in that La Brant had used only one composition. Anderson suggested that different compositions might have produced different results.

Anderson (1937) studied the compositions of 111 college students ranging in age from 16 to 24 years. The compositions dealt with 'a wide variety of subjects' (p. 62). One of the measures used in the analysis was the index of subordination which was found <u>not</u> to correlate with any of the independent measures of age, college aptitude, English scores, or high school rank. Anderson blamed problems with interpretation of the index, inadequate length of the sample, the possibility that indices of written language vary with the situations in which they are used and with the subject matter.

The most interesting recent development in the search for a valid and reliable measure of complexity is the T-unit, one of the measures used by Hunt (1965) in a study of the writing of 54 school children in grades 4, 8 and 12 and the writing of skilled adults. As has been mentioned, the T-unit is similar to a sentence except that the T-unit compensates for co-ordination and punctuation. A T-unit is one independent clause plus any subordinate clause with any non-clausal structure attached to it. Thus the T-unit takes into account co-ordination which is considered a low level development and also takes into account faulty punctuation (See Appendix B).

In the 1965 study, Hunt gathered writing samples of 1000 words from each student which for some students in the lowest grade took a year. Hunt admitted that he could have controlled for the stimulus of the writing 'to some extent' but believed that it

would have affected the output of certain structures. He said that 12th graders were more accustomed to writing exposition, and so he left the choice of subject matter up to the classroom teacher. The only restriction was that the subject matter of the compositions be typical of the writing that the students usually did.

Hunt found that mean T-unit length increased over the three grade levels.and beyond in the writing of his skilled adults. The conclusions of Hunt's study, that complexity increases with age or grade, have been confirmed many times over, although there has been a question as to the validity of the data when interpreted as norms of development because, although he had a large enough sample of writing, he did not control for the writing task across grade levels.

In 1967, O'Donnell, Griffin, and Norris, in a similar study, found that mean T-unit length discriminated for grades three, five and seven. They collected writing samples from 90 children, 30 from each of the three classes. As a stimulus, the children were shown a motion picture with the sound track off and after retelling and discussing it, they were asked to write the story and answer some questions. The writing sample then became a combination of guided narrative from the film plus answers to questions relating to the film. The numbers of words written in the two higher grades are perhaps within the range required for reliability. However, the description of the writing task leaves some doubt as to the classification of the mode or even the type of writing.

Blount, Johnson and Fredrick (1969), using the T-unit to analyze 1000-word samples from 32 eighth and 32 twelfth graders,

found significantly longer mean T-units for the twelfth graders. There were no controls on the topics or mode of discourse as the sample was collected from each subject over the school year from writing done as part of the regular class assignments. "In some cases, the students were given a list of possible narrative and expository topics and were allowed to choose those which appealed most to them" (p. 5).

In another study, this time with subjects in grades four, six, eight, ten, and 12, one group of average and one group of skilled adults, Hunt (1970) had his subjects re-write a passage about aluminum (O'Donnell et al 1967) which had been given to them in the form of 32 very short sentences. In the study, Hunt used a sample of 50 subjects per grade, 25 average and 25 unskilled adults. Statistical analysis showed complexity, as measured by words per T-unit, to increase by grade with skilled adults superior to the 12th graders. However, the average adults did not show significantly higher complexity over the 12th graders. The results of Hunt's study supported earlier findings on the growth of syntactic complexity. However, in the 1965 study, the W/TU for the equivalent grades used in the 1970 study were generally much higher. Also, word counts on the rewrite passage were shorter than that now recommended for reliable analysis even though in this instance topic was controlled.

Using Dutch students and the Dutch language, Reesink et al (1971) replicated Hunt's research from 1970. Words per T-unit was one measure investigated with 244 subjects representing ten groups from 4th grade to adults. The subjects rewrote the aluminum passage plus a child fable. It was reported that, with increasing

age, various syntactic measures increased, although words per T-unit was not one of those factors.

Braun and Klassen (1973) investigated various indices of syntactic-linguistic development among three groups of grade four and six students in Manitoba. The 48 subjects came from three different linguistic backgrounds and were divided into three ability levels in addition to their grades and backgrounds. The investigators used films to elicit written language samples. There was no indication given as to the possible mode of discourse or whether all subjects were given the same film to write about. Neither were the number of words written reported. It was found that sixth graders and the high ability level subjects wrote significantly longer T-units than the grade fours and the low ability subjects.

Witte and Sodowsky (1978) examined the first and final essays of 24 college freshmen to find if complexity increased over an eight month term of a writing program. There was no report as to the topic or mode of discourse of either piece of writing. The initial essays were written as class assignments while the final essays were written as part of a two hour final examination. The mean number of words were 417 and 538 respectively. The increase in words per T-unit was significant at the .05 level. The authors noted (p. 12) that researchers should be aware of the potential influence of mode of discourse on complexity; however, it was not mentioned that the topic itself and the writing situation, non-test and test, may have affected the significance of the increase in T-unit length.

Stewart (1978) conducted a study to investigate the written

syntactic complexity of 302 students from grade ten through 6th year university. The writing instrument was the aluminum passage. Significant differences were found between grades ten and 11, complexity then leveled off, and there was again a significant gain at the top university level.

Stewart and Grobe (1979), as part of the New Brunswick Writing Assessment Program, looked at syntactic complexity in the compositions of students in grades five, eight, and 11. The audience and purpose of the writing were different for each of the three grades and the mean number of words was 123.63, 92.82, and 205.46 respectively for the three levels. Results showed a significant difference in mean T-unit length between grade levels.

These studies represent a sampling of those most often auoted. The studies reported here, and others, show that there is no question as to the general conclusion, that complexity as measured by mean T-unit length increases with grade level and in some instances with ability level. However, there is some question as to the actual numbers generated to show norms at grade levels which are then compared either with Hunt's (1965) original norms or with each other. As has been reported, in the majority of the studies the writing stimulus has not been controlled for either mode of discourse or topic and in some studies there have been no control for other situational variables such as purpose, time allowed for writing or teacher expectations. For example, it is quite possible that writing done as a regular class assignment will show different results from writing done in a test situation. Also, in some instances word counts fell below that recommended for reliability when doing complexity studies. When considering

studies involving "rewrite" passages, it must be remembered that the aluminum passage is not composition, but a contextualized sentence combining exercise which to an extent controls, directs, and limits the type and number of combinations possible.

B. Syntactic complexity, mode of discourse and topic

It has long been recognized that the task can affect syntactic complexity in writing even though in much composition research, it appears that investigators are unaware of that possibility. There are, of course, other potential factors which could influence complexity such as audience, purpose, or even time for writing. However, those factors were not investigated in the present study although they were controlled for. The principal factor of interest in this section is mode and secondly topic. This section contains a brief review of studies relating to mode of discourse and topic as factors which can affect syntactic complexity in written composition. Most of the studies reviewed here (e.g., San Jose, 1972; Crowhurst & Piche, 1979; Witte & Davis, 1980) relate to the effect of mode or topic on complexity of syntax specifically as measured by words per T-unit, while a few (e.g., Wiseman & Wrigley, 1958; Anderson, 1960) discuss the effect of variation in task on the assessment of quality.

The two classic earlier studies were done by Seegers and Frogner, both in 1933. Seegers conducted a study specifically to see what effect the form of discourse used exerted on the complexity of sentence structure in written compositions of students in grade four, five and six. Papers were collected which were representative of argumentation, exposition, and narration/ description. The last category was combined because the investigator believed narration and description tend to merge in the writing of children. Analyzing the compositions for the relative use of dependent clauses, the researcher found that the form of discourse in which children wrote had a "... definite bearing upon their sentence structure... " (p. 54). The frequency of dependent clauses was greatest in argumentation, then exposition and finally narration/description. Seegers concluded, "... the analysis points out that one conducting a study of written composition must consider the form of discourse in which that composition is written... " (p. 54).

In a study of sentence structure, Frogner analyzed 2821 compositions written by 959 students from grades seven, nine, and 11. One of the observations in that study was that different kinds of writing show different complexity. Frogner found that expositions had a notably higher percentage of sentences with dependent clauses than did narratives, and narratives a higher percentage than did letters, a pattern which was evident at all three grade levels.

Anderson (1937) conducted an investigation into complexity using a variety of compositions for analysis. He reported that, "... in measuring a language product, still another factor must be taken into account, namely the relationship between language and the situation or circumstances in which it is produced or the subject matter with which it is concerned" (p. 65). Anderson suggested that one factor which influenced the results of his study was that compositions on various topics were used.

There are several studies which note the effect of topic on

the quality of compositions written.

Kincaid (1953) tested whether one composition on a given topic written at one particular time can be considered to be representative of a student's writing ability. While he was not looking at the effect of topic on complexity specifically, he did find that different topics did not affect the average written performance of a group of 20 students, but there were effects on individuals. For "strong" students, dissimilar topics resulted in a no greater frequency of variations in the quality of writing than did similar topics while for "weak" students, dissimilar topics resulted in a greater frequency of variations in the quality of writing than did similar topics.

Wiseman and Wrigley (1958) conducted a study in England to determine the influence of three variables including essay title on essay marks. The variance between titles was found to be significant, meaning that there were real differences between mean scores of different essays due to the subject of the essay as indicated by the title.

C. C. Anderson (1960), in an investigation into the significance of different factors contributing to variability in the marking of essays, found that 71% of the papers written showed evidence of "composition fluctuation", which meant that the topic, mode, or subject matter affected the quality of the product.

The following studies mostly relate to variation in complexity due to mode or topic. In some instances, studies claimed to report on mode differences and their effect on syntactic complexity. However, the claim of reporting on mode differences was not always accurate. When a single topic is used, mode and topic become confounded and it cannot be said which factor has affected the variation in syntactic complexity. The studies cited in this section were conducted after 1965 and, therefore, most of them used the T-unit as one method of analyzing complexity. In the reports of the following studies, I have generally given only the results of the words per T-unit analysis even though several measures of complexity were used in most cases. Only W/TU were reported because the thesis of this present study deals only with syntactic complexity as measured by mean words per T-unit.

Johnson (1967) collected two compositions in each of narration, description, and explanation from 16 grade three pupils. Average numbers of words written per mode were 259, 121, and 150 respectively. It appears from the report that the complex sentence was used most often in narrative followed closely by explanation and then description. It was not altogether clear exactly what the results were although an analysis of the numbers given indicates that sentence length was greater in explanation than in narrative and greater in narrative than in description. No statistics were given.

Rosen (cited in Crowhurst, 1978) looked at the effect of different writing tasks on the syntactic output of 50 fifteen and sixteen year olds. Rosen designed eight different sets of topics, each set meant to elicit a different kind of writing. Each subject selected and wrote on one topic from each set. It was found that mean T-unit length varied greatly from one assignment to another. For example, longer T-units were found in referential writing than in expressive writing. The conclusion was that task differences may produce greater variation than age differences.

Bortz (cited in Crowhurst, 1978) investigated the writing of intermediate grade children. The purpose was to look for

differences due to variation in composition types, specifically description, exposition, and narration. One composition was collected in each mode from 50 subjects in each of grades four, five, and six. Analysis showed that expository writing produced the longest T-units, narrative writing followed exposition and description produced the shortest T-units. In this study, mode was confounded with topic and, in addition, the samples of 97.53, 127.39, and 142.47 words respectively for each mode are smaller than what is considered to be an adequate size for reliability in complexity analysis.

Veal and Tillman (1971) investigated the relationship between mode of discourse and rated quality in the writing of schoolchildren in grades two, four, and six. The test consisted of one topic in each of the four traditional modes of discourse. The results showed second and fourth graders scored statistically at the same level of quality regardless of mode. There was, however, a statistically significant difference in magnitude between second and sixth grade writing and fourth and sixth grade writing for all four modes. At grade two, there was no difference between modes. In the report, the results were given as follows. Αt grade four, the sequence was description over argument, exposition over argument, and exposition over narration. At grade six, it was the same and, in addition, narrations were better than arguments and expositions were better than descriptions. Mode and topic were confounded in this study as there was only one topic per mode written.

San Jose (1972), in a much cited study, found significant differences in grammatical structures in four modes of writing with grade four students. A total of 40 students wrote letters

in narration, description, exposition and argument. They wrote four letters per week per mode for four weeks in the sequence listed above. One of the 30 items analyzed was words per T-unit. W/TU was longest for argumentative writing followed by exposition, narration and then description. There may have been a learning factor or practice effect present, as the order of rising complexity is similar to the order of writing. However, it appears that students' syntax was not specifically marked or discussed and as four weeks is a short time in the development of syntax, the learning or practice effect may not have been great. The conclusion in the study was that different variables possibly affecting syntax should be investigated before an outline of development of syntax is established.

Perron (1977) in a much-quoted study conducted with students in grades three, four and five, investigated the impact of mode on written syntactic complexity. He collected samples of writing in the four traditional modes from a total of 153 students in two classes at each grade level. Each subject wrote one composition per mode with the order of writing reversed for each class. Subjects wrote twice a week for 20 minutes every second day for two weeks. The results showed greater T-unit length for argument over exposition, exposition over narration, and narration over description at all three grade levels. However, at grades four and five, exposition and narration were not significantly different. The results supported those reported by San Jose (1972) and Seegers (1933) giving evidence on the impact of mode on the complexity of written syntax, even though mode and topic were confused in the study.

Crowhurst & Piche (1979) reported a study examining the

effects of audience and mode of discourse on the syntactic complexity of compositions written by a total of 240 students in grades six and ten. Each subject wrote on three topics in each of three modes: narration, description, and argument for each of two audiences. Topic was controlled across mode by use of a The number of words written per mode ranged picture stimulus. from 773 to 1149. At grade ten, the results showed a significant difference for words per T-unit in three modes. The order of complexity was argument, description, narration. At grade six, results showed syntactic differences only for argument. The order of complexity was argument greater than description and description equal to narration. Moreover, grade ten arguments and descriptions were more complex than grade six arguments and descriptions, but grade ten narrations were not more complex than grade six narrations. It was quite clear that mode is a factor which has to be considered in composition research involving complexity.

Crowhurst & Pichesalso noted that topic exerted a significant effect on W/TU. They reported that, "There were a number of significant two-, three- and four-way interactions involving topic" (p. 106). But the interactions involving topic were not discussed as, "... topic was controlled by crossing it with all variables, and since topic was not a variable under examination in this study... " (p. 106).

Crowhurst (1980), in a study partially replicating and partly extending Crowhurst (1978), examined, "... the effect of two modes of discourse, narration and argument, on the syntactic complexity of compositions written by sixth-, tenth-, and twelfthgraders" (p. 7). The final sample consisted of 80 subjects in each of the three grades who wrote three times in each mode. As

in Crowhurst's earlier study (1978), topic was controlled across mode by use of a picture stimulus. The results showed that mean T-unit length was greater in argument than narration at each grade level and significant at the .001 level.

Crowhurst (1980) also discussed topic effects. It was reported that there were, "Substantial differences ... between compositions in the same mode of discourse written by individual students. At all grade levels, in both modes of discourse, it was common to find differences in mean T-unit length of eight, nine, and ten words between two compositions by the same student" (p. 11). Crowhurst warned against applying norms of syntactic development to individual students.

Witte and Davis (1980) asked whether syntactic complexity is a stable individual trait within and across modes. The researchers tried to answer the question by using descriptive and narrative compositions. The subjects constituted 45 first-semester college freshmen in two sections. One narrative and two descriptive samples were collected during weeks two through four of the term. Subjects had 45 minutes for each descriptive topic and one hour and 15 minutes for the narrative. Both descriptions were written on the same day while the narration was written, "... following an interval of three class meetings" (p. 10). The mean number of words for the descriptions was 233 and 216 while for the narrative it was 539. Analysis of variance indicated the W/TU was not stable for individuals across topics within the mode of description. Also, W/TU was not stable for individual students across description and narration. The authors suggested that this conclusion was tentative even though it supported data from San Jose (1972), Perron (1977), and Crowhurst (1978, 1980).

As the review of the literature shows, for many years there has been an awareness that mode and/or topic differences can affect syntactic complexity in written compositions. Mode was discussed as early as 1933, topic in 1937. Wiseman & Wrigley (1958), and Anderson (1960) found variation in written performance due to topic. Since Hunt (1965), studies have mostly used the T-unit to measure complexity variation. San Jose, Perron, Crowhurst and others have all found differences in syntactic complexity due to mode of discourse. Though topic and mode were confounded in some studies, and factors which might affect reliability such as length of samples were not always taken into consideration, the evidence is quite strong that mode and/or topic can affect syntactic complexity in written composition. Certainly there is enough evidence to indicate that researchers conducting studies in related areas such as index of development, sentencecombining, and quality versus complexity should be controlling for mode and taking into account potential variation due to topic.

<u>C. Second language research using mean T-unit length as a measure</u> of complexity

In second language studies, research has investigated the relationship between syntactic complexity and composition quality; complexity and levels of proficiency; W/TU as an index of development; W/TU as a measure to determine increases in complexity due to sentence-combining practice; and W/TU in determining the effects of modes of discourse. Research has been done with both public school students and adults studying English as a second language and English as a foreign language. English as a second language
generally refers to the study of English in an English speaking environment, while English as a foreign language (E.F.L.) generally refers to the study of English in a non-English speaking environment. Research has also been done investigating syntactic growth in languages other than English.

The following section reviews studies investigating syntactic complexity, using W/TU as a measure, as a method to discriminate between levels of proficiency and as an objective measure of syntactic growth (e.g., Cooper, 1976; Larsen-Freeman and Strom, 1977; Kameen, 1981). In addition, one study is included which investigates the relationship between syntactic complexity and mode of discourse (Yau, 1983). Most of the studies involve adult learners studying English as a second or foreign language (e.g., Perkins, 1980; Kameen, 1981) and there are several reports on the development of complexity in learning other languages (e.g., Cooper, 1976; Monroe, 1975). There are studies which analyze samples of free compositions (e.g., Flahive and Snow, 1979; Larsen-Freeman, 1978) and a group of studies which use a rewrite passage (e.g., Gaies, 1976; Sharma, 1979). The studies vary in quality as do the first language studies reviewed in the previous section. The reliability of the results and conclusions are at times questionable, but since there is no plethora of studies in L2 learning, especially in the area of complexity in writing, most of the studies which add any information relating to the subject of this present study are included here.

Studies involving the use of free writing

Cooper (1976) reported a study done with four levels of native English speaking American college students learning German as a foreign language and one group of professional German writers.

The sample included the writing from a total of 40 students, ten from each of four levels, plus writing from ten German journalists. Samples of 500 words were collected at each level including the professionals. The writing of the college students was based on a variety of subjects including themes, papers, and homework assignments. The writing of the journalists came from articles written in <u>Die Zeit</u>. It was reported that at level one, students wrote about situational topics and described events and objects while at the upper levels, subjects wrote critiques of articles and analyzed literature. Differences in T-unit lengths were significant between the first and third levels and between the second and fourth levels and for professional writers above the: highest college level. The results for the college writers may have been confounded by the lack of control of the subject matter in the writing samples.

Larsen-Freeman and Strom (1977), in a pilot project, investigated the potential of the T-unit as the basis for an index of development in E.S.L. writing. Compositions were collected from 48 undergraduate and graduate non-native speakers at UCLA. The compositions had been written as part of the placement examination. There was no information given on modes or topics. Thirty seven of 48 subjects had been instructed to write 200 words while others, presumably a group showing less proficiency, were required to do less. The compositions were holistically evaluated and assigned to five levels of proficiency. The average number of words per composition for the five levels from poor to excellent were 132.53, 150.55, 177.33, 218.91, and 228.00 respectively. An analysis of variance showed mean T-unit length was not significant in discriminating for the five levels although there was a general

trend to longer T-units as the levels went up. It was suggested that the high standard deviations and the difficulty in counting T-units in lower groups affected the significance of the results. The counting of mean number of words per error-free T-unit proved significant for differentiating between the five levels. However, considering that the criterion for an error-free T-unit was perfection in all aspects, one must wonder about the size of the sample after the flawed T-units had been removed.

Larsen-Freeman (1978) followed the pilot study of Larsen-Freeman and Strom (1977) with an examination of 212 compositions written as part of the E.S.L. placement test at UCLA. Subjects had 30 minutes to write on a single expository topic. They were instructed to write 200 words. The subjects were placed in five groups based on the overall results of the entrance examination. The lowest group would require "a great deal" of E.S.L. instruction before entering regular classes and the highest had E.S.L. requirements waived. The mean composition lengths for the five groups were 146.10, 185.66, 186.51, 232.76, and 213.20 words respectively. For mean T-unit length, there were significant differences among the five groups; however, it did not discriminate well among the top three groups, which were closely clustered. In addition, differences for mean error-free T-units were significant for all five levels.

Vann (1978) conducted a study involving 28 adult Saudi E.S.L. subjects. The subjects were enrolled on post-graduate courses as well as E.S.L. courses. The task to elicit the sample involved an oral and written response to a silent film. For the written response, the subjects had 20 minutes to write a composition telling what happened and giving their opinion of the film. The

written compositions were then assessed and grouped into three levels of proficiency. The mean number of words written was 214.80. Of several factors tested, the mean length of error-free T-units had the best correlation with TOEFL scores. Also, mean T-unit length discriminated between high and low grouped compositions at a statistically significant level. The implication was that error plus complexity are strong criteria in evaluating proficiency in E.S.L. writing.

Flahive and Snow (1979) analyzed 300 compositions written by students from six levels of E.S.L. The purpose was to determine how accurately objective measures could discriminate among the six levels. Students were given 50 minutes to write one expository composition from a list of several topics. The results showed T-unit length increasing over the six levels though there was little difference between groups four and five. When the six groups were collapsed to three for statistical analysis, T-unit length was found to discriminate for the reduced, three group array. It was concluded that, "... the sentences of ESL students grow in complexity in ways similar to the sentences of native speakers" (p. 175).

Perkins (1980) conducted a study with University adult E.S.L. subjects. He analyzed 29 final examination compositions from the most advanced E.S.L. course offered. Subjects had 50 minutes to write and a choice of three topics. The choices appeared to contain one descriptive and two expository topics. The compositions were analyzed using various objective measures including T-unit length. As one part of the study, the subjects wrote the Test of Standard Written English which is a grammar recognition test. It was found that mean T-unit length did not correlate

significantly with the TSWE.

Kameen (1981) reported on a study involving 47 intermediate level intensive E.S.L. students at the University of Louisville. Subjects wrote one composition, given a choice of four topics and 60 minutes to write. Subjects also did the "aluminum" rewrite and the Michigan Test. The composition grades were assigned based on an analytic scale. Kameen counted both words per T-unit and error-free words per T-unit. It was found that the words per T-unit index for the aluminum rewrite correlated at the .01 level with overall scores on the Michigan Test and with composition grades. Also, mean T-unit length correlated better than did error-free T-units. Kameen had had to explain 12 vocabulary items in the aluminum rewrite which may have affected the results. Also, again there is the potential problem of a small number of words in the composition sample once flawed T-units are removed. The mean number of words written in the composition portion of the study were not reported. Also, it was not reported whether there was also a significant correlation between error-free T-units and the Michigan Test and composition scores. Studies involving the use of rewrite passages

Monroe (1975) conducted a study involving four levels of native English speakers studying French as a foreign language plus one group of native French speakers. In total, there were 110 subjects participating. The subjects did a rewrite passage though not the aluminum rewrite. Six objective factors were looked at including mean words per T-unit. Mean differences, although they had an upward trend for each group, were only significant for non-adjacent groups except for the native speakers, who showed a significant difference over the next lower group.

Gaies (1976) conducted a study to see if the aluminum passage could be used to measure the syntactic development of E.S.L. students. The aluminum rewrite was given to 20 intensive E.S.L. subjects and five highly proficient non-native speakers doing graduate work, and 16 native speakers who were also graduate students. The mean T-unit length of the 16 native speakers was higher than that of the five highly proficient nonnatives and the latter were higher than the 20 intensive E.S.L. subjects. There were low correlations between the W/TU and the English structure section of the TOEFL. Also, Gaies found a wide range of performance among the 20 intensive E.S.L. subjects.

Jovkovic (1977) investigated the development of syntactic complexity in the English writing of Yugoslav students studying E.F.L. and, in addition, looked at the development of syntactic complexity in Serbo-Croatian and compared it to the syntactic development of native English speakers at the same levels. A rewrite passage was the writing instrument and mean T-unit length one of the indices of development. Subjects from the fifth grade through the last year of college were used in this study. The results showed significant increases at .001 probability across levels for all three language groups tested. Words per T-unit was the best of the five indices used. Jovkovic noted that the similarity was almost identical between Yugoslav speakers of English and English native speakers. Jovkovic suggested that there was a direct transfer of embedding ability from first to second language.

Sharma (1979) had 60 Canadian E.S.L. college students write the aluminum passage. The 60 students were identified as low and high intermediate and advanced levels according to the Michigan

Test and from composition scores. The rewrite was analyzed for several factors including W/TU and words per error-free T-unit. It was reported that error-free T-units and words per error-free T-unit seemed to be the most productive in separating the three proficiency levels. Tests of significance showed differences at the .01 level for words per error-free T-unit for low intermediate and advanced levels.

The final study reported in this section is that of Lewis Pike (cited in Kameen, 1981). Pike tested the writing of 243 Spanish and 199 Japanese speakers. His subjects wrote, in English, four 10-minute compositions on assigned topics and did the aluminum rewrite passage. He found very low correlations between grades assigned to the free writing samples and mean words per T-unit in the aluminum rewrite, suggesting that the rewrite passage may not be a reliable objective test instrument to assess composing ability.

One study investigating the effect of mode of discourse

Yau (1983) investigated syntactic complexity in the writing of Chinese secondary school students learning English in Hong Kong. Yau analyzed compositions written by students at three grade levels, roughly the equivalent of grades nine, 11, and 13. Twenty students at each level wrote one composition in the narrative and one composition in the expository mode. It was reported that students averaged approximately 200 words per mode with the majority writing between 180 and 250 words per composition. One part of the study was to look for significant differences in W/TU across the three grade levels and between the two modes of writing. Analysis showed a significant difference in mean T-unit length across the grades for the two modes combined.

There was also a significant difference between the two modes of writing within each grade level. However, for each mode separately there was a significant difference between grades nine and 13 and 11 and 13, but not between grades nine and 11. The results support findings of first language studies which show a mode effect on syntactic complexity as measured by W/TU and also show the problem of using samples of writing which are not differentiated by mode. The results of this study showed a significant difference in syntactic complexity across three grade levels for modes combined, but when complexity was analyzed for modes separately, there was no significant difference for the two lowest levels in either mode.

As the research in this section has shown, syntactic complexity as measured by mean words per T-unit, has been a major area of interest in second language development. The main focus of investigation has been to determine whether W/TU differentiates among levels of proficiency and whether it has value as an objective measure of syntactic development in the writing of second language students. One aspect of this research is the possibility of establishing an index of development of complexity. The problems affecting the reliability of some of the studies cited are that they did not always control for situational factors such as mode of discourse and/or topic and did not always ensure large enough word samples for reliable analyses of mean words per T-unit. As of 1983, only one study had been done analyzing the effect of mode on syntactic complexity. The results of that study did show a positive result for two modes of discourse. However, more research is obviously necessary 1) to confirm Yau's results 2) to find the effects of the two modes not

tested in Yau's study and 3) to determine the effects of mode on other language groups at different levels of proficiency. When that is done, it will be much easier to evaluate previous research involving syntactic complexity in written composition.

D. Minimum sample size

For a mixed sample of writing, Crowhurst (1978) reviewed several studies which researched syntactic complexity in the writing of first language students. Based on Hunt & O'Donnell (1970), Perron (1974), Blount, Fredrick and Johnson (1969), and others, she concluded that:

On the basis of available evidence, it seems that writing samples of something over 400 words should be used in order for mean T-unit length to be a reliable measure of syntactic complexity in writing corpora composed of writing in various modes. No investigation has been made of words needed for reliability in corpora composed of a single mode of discourse, or of differences which may exist among various modes in this respect. (p. 27)

Yau (1983), in her study of syntactic complexity in compositions written by Chinese speaking second language learners, used samples averaging 200 words per composition for comparing modes and samples averaging 400 words of mixed writing for comparing syntactic complexity at different grade levels. Yau reviewed O'Hare (1973), O'Donnell et al (1967), and Combs (1976), who used samples averaging 400 words, 200 to 500 words, and 300 words respectively. Yau also noted that Hunt (1970), Monroe (1975), and Stewart (1978) used sample sizes of less than 200 words in their analyses of "rewrite" passages. She also stated that, "... smaller sample sizes have been used by researchers and considered to be adequate." (p. 12). Whereas Yau didn't make a statement as to what she considered the minimum sample size should be, she implied

that the sample size she used, an average of 200 words for mode comparisons, was adequate.

Wynn (1977) actually conducted a study to determine the minimum sample size required to obtain a reliable estimate of a student's ability in the use of syntax when using mean T-unit length as a measure. Compositions were collected from 29 seventh-, 30 tenth- and 12th-graders, and from 30 upperclassmen. As one measure analyzed, the mean number of words per T-unit was computed for each grade and for all grades combined.

The mean number of words per T-unit for the seventh grade was correlated with the mean number of words of the first T-units of all the seventh grade compositions. The mean number of words per T-unit for the seventh grade was next correlated with the mean of two means: the mean number of words for the first and second T-units from all seventh grade compositions. The mean of three means was used for a third correlation. The correlation procedure was repeated to encompass ever-increasing sample sizes from the grade's compositions. ... The correlation procedure was applied in the same manner ... to grades seven, ten, twelve, and to the college students as well as a combination of the four grades. (p. x)

It was found that samples of 20 T-units or 20 sentences correlated in the .80's and .90's with the mean of the whole. It was concluded that for reliability in determining mean T-unit measures, a minimum of 20 T-units or 20 sentences was required. By looking at words per T-unit found in different modes at different grades in other complexity studies, the criterion level of approximately 20 T-units would translate into from 200 to 300 words depending on the mode of the composition and the grade level.

In studies investigating the relationship between syntactic complexity and mode of discourse in written composition, the following sample sizes have been used:

1) Johnson (1967) with two compositions per mode had samples averaging 259, 121, and 150 words;

- 2) Bortz (1969) used an average of 97.53, 127.39, and 142.47 words respectively for description, narration, and exposition.
- 3) In San Jose's (1972) study, the average number of words for narration, description, exposition, and argument were 441, 361, 309, and 303 words respectively;
- 4) Perron (1976a,b,c) used an average of 75 words per mode
 in grade 3, 118 words in grade 4, and 157 words in grade 5
 for his analysis in comparing modes;
- 5) Witte & Davis (1980) had sample sizes averaging 233 and 216 words for two descriptions and 539 words for a narrative sample.
- 6) Crowhurst's (1978) sample size, based on three topics per mode, ranged from 773 to 1149 words.

In E.S.L. research using mean T-unit length as a measure of complexity in composition writing, the following sample sizes have been used:

- 1) Cooper (1976) used an average of 500 words for a mixed sample of writing;
 - Larsen-Freeman and Strom (1977) based results on an average number of words per composition of from 132 to 228 over five levels of proficiency;
 - 3) Larsen-Freeman (1978) used mean composition lengths of from 146 to 213 words respectively for five levels of proficiency;

4) Van (1978) based results on a mean number of words of 214. As was mentioned in Chapter One, it is difficult to say with any certainty what the minimum sample size should be for comparing syntactic complexity between modes in compositions written by E.S.L. students. However, based on the available evidence, a 'safe' figure might be a minimum of 200 words.

E. Summary of previous research

The T-unit has been established as a reliable tool for measuring syntactic complexity in the writing of students learning English as a first language. Various studies have shown mean words per T-unit to be a reliable measure to discriminate between groups of students by age or grade (e.g., Hunt, 1965; Blount et al, 1969; Stewart, 1978). The use of the T-unit measure to establish an index of development of complexity for individual students has been shown to be premature as research into the effects of situational factors such as mode of discourse and topic have indicated that the writing task can affect syntactic complexity as does the grade level or age of the student (e.g., San Jose, 1972; Crowhurst, 1978, 1980). Existing research, here, specifically research on mode, has indicated that more research and research with better controls will have to be done before W/TU can be used as an index of development of syntactic complexity in writing.

While empirical research in second language acquisition is in its early stages of development, the methodology and the fields of inquiry necessarily overlap first language research since both are concerned with the same aspect of language proficiency. Second language study appears to have adopted the T-unit as a standard measure of syntactic complexity in composition studies. In the research reviewed here, studies have been carried out to answer the same questions as have been asked in first language development: 1) do W/TU differentiate between levels of proficiency among L2 students as they do for grade and age among L1 students and are W/TU then a reliable objective measure of language proficiency in writing; 2) is there evidence for the use of mean words per T-unit as an index of development in the writing of second language students; 3) can mode of discourse affect syntactic complexity as it has been shown to do in L1 studies. Although the results are somewhat mixed, the evidence indicates that for L2 students, W/TU does differentiate among proficiency levels (e.g., Larsen-Freeman, 1978; Flahive and Snow, 1979; Kameen, 1981) and that mode of discourse may effect complexity (Yau, 1983).

In the L2 research reviewed, the problems which could have affected the reliability of results are the same as those which could have affected the reliability of L1 results. Some L2 studies (e.g., Cooper, 1976; Perkins, 1980) did not control for mode while some controlled for mode but not topic (e.g., Flahive and Snow, 1979; Perkins, 1980). In some instances, word counts necessary for reliability in analyzing pieces of writing for complexity were smaller than recommended (e.g., Larsen-Freeman and Strom, 1977; Kameen, 1981).

Whereas second language studies, with their faults, indicate that L2 students progress in their development of syntactic complexity in writing as do L1 students, only one study has been done investigating the effect of mode of discourse. This present study, then, attempts to add information on the question of whether mode of discourse can affect syntactic complexity in the written compositions of adult E.S.L. learners.

CHAPTER THREE

DESIGN AND PROCEDURES

A. Subjects

The subjects for this study came from eight classes of Advanced level intensive E.S.L. students at King Edward Campus (K.E.C.) of Vancouver Community College. The eight classes included approximately 160 students. There was a slightly higher proportion of women. The ages of the students varied from 18 to 70 years with the majority being between 20 and 35. There were more than 20 primary language groups represented in the population. The main language group was Chinese with Cantonese the predominant dialect. Approximately half of the students were Chinese speakers from Hong Kong, Canton province in China, or Vietnam.

The E.S.L. students at K.E.C. had a variety of educational backgrounds from grade six in village schools to Ph.D.'s from recognized universities. The large majority had a high school education of some type with perhaps some technical training. Students were refugees, landed immigrants, or Canadian citizens. Most students had studied in the program from four months to one and a half years.

The Advanced level of English language training at K.E.C. is the third level of a potential six levels of study taking students from zero English to grade 12 equivalency. The students in the Advanced level come from the previous level (Intermediate), are continuing at the level, or come from outside the institution. Students are tested before entering the level and, therefore, form

a relatively homogeneous group. However, the only standardized "outside" tests used are the Gates-MacGinitie Reading Tests (1979). Students are required to have a grade equivalent reading level of 4.0 on the form D of the test for entry to the Advanced level and a grade equivalent reading level of 7+ on the form E of the test, in part, as successful completion of the level.

The Advanced level program gives students practice in the four skill areas of reading, writing, listening, and speaking, plus sentence structure study. Instructors use a variety of methods and resource materials built around a core program.

The Advanced level was chosen for this study for several It is at this level that students begin to participate reasons. regularly in composition writing. Students at this level can be expected to produce approximately 200 words per composition on the average and, in addition, the Advanced level had weekly \dot{y} composition writing, usually on the same day, as a regular part of the program. That fit in with the design of the study and conversely the study would not interfere to any great extent with the class work of the students. The students at the Advanced level would likely write on a variety of topics in different modes in any case and, therefore, it could not be seen that the students would be "harmed" in any way. It was decided to start with all classes because it was believed that the attrition rate would be high. Work, sickness, family responsibilities, and class changes would result in a large number of students missing classes over the eight week period involved, and, as a consequence, being taken out of the study.

The 61 subjects whose papers were analyzed for this study represented 12 primary language groups. There were 34 Chinese

speakers which included one Mandarin and one Hakka speaker and 27 "others" (Appendix C). The sample was representative of the general E.S.L. population in that statistical data from K.E.C. has indicated that approximately 60% of the E.S.L. students are Chinese speakers with Vietnamese and Punjabi following. The remainder include a large variety of languages similar to the sample used in this study.

The subjects included were 32 females and 22 males. (Biographical information was not complete for all 61 subjects). The mean length of time in English speaking Canada was 41 months. Thirty of 52 subjects had been at K.E.C. for one year or less. The mean age was almost 30 years with the lowest being 19 and the highest 60. The mean number of years of education was 11.87, the lowest being six and the highest 18. The mean reading mark, upon entry to the level, as determined by standardized testing was a grade equivalent of 5.12 as measured by Gates-MacGinitie reading tests (1979). The information is summarized in Appendix D.

B. Assignments and materials

For this study, compositions were written on eight different topics. There were two topics in each of four modes. The following definitions of mode were used by Perron (1977, p.8) and are used as criteria in the present study.

<u>Argumentation</u>: In using language that--in the main--argues a point of view, defends a position, expresses an emotional inclination, or tries to persuade, the writer is considered to be writing in the mode of argumentation.

- Exposition: In using language that--in the main--explains a procedure or an experience (in a restricted framework), the writer is considered to be writing in the mode of exposition.
- <u>Narration</u>: In using language that--in the main--tells a sequence of events, observances, or experiences, the writer is considered to be writing in the mode of narration.
- <u>Description</u>: In using language that--in the main--depicts people, places, things, and/or events in detail, the writer is considered to be writing in the mode of description.

Two topics were chosen for each mode in an attempt to reduce a possible topic effect and to ensure a large enough sample in each mode for reliability when computing mean T-unit length.

In this study, the lowest mean number of words per topic was 193.50 while the lowest mean number of words per mode was 389.58. Means for words and T-units are summarized by topic and mode in Chapter Four.

The topics chosen, along with the standardized instructions to the students, were discussed and agreed upon by the instructors involved and then typed on ditto masters. An example of a student assignment is given in Appendix E. Also, a list of standardized instructions for the administration of the assignments was discussed by the instructors involved and then typed on ditto masters (Appendix F).

The topics were chosen to permit as many students as possible to write with a minimum of preparation, and so that the written product would be in the desired mode. The topics were selected from suggestions contributed by participating instructors, from topics used in a pilot study two terms earlier, and from topics which the investigator had successfully used in teaching other classes. Participating instructors were then given a list of possible topics and asked to reject any topics found unacceptable for any reason. (The instructors knew the study was to look at differences between topics but they did not know what differences.) The investigator then made the final selection from those topics deemed acceptable. A file folder containing a dittoed assignment, a copy of the instructions to the instructor, and foolscap was prepared for each of the eight topics and the eight different classes involved in the study.

C. Procedures

The study consisted of the administration of eight different composition topics (Appendix G), two in each of four modes, to eight different classes (Appendix H) over an eight week period. The topics were assigned to classes in random order (Appendix I) from a list of random digits (Glass and Stanley, 1979, p. 512) so that each class of subjects wrote once on each topic over the eight week period of the study.

If students missed writing sessions, changed classes or withdrew from the program, they were taken out of the study, though they continued to participate in composition writing. Although on any one writing day, there would be 130 to 140 students in attendance, the absence of different students on different days plus class changes and withdrawals resulted in 63 different subjects having completed all eight composition assignments. A further two subjects had handwriting that was indecipherable and so were also taken out of the study, thus leaving 61 subjects. Compositions from each class in each topic were combined to give 61 papers on each topic, 122 papers in each mode and a total of 488 papers.

The participating instructors were told that the topics had been assigned to class in random order and that a folder containing dittoed copies of the assignment, foolscap, and the instructions to the teacher would be given to them prior to composition day. The night classes wrote on Thursdays which was their last day of classes before the weekend and the day classes wrote on Fridays which was their last day of classes before the weekend. The random order of assignment of compositions to class and the distribution of topics just prior to the composition class prevented any inadvertant preparation of students for the assignment. In addition, as has been stated previously, the students were not told they were participating in a study and as all students knew they wrote a formal composition once a week, there was no reason for them to not produce as natural a sample as possible under classroom conditions.

The completed compositions were collected immediately following the writing session, xeroxed, and the originals returned to the instructors to be corrected and returned to the students. This procedure was followed for the eight weeks of the study. The xeroxed, copied compositions were kept separate by class in file folders which were noted for class, time, and topic.

Scoring

After all the compositions had been collected and xeroxed, it

was determined from class registeres which subjects had written all eight compositions at the assigned times in their assigned classes. Each composition was then typed as written. Each subject was identified by student registration number and the number was used to code each composition. Each composition was further coded for mode, topic, class and session.

The original typed copies were then xeroxed for T-unit analysis. All scoring was done by the experimenter. Words were counted, T-units marked and counted, and mean T-unit length determined for each paper. Mean T-unit length was determined by dividing the total number of twords counted by the statal number of T-units. A total of 488 compositions were analyzed. An example of a scored paper is shown in Appendix B.

Words were counted partly in accordance with rules generated in first language studies (Crowhurst, 1978; O'Hare, 1973; Mellon, 1969; and O'Donnell, Griffen & Norris, 1967) and partly from discussion with colleagues experienced in teaching E.S.L. composition writing. A list of word count rules is shown in Appendix J.

Segmentation rules for T-units were similarly a combination of rules used in the above cited studies and rules which had to be created to take into consideration the many diverse structures which presented themselves in the compositions produced. The segmentation rules for T-units are shown in Appendix K.

Word counts (Appendix L) and T-unit counts (Appendix M) were independently checked. Four subjects were chosen at random by one checker and the eight compositions from each subject for a total of 32 papers were analyzed according to the given segmentation

rules for T-units. Where disagreements occurred, discussion took place in an effort to resolve the problem. Usually, disagreement was due to miscounting or neglecting to mark the end of a T-unit. If a disagreement could not be resolved, the checker's count was not changed. A Pearson's Product Moment correlation between the experimenter's and checker's T-unit counts for the 32 papers was .998.

A second independent checker counted words on the same 32 compositions. The words were counted using the segmentation rules for word counts. A similar process was followed for disagreements in word counts. If a disagreement could not be resolved, the checker's count was not changed and the experimenter's original count, of course, was never changed. A Pearson's Product Moment correlation between the experimenter's and second checker's word counts was .983.

D. Analysis of the data

- Pearson product-moment correlations were used to establish the reliability of the experimenter's scoring of word counts and T-unit counts. Independent scores of the check-coders were compared with corresponding scores given by the experimenter.
- 2. The data on mode yielded scores on one dependent measure, mean T-unit length. To determine significant differences between means for the four modes, six paired comparisons were made using the t-test for a dependent sample (Glass & Stanley, 1970, sec. 14.4). Results were tested for significance at the .05 level. The program used was Statistical Package For the Social

Sciences (Lai, June 1983) which was run at the University of British Columbia.

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CHAPTER FOUR

ANALYSIS AND RESULTS

The principal focus of this study was to determine if adult E.S.L. students would vary their use of syntactic complexity in composition writing in response to change in mode of discourse. To determine if there were significant differences in syntactic complexity between modes, 61 adult E.S.L. students each wrote two compositions in each of four separate modes. The compositions were collected and analyzed using mean T-unit length as the measure of complexity.

Two compositions were written in each mode in an attempt to reduce a possible topic effect and to ensure a sufficient minimum number of words for reliability when using mean words per T-unit (W/TU) as a measure of syntactic complexity. Although the minimum number of words required for reliability in a single mode has not been statistically determined, it appeared that sample sizes and recommendations from previous research indicated a minimum of 200 words per mode was desirable (Chapter Two). Students in this study wrote from a mean of 389 words in argument to a mean of 515 words in narration. The mean number of words, mean number of T-units, and minimums and maximums per topic are given in Table 1. The mean number of words, mean number of T-units, and minimums per mode are given in Table 2.

Table 1: Mean Numbers of Words and T-units by Topic Written by Advanced Level Students Included in the Present Study. N=61

Topic		Mean	S.D.	Min.	Max.
'Trip'	Words	279.98	115.22	141	678
	T-units	24.73	10.29	11	60
'Störy'	Words	235.91	49.70	149	400
	T-units	20.63	6.54	10	38
'House'	Words	217.31	73.14	100	641
	T-units	20.55	8.93	9	75
'Person'	Words	225.59	64.04	120	522
	T-units	19.45	6.87	9	41
'Racism'	Words T-units	199.00 15.67	80.72	: 109 5	603 39
'Citizen'	Words	198.86	57.29	1 00	428
	T-units	14.08	4.87	6	31
'Arranged'	Words	196.08	53.97	76	357
	T-units	15.45	5.68	7	38
'Mixed'	Words	193.50	55.76	92	395
	T-units	15.75	4.86	6	30

Table 2: Mean Numbers of Words and T-units by Mode. N=61

Mode		Mean	Minimum	Maximum
Narration	Words	515.89	290	1078
	T-units	45.36	21	98
Description	Words	442.90	220	1163
	T-units	40.00	18	116
Exposition	Words	397.86	209	1031
	T-units	29.75	11	70
Argument	Words	389.58	168	752
	T-units	31.20	13	68

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The first analysis was to determine mean number of words per T-unit by mode. Means and standard deviations by mode are shown in Table 3.

Table 3:

: Mean T-unit Length and Standard Deviations for Compositions by Mode of Discourse.

Mode	Ν	W/TU	S.D.
Narration	122	11.823	2.069
Description	122	11.508	1.771
Exposition	122	13.932	2.487
Argument	122	12.972	2.541

There is very little difference in the raw scores for narration and description. However, the results for exposition show one full word per T-unit over argument and a full two words per T-unit over either description or narration, while argument shows one full word per T-unit over description and narration. Significance of mode differences

To find if there were significant differences between means for the four modes, they were tested in pairs. The four modes gave six pairs, N-D, N-E, N-A, D-E, D-A, and E-A. The six pairs were tested using a t-test for dependent measures. The mean differences, standard deviations, t-values and probabilities are given in Table 5. The complete results from the t-test are provided by the SPSS, version H, Computer Reference Program (Appendix N). Table 4: Mean Differences between Modes of Discourse, Standard Deviations, Corresponding t-values and Probabilities. Degrees of Freedom=60

Mode	Mean Difference	S.D.	t-value	Probability
N – D	0.314	1.566	1.57	0.122(N.S.)
N-E	-2.109	2.323	-7.09	0.000
N–A	-1.152	2.696	-3.34	0.001
D-E	-2.424	2.375	-7.97	0.000
D-A	-1.467	2.615	-4.38	0.000
E - A	0.957	2.183	3.42	0.001

N=Narration, D=Description, E=Exposition, A=Argument N.S.=Not Significant at .05

The results obtained for differences in W/TU between the six pairs of modes cause the null hypotheses, which postulated no difference between modes, to be accepted for Ho 1 but are rejected for HO 2,3,4,5, and 6. In other words, there was no significant difference between the modes of narration and description, but there were significant differences between narration/exposition, narration/argument, description/exposition, description/argument, and exposition/argument.

The rejection of Ho 2,3,4,5, and 6 and the acceptance of Ho 1, showing significant differences between five of six pairs of means, supports previous results in L1 and L2 research. The exceptions are Perron's (1977) grade four's and five's where no significant differences were found for narrations and expositions; Crowhurst's (1978) grade ten's where there was a significant difference found for narration and description; and San Jose's (1972) grade four's where there was a significant between narration and description. The finding of no significant difference between the modes of narration and description supports results found in Rosen's (1969) study and results found in Crowhurst's (1978) study for her grade six's.

B. Comparison of direction of complexity with previous first and second language studies.

The results of analyses determining means (Table 3) and significant differences between means (Table 4) indicate a direction of increasing complexity in modes. The direction shown is description not different than narration, argument showing greater syntactic complexity than either description or narration, and exposition showing greater syntactic complexity than argument, description, or narration. This can be written as D=N < A < E.

The direction of increasing complexity for mode is similar to other L1 and L2 studies in that, in the majority of those studies, either exposition or argument showed greater syntactic complexity than either description or narration. Yau (1983) found Chinese speaking E.F.L. students at 3 levels wrote compositions in exposition which were syntactically more complex than those written in narration. Crowhurst (1980) found argument to show greater complexity than narration for three grade levels of L1 students. Crowhurst (1978) found argument to be greater than either description or narration with L1 students at two grade levels. Perron (1977) found argument to be greater than narration at two grade levels and both argument and exposition to be greater than either narration or description at one grade level of L1 students. San Jose (1972) found that her L1 grade four's wrote more complex

arguments and expositions than narrations or descriptions. Bortz (1969) found that L1 grade four's, five's, and six's wrote expositions which were more complex than either narrations or descriptions.

The results of this present study, indicating A < E and D=N, support some studies but not others, as mixed results have been shown. As examples: Perron's (1977) grade five's wrote more complex narratives than descriptions while Crowhurst's (1978) grade six's showed no significant difference; Bortz's grade four's, five's, and six's, all wrote more complex narratives than descriptions; and San Jose's (1972) grade four's wrote more complex arguments than expositions. The results of the present study in comparison with other L1 and L2 studies are summarized in Table 5.

Study	Language	Grade	Mode Direction
Present Study	L2	Adult	D = N < A < E
Yau(1983)	L2	F 3,5,7	N < E
Crowhurst(1980)	L1	Gr. 6,8,10	N < A
Crowhurst(1979)	L1	Gr. 6	D = N < A
		Gr. 10	N 🕻 D < A
Perron(1976)	L1	Gr. 3	D < N < E < A
		Gr. 4,5	D < N = E < A
San Jose(1972)	L1	Gr. 4	D < N < E < A
Bo r tz(1969)	L1	Gr. 4,5,6	D < N < E

F=Form, approximately equivalent to grades 9, 11, and 13.

A problem mentioned in several previous studies on syntactic complexity (Yau, Crowhurst, Perron) and in a paper on different styles of writing in modes (Kantor) was that many students, at least at lower grades, will write in a mode not suggested by the task given. This was also found in the present study. The experimenter read all 488 compositions, 61 in each of eight topics. Students appeared to write in the mode indicated by the topic in almost all of the compositions read in the narrative and descriptive modes. Topic one, <u>Trip</u>, had only 2/61 containing large elements of description. Topic two, <u>Story</u>, had no compositions written out of mode. Topic three, <u>Friend</u>, had 7/61 compositions which contained large elements of narration, and topic four, <u>House</u>, had no compositions written out of mode.

With the modes of exposition and argument, the situation was much different. With topic five, <u>Racism</u>, 23/61 papers did not adhere to mode as defined. With topic six, <u>Citizen</u>, 12/61 compositions appeared to be primarily out of mode. With the argumentative topic seven, <u>Arranged</u>, 26/61 appeared to be out of mode while with topic eight, <u>Mixed</u>, 14/61 wrote primarily out of mode as defined. In exposition and argument, it should be noted that many of those compositions which were written out of mode contained large elements of narration and description. The writing "out of mode" responses are summarized in Table 6.

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Table 6: Numbers of Subjects Writing Primarily Out of Mode of Discourse Indicated by the Task.

Mode	Number Writing Out of Mode
Narration	2/122
Description	7/122
Exposition	35/122
Argument	40/122

It is significant that, even though the modes of exposition and argument showed large elements of narration and description, the results indicated exposition and argument were still significantly greater in syntactic complexity than either narration or description. If there had been no significant difference between either argument or exposition and description or narration, one might hypothesize that writing out of mode had masked the true effect.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

This study was conducted to determine whether variation in modes of discourse would affect syntactic complexity in the writing of adult E.S.L. learners. To answer this question, eight classes of Advanced level E.S.L. students at Vancouver Community College wrote compositions on two different topics in each of narration, description, argument, and exposition. Two topics per mode were used in an attempt to lessen a possible topic effect and to ensure a large enough word sample for reliability in analyzing for mean words per T-unit. The two topics resulted in a mean number of words per mode of from 398.58 in argument to 515.89 in narration. Composition topics were randomly assigned to class and the compositions were written under standardized conditions over an eight week period. After all compositions were collected, only those subjects who had written all eight compositions at the specified times were included in the study. This resulted in eight different compositions from 61 subjects being included in the study which then gave 122 compositions in each of four modes. Compositions were analyzed to determine mean words per T-unit by mode.

The statistical procedure used to determine statistically significant differences between mode means was a two-tailed t-test for a dependent sample. Differences between means were tested at the .05 level of significance for six pairs of modes: narration/ description, narration/exposition, narration/argument, description/ exposition, description/argument, and exposition/argument. The results showed that there were significant differences at .001 or better between five of six pairs of means: N-E, N-A, D-E, D-A, and E-A.

A. Differences in complexity

Considering the size of the sample, the use of two topics per mode, the random assignment of topics to class, and the standardized writing procedures, the only conclusion can be that Advanced level adult E.S.L. learners at Vancouver Community College vary the degree of syntactic complexity with variation in mode except when writing in narration or description. As was discussed in Chapter Four, the results found in this study are similar to the results found in first language studies and the one other second language study.

Of the first language studies comparing modes of discourse with complexity, Crowhurst (1978, 1980), Perron (1977), San Jose (1972), and Bortz (1969) found significant differences among some or all modes tested (see Table 5). The exceptions were Perron's grade four's and five's in which no difference was found between narration and exposition, and Crowhurst's (1978) grade six's where no difference was found between description and narration. As Perron used only one topic per mode and had a very small sample size, it is very likely that the opposite result of a significant difference, found by Bortz, San Jose, Yau in second language, and in the present study is the "true" result. Although the result of no significant difference between description and narration was the opposite of the hypothesized result in this study, it does support the result found for Crowhurst's (1978) grade six's. As the design of Crowhurst's study should provide the most reliable results, it may be that narration and description will not usually result in a difference in complexity. The subjects in the present study had a grade equivalent reading level of 5.1, which is similar to Crowhurst's grade six's. However, for Crowhurst's grade ten's, the result was a significant difference for N-D as it was for Perron's, San Jose's, and Bortz's subjects. The mixed results from these different studies make it difficult to come to any conclusions regarding those two modes. It may be that once other test factors such as topic and sample size are taken into account, the result may depend on the age or grade level of the subjects.

For argument and exposition, the results of this study support the two other studies investigating those modes. Although the evidence isn't strong, as San Jose may have built a practice effect into her study and also used only one topic per mode, and Perron had a very small sample size and used one topic per mode, the indication is that one can expect a difference between argument and exposition. However, more research would have to be done to settle that question.

For argument versus narration and description, and exposition versus narration and description, it appears that there are significant differences in both first and second language writing. Of all studies reviewed, only Perron's grade four's and five's showed no difference between narration and exposition and that has been discussed. When the potential confounding factors in Perron's study are taken into account, a replication of that study may very well show a different result.

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Based on mode means and statistical differences between means, the indicated direction of complexity is $D = N \lt A \lt E$. This is similar to that found in previous first language studies and to Yau's study with Chinese speaking E.F.L. subjects in Hong Kong (see Table 5). The common result has been either argument or exposition greater than either narration or description. The only variation was Perron's (1977) grade four's and five's who did not write expositions with greater syntactic complexity than narrations.

The result in the present study of A \langle E, though not a great surprise, is the opposite to that found by Perron and San Jose. However, as discussed in the previous section, Perron used a single topic and had a small word sample while San Jose's results could be criticized because of a possible practice effect due to the sequencing of topics in her study, and she also used a single topic per mode. In addition to Perron and San Jose, Seegers grade four's, five"s, and six's, all showed argument to produce greater complexity than exposition although she did not use W/TU as a measure. In the present study, the result of A ζ E appeared to be determined by one topic, Citizen. This expository topic was 1.413 W/TU greater than the next nearest topic, Arranged, which was an argumentative topic. The expository and argumentative topics, Racism (E), Arranged (A), and Mixed (A) were all within a range of .56 W/TU (Appendix O). It may be that for exposition and argument complexity is more topic sensitive. However, with the few studies done and the potential for confounding effects within those studies, more studies with better controls will have to be

done to determine the relative effect of argument and exposition on syntactic complexity.

For the modes of description and narration, there have been somewhat mixed results. The present study indicated no significant difference as did Crowhurst's (1978) grade six's. However, Crowhurst's (1978) grade ten's wrote more complex descriptions than narrations while Perron, San Jose, and Bortz all found narration to produce greater complexity. The present study and that of Crowhurst perhaps had the better controls for potential confounding variables such as sample size and non-standardized procedures; however, even then Crowhurst's study showed different results for the two grades tested. It may be that in L1 writing, for narration and description, syntactic complexity is sensitive to age or grade. With the mixed results of the studies done to date, it cannot be suggested what the expected result might be in either L1 or L2 writing. Certainly further research is necessary to settle the question.

The existing data, including the results from the present study, do suggest that in L2 as well as in L1, students will use more complex structures when writing in argument and exposition than in narration and description. At this point in time, it is not known exactly why that is. It is a theoretical question and there is relatively little data to work with. However, there are several possibilities. The use of more complex syntax in argument and exposition may represent the transfer of a learned response from a student's native culture. When data becomes available on the effects of mode variation on syntactic complexity in written discourse in other languages, it may be possible to say more about the similarity of L1 and L2 responses. However, complexity studies in other languages wouldn't necessarily tell us whether the response to variation in mode reflected an inherent cognitive process or a learned response within the specific culture.

A second possibility explaining the similarity of L1 and L2 responses to mode is that it is the result of a system of logic inherent in the second language, in this instance, English. That would lend support to theory which suggests that the process of learning a second language is similar to the process of learning it as a first language. Again, no positive statements can be made until more information is made available on responses to mode variation in other languages.

A third possibility is that the apparent variation in written syntactic complexity reflects universal thought processes. In support of this theory, some general statements have been made. In Crowhurst's (1978) study of first language writing, she at a suggested that, "Perhaps high syntactic complexity in argument" is a function of the essential nature of argument" (p. 107). Yau, in her study with E.F.L. students in Hong King, proposed that, "Narration does not require the kind of abstraction that exposition or argumentation entails and is, therefore, the least cognitively demanding of the three to process" (p. 109). Perron (1977), with less abstraction, wrote, "Apparently, the modes of discourse present different syntactic challenges to writers in the elementary grades studied here. Such results indicate that performance tasks in writing encourages switches in underlying structures" (p. 13). The statements by Crowhurst and Yau are intuitively attractive as explanations. It is reasonable that the complexity of thought or the relatively more complex inter-
relationship of propositions required in argument or exposition ... is then reflected in the syntactic complexity of written discourse.

It may not be possible at the present time to say more about syntactic complexity, mode, and thought processes without getting involved in a philosophical discussion. For instance, Kineavy (1971) suggested that the four modes of discourse are grounded in certain philosophic concepts of the nature of reality. He said:

The ultimate attempt of discourse to refer to reality should ... be grounded in the nature of reality, not in the nature of language. To each of four modes of discourse there corresponds a principle of thought which permits reality to be considered in this way. Therefore each of the modes has its own peculiar logic. (pp. 36,37)

Then we assume that syntactic complexity in writing is a reflection of the thought processes required to express that logic.

Hoetker (1982) would suggest that the last statement should not be accepted uncritically. In discussing the effects of mode variation on syntactic complexity, Hoetker reviewed Rosen's (1969) study. Referring to Rosen, Hoetker said:

He also noted, however, that there was more variation in syntactic complexity from mode to mode in the papers written by superior students. He ascribes this to the superior adaptability of the brighter students, but the finding should warn us that observed differences in the language used in different modes cannot be identified uncritically as essential differences in the characteristic requirements of different modes. (p. 382)

Obviously, it is not known why L1 students appear to use relatively more complex syntax in arguments and expositions and it is not known why some L2 students apparently respond in the same way. It may not be possible to know. However, for whatever is happening below the surface, the evidence does appear to indicate that for both first language and second language English students, the task, here, specifically mode of discourse, does cause

variation in the relative complexity of written syntax, and there are practical implications resulting from this observed phenomenon which are discussed in sections E and F of this chapter.

C. Adherence to mode of discourse criteria

One factor which has been mentioned in previous studies (e.g., Kantor, 1976; Crowhurst, 1978; Yau, 1983) is that students will not always write in the mode of discourse indicated by the task. It is either necessary to design studies which use compositions written primarily within mode or at least to take out of mode writing into account in the results.

In the present study, as was shown in Chapter Four, approximately one third of the papers written in the modes of exposition and argument contained large elements of narration or description whereas papers written in the latter modes were very largely written in those modes as defined. Even with large elements of out of mode writing, the present study showed significant differences between argument or exposition and narration or description. If papers are analyzed assuming mode from stimulus rather than from modelas; product, cout of mode writing could possibly mask a true effect when looking for differences between modes. Also, in this study one might presume that if only papers written primarily within mode were analyzed, the differences between exposition or argument and narration or description might be greater than they otherwise were.

Out of mode writing is not a new phenomenon. Yau, in her

study of E.F.L. students in Hong Kong said that, "A subjective examination of the F.3 expositions suggested that many of the F.3 students turned the exposition into a kind of narrative description.. Even those who managed to conform to the writing instruction made use of a substantial number of narrative details as support for their expositions" (p. 107).

Crowhurst (1978) also found a significant incidence of subjects writing out of mode. As she states:

At Grade 6, argument was the most syntactically complex with no significant differences between description and narration. The leading position of argument at Grade 6 was achieved despite the presence in the cell of 17 out of 40 subjects who failed to write arguments consistently and whose writing was less syntactically complex than that of subjects in either narration or description. (p. 91)

Kantor (1976), in a study of composition writing, discussed how children use a variety of modes and methods to support their arguments. He says:

Although younger students may lapse into narrative or descriptive modes, perhaps as a natural tendency, they may be using these modes symbolically as a means of performing more sophisticated intellectual tasks. And, responding to writing stimuli designed to elicit the modes of exposition or argumentation, they may employ the more "comfortable" modes to create as well as to discover the arguments necessary to meeting the demands of the assignment. (p.6).

In the present study, a common strategy to deal with arguments and expositions in those compositions which were to a large degree written out of mode was to use a narrative approach. Students would respond to the task by telling a story which indicated their point of view (Appendix P). Another common occurrence was for students to write a background in the form of a narration or description and then give their points of view in one, two, or three sentences near the end of their compositions. It is not strictly within the bounds of this study to speculate exactly why

students often appeared to write out of mode. It could simply be that the adult E.S.L. subjects in this study don't have the experience to write in exposition or argument as those modes are defined. It may be that they don't have the facility with, and knowledge of, the syntax required to write effectively in those modes. It could be a lack of vocabulary necessary to write in the topics tested or perhaps the manipulation of relationships between more complex propositions requires a certain capacity, as yet undefined, that lower level E.S.L. and E.F.L. learners do not have. An examination of those compositions which exhibited a high proportion of narration and description along with an examination of the background and language abilities of the subjects who wrote those compositions might prove fruitful.

What is important is that researchers and instructors be aware of the possibility of out of mode writing and examine compositions for mode as product rather than assuming mode from stimulus since E.S.L. students at certain levels of proficiency may not write in modes as we define them!

D. Words per T-unit as an index of complexity

Because W/TU has been shown to be a simple to use and reliable objective measure of syntactic complexity, considerable research has been done in both first language (e.g., Hunt, 1965; O'Donnell et al., 1967) and second language (e.g., Larsen-Freeman, 1978; Gaies, 1976) to evaluate the possibility of establishing norms of development using W/TU as a measure. It has been established in L1 research that, because W/TU is not stable for individual students within and across modes of discourse (e.g., Crowhurst, 1978; Witte and Davis, 1980), W/TU cannot be expected to give a reliable measure of an individual's syntactic development. This is supported by other studies investigating purpose of writing (Rosen, 1969) and audience (Crowhurst, 1978) which have shown complexity to be a function of those two variables.

With respect to second language acquisition, Gaies (1980) has said:

The attractiveness of an index like mean T-unit length is two-fold: first, it would be a global measure of linguistic development external to any particular set of data and second, it would allow for meaningful numerical comparisons between first and second language acquisition. (p. 54)

In L2 research, Yau has shown that mode is a variable which can affect syntactic complexity in writing. The present study provides information which supports Yau and indicates that an index of development would have to take into consideration modes of discourse. Though other situational factors have not yet been researched in second language, future studies which attempt to provide information on developmental aspects of syntactic complexity might have to control for or specify factors such as audience, topics, and purpose of writing.

For groups of students, W/TU could be a useful tool for description or classification as is a standardized reading test. For second language subjects, an index would allow for comparisons of syntactic development between other groups of second language learners and also between L2 subjects and first language learners. As an example of the potential for using W/TU for comparison with groups of language learners, one might ask whether adult E.S.L. students progress as quickly in their development of complexity 68.

as do L1 students or other L2 subjects. A comparison of mean T-unit length by mode for various studies is given in Table 7. The numbers of topics used per mode are given in brackets in the right column. Results from five studies which are comparable either by grade, level, or reading mark are included. T-unit results from many L2 studies have been ignored because they either did not control for mode or topic, did not state in the reports the mode and topic used, or a rewrite exercise was used as the task.

As can be seen in narration, the subjects in the present study wrote words per T-unit higher than Perron's high grade five's, Crowhurst's (1978) grade ten's, Crowhurst's (1980) grade six's and Yau's E.F.L. F.7's, the highest level second language learners in the Hong Kong public schools. In description, subjects wrote W/TU higher than Perron's high grade five's and Crowhurst's (1978) grade six's. In exposition, subjects wrote W/TU higher than Perron's high grade five's and Yau's F.5's. In argument, subjects wrote W/TU above Perron's combined grade five's, above Crowhurst's (1978) grade six's but less than Crowhurst's (1980) grade six's. It appears that, if one accepts a first language reading test as a valid instrument for assessing second language reading proficiency, then certain rough comparisons can be made with the studies presented. Second language subjects in this study are further ahead in the development of syntactic complexity than they are in their reading development when compared to first language students and E.F.L. non-adults. The results, though obviously based on inadequate data and far from conclusive, give a suggestion that for adult E.S.L. learners, the development of syntactic complexity in writing may proceed more rapidly than the development of reading ability.

A Comparison of Results from Studies Investigating Mode Differences Using Words Per T-Unit.

Study	Grade	Ν	D	E	А	Topics
Perron	Gr. 3	7.20	6.20	8.15	10.42	(1)
LT 1977	Gr. 4	8.91	7.59	8.98	12.81	(1)
	Gr. 5	9.56	8.48	10.42	13.06	(1)
High	Gr. 5	10.70	9.73	11.78	14.28	(1)
Crowhurst Ľ1 1978	Gr. 6 Gr. 10	10.13 11.15	10.45 12.81		11.75	(3)
Crowhurst L1 1980	Gr. 6	10.60			13.78	(3)
	Gr. 10 Gr. 12	12.48			16.06	(3)
Yau (EFL)	F.3	9.0		11.04		(1)
1702	F.5	10.0		12.71		(1)
	F.7	11.48		15.64		(1)
Present Study ESL	(Read 5.1)	11.82	11.50	13.93	12.97	(2)

The possibility that mode can significantly affect syntactic complexity in E.S.L. writing has implications for any area of research in which complexity is a factor. Two of those are sentence-combining (S-C) studies and quality studies. In S-C studies, where the aim is to discover the effectiveness of sentencecombining practice, it is necessary to pre- and post-test in the same mode. A researcher who uses a narrative or descriptive composition in a pre-test and an expository or argumentative topic in a post-test will very likely find an increase in complexity. Of course, it is just as likely that the difference is due to mode as to the S-C practice. A similar problem exists with quality studies which test to find the relationship between overall quality and syntactic complexity in composition writing. If it is true that argument and exposition will consistently produce higher syntactic complexity than narration or description, then, theoretically an hypothesis of no-significant difference would have to assume that expositions and arguments always produce better writing than narration or description.

It has been discussed before, but one has to remember that W/TU is a rough measure of complexity. O'Donnell (1976), in discussing children's writing, reminds us that, "... indices based on mean length of syntactic units do not discriminate among the various ways length can be achieved" (p. 33). Also, it has to remembered that if syntactic complexity provides another point of view of writing development, it is only one factor in writing. As Raymond (1982) has pointed out:

It is not necessarily true that any given sample of prose with long T-units is necessarily better than another sample with short T-units, not even if they both contain precisely the same information. (p.401)

F. Conclusions and suggestions for further research

T-unit analysis has been used to measure syntactic complexity in a variety of areas of composition research. The need for research on mode effects in composition writing is well established. In first language, studies on mode effects have indicated that conclusions drawn from data in studies which have not taken mode into account may be invalid. Whereas E.S.L. research has similarly investigated different aspects of composition writing involving measures of complexity, at this point in time, very little research has been done on the effects of situational variables. Mode of discourse is one variable which has generally been ignored in composition studies.

The results of the analysis of the compositions gathered for this study support the hypothesis that mode can significantly affect syntactic complexity in compositions written by adult learners of English as a second language. The results showed that for the Advanced level adult E.S.L. subjects in this study, the degree of complexity as measured by W/TU depended on the mode of discourse except for narration and description which showed no significant differences between means indicated a direction in complexity of D = N \leq A \leq E. The results are similar to those found in first language studies and to Yau (1983) in E.F.L. It is quite clear that the mode results found in the present study indicate that classroom instructors, researchers, and others involved in testing and evaluation should be aware that argument and exposition may result in more complex syntax than either narration or description. For those who teach and assess writing, it should be recognized that narration and description may not "stimulate" or give students the opportunity to use more complex structures as do argument and exposition.

In addition, previous complexity studies which have based results on samples collected in which mode has not been controlled may have to be re-evaluated. This applies to studies investigating T-unit as index of development, sentence-combining studies which aim to show an increase in complexity due to S-C practice, and studies comparing overall quality with complexity. Much of the research that has been done in second language writing lacks validity and reliability because of sample size, or lack of standardized procedures or lack of controls for potential confounding variables. The validity and reliability of results from future composition studies will be increased considerably if investigators control for mode as well as topic, and third ensure large enough sample sizes for complexity analysis.

Two studies, the present study and that by Yau, indicate that E.S.L. students show a similarity to first language learners in response to a given writing task. What this means in relation to the question of similarity between first and second language development generally will have to be discussed in the future when more data are available. To gather those data, as there is relatively little research in the development of E.S.L. writing, a replication of the present study using the same topics or different topics as well as investigation at other levels of proficiency and

in other languages would be useful. Of course, as mode affected complexity in E.S.L. compositions, it would also be useful to investigate other situational factors such as purpose for writing, audience, and time for writing.

The W/TU measure of syntactic complexity is a reliable but unsophisticated measure. It does not tell us how complexity differs by mode. It would be helpful to know if the greater complexity in argument and exposition is due to longer clauses or a higher number of clauses per T-unit. This would be a useful area of research.

Another question to be looked at, is whether second language learners at other levels exhibit the same tendency to write out of mode when given argument or exposition as the writing task. Instructors and researchers should be aware that the task mode as stimulus will not necessarily result in the task mode as product. Further, it would be useful to find out the factors which cause some subjects to write out of mode. It is not known at this time if it is a function of general proficiency in the second language, level of education in the first language, a cultural conflict or lack of practice in the particular modes.

Whereas it appears that the results of second language research, at least in the area of syntactic complexity in composition writing, may be similar to those of first language studies, it is not acceptable to wait for first language researchers to draw conclusions from their data which are then adapted wholesale to be applied to second language instruction. If new methods of instruction and effective instruction are to take place in second language teaching, it is, without question, necessary for second

language researchers to gain reliable information on product and process in their own populations of second language learners.

BIBLIOGRAPHY

- Anderson, J. An evaluation of various indices of linguistic development. <u>Child Development</u>, 1937, <u>8</u>: 62-68.
- Anderson, C.C. The new STEP essay test as a measure of composition ability. <u>Educational and Psychological Measurement</u>, 1960, <u>20</u>: 95-102.
- Bailey, N., Madden, C., & Krashen, S.D. Is there a "natural sequence" in adult second language learning? <u>Language Learning</u>, 1974, 24, 235-243.
- Blount, N.S., Johnson, S.L., & Fredrick, W.C. <u>A comparison of the</u> writing of eighth- and twelfth-grade students. (Technical Report No. 78). Madison: University of Wisconsin, Research and Development Centre for Cognitive Learning, 1969, (ERIC Document Reproduction Service No ED 035 652)
- Bortz, D.R. The written language patterns of intermediate grade children when writing compositions in three forms: descriptive, expository, and narrative (Doctoral dissertation, Lehigh University, 1969). <u>Dissertation Abstracts International</u>, 1970, 30, 5332A. (University Microfilm No. 70-10, 586)
- Braun, C., & Klassen, B. A transformational analysis of written structures of children representing varying ethno-linguistic communities. <u>Research in the Teaching of English</u>, 1973, <u>7</u>, 312-323.
- Combs, W. Further effects of sentence-combining practice on writing ability. <u>Research in the Teaching of English</u>, 1976, <u>10</u>, 137-149.
- Cooper, T.C. Measuring written syntactic patterns of second language learners of German. <u>Journal of Educational Research</u>, 1976, <u>69</u>, 176-183.
- Crowhurst, M. The effect of audience and mode of discourse on the syntactic complexity of the writing of sixth and tenth graders. (Doctoral dissertation, University of Minnesota, 1978). <u>Dissertation Abstracts International</u>, 1978, <u>38</u>, 7300A-7301A. (University Microfilm No. 7809644)
- Crowhurst, M. Syntactic complexity in narration and argument at three grade levels. <u>Canadian Journal of Education</u>, 1980, <u>5</u>, 6-13.
- Crowhurst, M., & Piche, G.L. Audience and mode of discourse effects on syntactic complexity in writing at two grade levels. <u>Research in the Teaching of English</u>, 1979, 13, 101-109.
- Dolay, H.C., & Burt, M.K. Natural sequence in child second language acquisition. Language Learning, 1974, 24, 37-53.

.. .

- Ervin-Tripp, S. Is second language learning like the first? <u>TESOL</u>Quarterly, 1974, 8, 111-127.
- Flahive, D.E., & Snow, B.G. Measures of syntactic complexity in evaluating E.S.L. compositions. In J. Oller & K. Perkins (Eds.), <u>Research in Language Testing</u>. Rowley, Mass.: Newbury House Publishers, Inc., 1980.
- Frogner, E. Problems of sentence structure in pupils' themes. English Journal, 1933, 22, 742-749.
- Gaies, S.J. <u>Sentence-combining: a technique for assessing</u> <u>proficiency in a second language</u>. Paper presented at the Conference on Prespectives on Language, University of Louisville, May, 1976. (ERIC Document Reproduction Service No. ED 130 512)
- Gaies, S.J. T-unit analysis in second language research: applications, problems, and limitations. <u>TESOL</u> Quarterly, 1980, 14, 53-60.
- <u>Gates-MacGinitie Reading Tests</u>. Canadian Edition. Nelson Canada Ltd. 1979.
- Glass, G.V., & Stanley, J.C. <u>Statistical methods in education and</u> psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1970.
- Hoetker, James. Essay examination topics and students' writing. College Composition and Communication, 1982, 33, 4, 377-392.
- Hunt, K.W. Differences in grammatical structure written at three grade levels, the structures to be analyzed by transformational methods. Tallahassee: Florida State University, U.S., Office of Education Cooperative Research Project 1978, 1964.
- Hunt, K.W. <u>Grammatical structures written at three grade levels</u>. Research Report No. 3, Champaign, Ill.: National Council of Teachers of English, 1965.
- Hunt, K.W. Syntactic maturity in school children and adults. <u>Monographs of the Society for Research in Child Development</u>, 1970, 35, (Serial No. 134).
- Hunt, K.W., & O'Donnell, R.C. <u>An elementary school curriculum to</u> <u>develop better writing skills</u>. Tallahasee: Florida State University, 1970. (ERIC Document Reproduction Service No. ED 050 108)
- Johnson, L.V. Children's writing in three forms of composition. Elementary Education, 1967, 44, 265-269.
- Jovkovic, L. Syntactic development of Yugoslav students of English (Doctoral dissertation, The Florida State University, 1976). Dissertation Abstracts International, 1977, <u>37</u>, 6318A. (University Microfilm No. 77-8595).

- Kameen, P.T. <u>How to use the T-unit yardstick</u>. Paper presented at TESOL '81, Detroit, Michigan, 1981.
- Kantor, Kenneth, J. Creative thinking and modes of discourse. <u>Studies in Language Education</u>, Report No. 26, Department of Language Education, The University of Georgia, Athens, Georgia, 1976.
- Kincaid, G.L. Some factors affecting variations in the quality of students' writing. (Doctoral dissertation, Michigan State College, 1953). <u>Dissertation Abstracts International</u>, 1953,. 13, 733, (University Microfilm No. 5922)
- Kinneavy, J.L. <u>A theory of discourse</u>. Englewood Cliffs, New Jersey: Prentice-Hall, 1971.
- LaBrant, L.L. A study of certain language developments of children in grades four to twelve, inclusive. <u>Genetic Psychology</u> <u>Monographs</u>, 1933, 14, 387-491.
- Lai, Calvin. <u>UBC SPSS, Statistical package for the social sciences</u> <u>version 9.00 (Under MTS)</u>. Computing Center, University of British Columbia, Vancouver, Canada, 1980.
- Larsen-Freeman, D. An explanation for the morpheme acquisition order of second language learners. <u>Language Learning</u>, 1976, <u>26</u>, 125-134.
- Larsen-Freeman, D. An E.S.L. index of development. <u>TESOL</u> <u>Quarterly</u>, 1978, 12, 439-448.
- Larsen-Freeman, D., & Strom, V. The construction of a second language acquisition index of development. Language Learning, 1977, 27, 123-134.
- Mellon, J.C. <u>Tranformational sentence-combining</u>. Research Report No. 10. Champaign, Ill.: National Council of Teachers of English, 1969.
- Monroe, J. Measuring and enhancing syntactic fluency in French. <u>The French Review</u>, 1975, 48, 1023-1031.
- O'Donnell, R.C. A critique of some indices of syntactic maturity. <u>Research in the Teaching of English</u>, 1976, 10, 31-38.
- O'Donnell, R.C., Griffin, W.J., & Norris, R.C. <u>Syntax of kinder-garten and elementary school children: a tranformational analysis</u>. Research Report No. 8. Champaign, Ill.: National Council of Teachers of English, 1967.
- O'Hare, F. <u>Sentence-combining: improving student writing without</u> <u>formal grammar instruction</u>. Research Report No. 15. Urbana, Ill.: National Council of Teachers of English, 1973.

Perkins, K. Using objective methods of attained writing the Proficiency to discriminate among holistic evaluations. <u>TESOL</u> Quarterly, 1980, 14, 61-69.

- Perron, J.D. <u>The impact of mode on written syntactic complexity:</u> <u>Part I--third grade</u>. Studies in Language Education. Report No. 24. Anthens: University of Georgia, 1976. (a) (ERIC Document Reproduction Service No. ED 126 531)
- Perron, J.D., <u>The impact of mode on written syntactic complexity:</u> <u>Part II-fourth grade</u>. Studies in Language Education. Report No. 25. Athens: University of Georgia, 1976. (b) (ERIC Document Reproduction Service No. ED 126 511)
- Perron, J.D. <u>The impact of mode on written syntactic complexity:</u> <u>Part III-fifth-grade</u>. Studies in Language Education. Report No. 27. Athens: University of Georgia, 1976. (c) (ERIC Document Reproduction Service No. ED 128 827)
- Perron, J.D. Written syntactic complexity and the modes of discourse. Paper presented at the annual meeting of the American Educational Research Association, New York, April, 1977. (ERIC Document Reproduction Service No. ED 139 009)
- Raymond, James C. What we don't know about the evaluation of writing. <u>College Composition and Communication</u>, 1982, <u>33</u>, 399-403.
- Reesink, G.P., Holleman-van der Sleen, S.B., Stevens, K., & Kohnstumm, G.A. (Development of syntax among school children and adults: a replication-investigation.) <u>Nederlands</u> <u>Tijdschrift voor de Psychologie en haar Grensgebieden</u>, 1971, <u>26</u>, 335-364. (Psychological Abstracts, 1971, <u>47</u>, No. 10536.)
- Rosen, H. <u>An investigation of the effects of differentiated</u> writing assignments on the performance in English composition of a selected group of 15/16 year old pupils. Unpublished Ph.D. thesis, University of London, 1969.
- San Jose, C.P.M. Grammatical structures in four modes of writing at fourth grade level (Doctoral dissertation, Syracuse University, 1972). <u>Dissertation Abstracts International</u>, 1973, <u>33</u>, 5411A. (University Microfilms No. 73-9563)
- Seegars, J.C. Form of discourse and sentence structure. <u>Elementary English Review</u>, March 1933, 10, 51-54.
- Sharma, A. <u>Syntactic maturity: assessing writing proficiency in a</u> <u>second language</u>. Carbondale: Southern Illinois University, Paper presented at the 3rd International Conference on Frontiers in Language Proficiency and Dominance Testing, 1979. (ERIC Document Reproduction Service No. ED 185105)
- Stewart, Murray F. Syntactic maturity from high school to university: a first look. <u>Research in the Teaching of English</u>, 1979, <u>13</u>, 207-215.
- Stewart, M.F. & Grobe, C.H. Syntactic maturity, mechanics of writing and teachers' quality ratings. <u>Research in the Teaching</u> of English, 1979, <u>13</u>, 207-215.

- Vann, Roberta J. Oral and written syntactic relationships in second language learning. In C.A. Yoria, K. Perkins, & J. Schachter (Eds.), <u>ON TESOL '79: The Learner in Focus</u>. TESOL, Washington, D.C., 1979, 322-329.
- Veal, L.R., & Tillman, M. Mode of discourse variation in the evaluation of children's writing. <u>Research in the Teaching</u> of English, 1971, 5, 37-45.
- Wiseman, S., & Wirgley, J. Essay-reliability: the effect of choice of essay-title. Educational and Psychological Measurement, 1958, <u>18</u>, 129-138.
- Witte, S.P., & Davis, A.S. The stability of T-unit length: a preliminary investigation. <u>Research in the Teaching of English</u>, 1980, <u>14</u>, 5-17.
- Witte, S.P. & Sodowsky, R.E. <u>Syntactic maturity in the writing of</u> <u>college freshmen</u>. Paper presented at the annual meeting of the Conference on College Compositoin and Communication, Denver, Colorado, March, 1978. (ERIC Document Reproduction Service No. ED 163 460)
- Wode, Henning. Developmental sequences in naturalistic L2 acquisition. In E. Hatch (Ed.), <u>Second language acquisition</u>. Rowley Mass: Newbury House, 1978.
- Wynn, J.H. Determining the internal consistency of English compositions using selected criteria (Doctoral dissertation, The Louisiana State University and Agricultural and Mechanical College, 1978). <u>Dissertation Abstracts International</u>, 1977, 3347A-3348A. (University Microfilms No. 77-25, 407)
- Yau, Margaret Sin-Siu. <u>Syntactic development in the writing of</u> <u>E.S.L. students</u> (Masters Thesis, University of British Columbia, 1983).

APPENDIX A

For statistical analysis, the six research predictions given in Chapter One were translated into the following null hypotheses and tested at a .05 level of significance.

- Ho 1: As measured by mean T-unit length, there will be no significant difference between the syntactic complexity of compositions written in the mode of narration and in the mode of description.
- Ho 2: As measured by mean T-unit length, there will be no significant difference between the syntactic complexity of compositions written in the mode of narration and in the mode of exposition.
- Ho 3: As measured by mean T-unit length, there will be no significant difference between the syntactic complexity of compositions written in the mode of narration and in the mode of argument.
- Ho 4: As measured by mean T-unit length, there will be no significant difference between the syntactic complexity of compositions written in the mode of description and in the mode of exposition.
- Ho 5: As measured by mean T-unit length, there will be no significant difference between the syntactic complexity of compositions written in the mode of description and in the mode of argument.
- Ho 6: As measured by mean T-unit length, there will be no significant difference between the syntactic complexity of compositions written in the mode of exposition and in the mode of argument.

APPENDIX B

Example of a Scored Paper

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"My idea of mixed marriages"

In Canada has different nationalities since Canada has been immigrating for people from all different countries,/so mixed marriages are becoming more common./ I don't know if it is a good idea or a bad idea./ But I think it is a good idea for the Canadian economy./ Since I have been in Canada, I thought Canada was divided into a many countries;/ therefore, the economy of this country has not developed as America./ The big number of people have more power and a great idea./ In Canada, the people only get together same nationalities,/ so we have more racial discrimination./ When the mixed marriages are becoming more common, in Canada has becoming more powerful countries in the economy and political./

I have a opinion for a bad idea of mixed marriages, which I don't want lose my native customs./ Even though I am living in Canada I will teach a traditional customs for my future children./ Also it is very difficult to get together with a different nationalities./ They can speak almost a perfect English/ but they don't understand their opinions very well.

> 186 words 15 T-units 12.4 words per T-unit

The languages represented in this study were determined from an information questionaire distributed to the students at the end of the Fall 1981 term and from direct questioning of some students.

Language	Number
Cantonese	32
Mandarin	1
Hakka	1
Vietnamese	9
Japanese	4
Punjabi	3
Indonesian	2
Spanish	2
Hungarian	2
Korean	1
Philipino	1
Croatian	1
Polish	1
Roumanian	1

Biographical information on the subjects of this study. The information is not complete for all 61 subjects.

Factor	<u>N</u>	Mean	Standard Deviation
Females	32		
Males	22	1	
Time in English Speaking Canada	54	41.40 mos.	38.67 mos.
Time at K.E.C.	52	14.42 mos.	13.52 mos.
Age	52	29.98 yrs.	10.83 yrs.
Education	51	11.87 yrs.	4.28 yrs.
Reading Level Grade Equivalent	54	5.12	1.03

APPENDIX E

Example of student composition assignment:

Advanced Composition

<u>Directions</u>: Put your name, student number, and class time at the top of your final copy. You are expected to be able to write a minimum of 150 words on this topic. That is approximately one and a half pages <u>double spaced</u>. You will have 15 minutes at the beginning to ask questions of your teacher about the topic. You will then have a maximum of one hour and fifteen minutes to write. If you don't have time for a re-write, hand in both your rough copy and your partially re-written copy to your teacher. You may use either English or bilingual dictionaries but remember that your time is limited. For this composition you are expected to do your own work.

<u>Topic</u>: Write a composition telling about a holiday trip you have taken. The holiday might have been taken when you lived in your country or after you came to Canada. It can be a long trip or a short trip.

APPENDIX F

The following instructions were discussed with and agreed upon by the instructors involved in this study. Item 10 was for the benefit of the student. Any student who changed classes was taken out of the study but continued to participate in composition writing. However, rather than having that student possibly repeat an assignment, the student wrote a composition he or she had not yet done but had been done in the new class. Item 11 was also for the benefit of the student. If a student was absent on composition day, that student was taken out of the study, but if a teacher wanted that student to write the composition, it was allowed. Also the student continued to write on following composition days.

The following is the memo given to and discussed with the instructors participating in this study.

Instructions to the Teacher

- The purpose is to standardize the administration of this set of compositions.
- The students should be told that they are being evaluated for:
 1) grammatical correctness 2) sentence variety 3) content (which includes organization).
- 3. The students should <u>not</u> be told that they are participating in any kind of study.
- 4. The correction symbols used and whether or not the students are given a mark is a decision to be made by an individual instructor. However, it is desirable that the instructor be consistent.
- 5. Please have your students write their final copy on the

foolscap provided.

- 6. Read through the instructions and topic with the students. Be sure to answer any questions they have concerning the topic and make sure they understand the topic; however, do not in any way 'write' the composition for the students.
- 7. Please tell the students when they have 20 minutes remaining to encourage them to finish on time.
- 8. Remind them that the length is a guideline, that the topic and what they have to say will determine the length.
- 9. Remind students that their writing should improve with practice so they should make every effort to attend on composition day.
- 10. If you get a student who has changed classes, allow that student to write a composition which he or she has missed.
- 11. If a student has missed a writing session, it is up to the instructor whether the student will make it up.

APPENDIX G

Topics

Each student wrote eight compositions, two in each of four modes. The directions to the student were the same for each composition. However, directions and topic were given to each student on dittoed paper on each composition day. The topics ... listed below are not in a particular sequence as they were randomly assigned to class and therefore, each class wrote a different sequence of compositions.

- <u>Topic</u>: Write a composition telling about a holiday trip you have taken. The holiday might have been taken when you lived in your country or after you came to Canada. It can be a long trip or a short trip.
- 2. <u>Topic</u>: Write a composition telling about a funny or unusual event which has happened in your family. This might be something that happened at a wedding, a reunion, or during a visit from some relatives or friends.
- 3. <u>Topic</u>: Write a composition describing someone you know well. You should describe both the person's physical characteristics and personality characteristics. In describing this person, try to be as complete as possible so that your teacher would know who you are talking about without being introduced.
- 4. <u>Topic</u>: Write a composition describing your apartment or house in your native country. Try to be as complete as possible so that your teacher would be able to recognize it without being told whose apartment or house it was.

- 5. <u>Topic</u>: People from many different countries are deciding to live and raise their children in Canada. Racism is a problem in many countries in the world. We don't want the same thing to happen in Canada. It would be interesting to know how you think we could solve this problem. Write a composition telling how you think we can reduce or eliminate racism in Canada.
- 6. <u>Topic</u>: Write a composition telling how a person can become a Canadian citizen. If you are not exactly sure of the process, tell as much as you know or what you think are the steps involved.
- 7. <u>Topic</u>: In Canada, arranged marriages are not as common as they are in some other countries. It would be interesting to know what you think about this subject. Write a composition telling whether you believe arranged marriages are a good or a bad idea, giving your reasons for your opinion.
- 8. <u>Topic</u>: In Canada, mixed marriages are becoming more common. It would be interesting to know what you think about this subject. Write a composition telling whether you think mixed marriages are a good or bad idea, giving your reasons for your opinion.

APPENDIX H

Eight classes of Advanced level students participated in this study. Three instructors taught two classes each and two taught one class each. The class numbers in the design grid in Appendix K correspond to the class numbers given below.

Instructor	Class Number	Class Time
Sinclair	1	3:00 P.M.
Sinclair	2	7:00 P.M.
Gerber	3	8:30 A.M.
Gerber	4	12:00 A.M.
Godfrey	5	8:00 A.M.
Godfrey	6	12:30 P.M.
Scholefield	7	7:00 P.M.
Soga	8	7:00 P.M.

APPENDIX I

The design grid given below shows the classes participating, the dates the compositions were written, and the assigned topics. The topic numbers are given in the cells of the grid and correspond toothe sequence of topics given in Appendix H. The dates of the writing sessions are listed vertically on the left. The class numbers, which correspond to the numbers given in Appendix I, are listed horizontally across the top of the grid. The topics were assigned to class in random order from a table of random numbers.

	1	2	3	4	5	6	7	8
Sept 17th	8	4	6	2	3	4	5	1
Sept 24th	3 .,	2	· 1	3	2	5	7	7
Oct 1st	5	7	5	8	6	3	6	6
Oct 8th	. 6	8	8	4	4	8 7	2	5
Oct 15th	1	5	7	6	7	6	1	4
Oct 22nd	7	1	3	1	5	2	3	8
Oct 29th	4	3	4	5	1	1	4	3
Nov 5th	2	6	2	7	8	7	8	2

APPENDIX J

Segmentation Rules: Word Counts

As with the segmentation rules for T-unit analysis, the rules for word counting presented some unique problems. Where possible, the rules follow those found in first language studies. However, new rules had to be created to take into account common special problems of E.S.L. writers.

- 1. Do not count words struck out in T-unit counts.
- 2. Do not count titles, good-byes, or thankyous which are outside the main body of the composition.
- 3. In lists, do not count '1)', '2)', 'a)', 'b)', etc.

4. Count only one 'etc.' in a series.

5. Expand contractions, e.g. I'm = two words.

- 6. Expand 'joined' words, e.g. infrontof = 3 words.
- 7. All hyphenated words count two or more, e.g. sister-in-law = three words.
- 8. Compound words count as one, ie...bedroom.=.one.word.l.a.
- 9. All abbreviations count as one word. ie. a.m., V.C.C., or PNE.
- 10. Uncompounded compound words count one. ie. bath room.
- 11. 'Cannot' was counted as 2 words in this study.
- 12. All numbers count as one word either in word or numeral form but 'a year and a half' counts 5 words.
- Dates count as they are given. ie. Oct 1, 1978 counts 3 words.

14. Time is counted as follows: 3:00 = one word

3 o'clock = two words.

- 15. Count all symbols as one word. ie. \$, %, but not the slash in he/she.
- 16. Age counts as follows: 35 = one word

35 years old = three words.

- 17. All titles were counted as follows: Mr., Mrs., or Dr. count one; Prime Minister count two.
 - Cities, provinces, countries, and continents count as one word.
- 19. Other geographical names and other proper names count as one or more words depending on whether the names are separable or inseparable. ie. Southeast Asia = two words.

White House = one word Stanley Park = two words Long Point Camp = two words Big Steel Man = one word

APPENDIX K

Segmentation Rules: T-units

Segmenting E.S.L. compositions presents some problems not encountered with first language compositions and as a result the segmentation rules for this study became more extensive than any given in native language studies. Where possible, the rules follow those found in first language studies; however, new rules had to be created reflecting the common special problems of E.S.L. writers.

- 1. A T-unit is one independent clause with all subordinate
 - clauses attached to it regardless of punctuation.
 - e.g. When I lived in my native country, I used to walk in the park. And watch the birds./

One T-unit.

- For T-unit analysis, independent clauses can be divided by co-ordinating conjunctions, conjunctive adverbs, and puncutation.
- 3. 'So' meaning therefore is a co-ordinator.'So' meaning in order that is a subordinator.
- 4. Analyze T-units as they are given. Do not anticipate meaning or give a subject the benefit of the doubt.
 - e.g. a. If 'but' is used where 'if' is required, count it as 'but'.
 - b. If 'that' is used where 'which' is required as the relative pronoun, count two T-units.

ie. She went to L.A. that is a famous place.

c. If a two clause sentence contains both a co-ordinating and a subordinating conjunction, then count two T-units.

ie. Although it rained, but I went out anyway.

- d. 'Even' is sometimes used as an apparently short form
 of even though or even if. Count two T-units.
- e. If a sentence with two clauses contains a common subject, count two T-units.

ie. I went to the store was very crowded.

- 5. Strike out and do not consider:
 - a. anything within brackets which is not at least one T-unit.
 - b. any unattached fragments.
 - c. abridgements of five words or less.
 - d. answers to rhetorical questions if not at least one T-unit.
- 6. With quotations, count the introductory phrase plus the first following T-unit. Then count each following T-unit separately.
- With lists, include the first T-unit following the introductory phrase. Then count each following T-unit.
- If there is a redundant pronoun in an adjective clause, count one T-unit.

ie. My brother who lives in Victoria he likes to fish.

- Short sayings, adages, or proverbs count as one T-unit.
 ie. A bird has a nest, a man has a home.
- 10. If only a verb or a subject is missing in what would otherwise be a main clause, count one T-unit. However, do not add the missing word.
- 11. Attach a fragment to a clause to which it logically belongs if possible but exclude bracketed fragments.

APPENDIX L

Agreement between experimenter and check-coder on word counts for a random selection of 32 compositions.

Student #	Composition #	Experimenter Count	Check-coder Count
78389210	1	186	184
	2	161	164
	3	172	172
	4	165	168
	5	163	163
	6	149	149
	7	99	99
	8	92	92
79393658	1	306	307
	2	220	219
	3	229	229
	4	212	212
	5	205	203
	6	121	121
	. 7	228	228
	8	204	206
81276388	1	405	404
	2	214	214
	3	181	182
	4	521	522
	5	: 145	145
	6	128	127
	7	171	171
	8	367	368
81283632	1	316	317
	2	348	249
	3	260	261
	4	330	333
	5	255	255
	6	274	274
	7	330	328
	8	317	317

APPENDIX M

Agreement between experimenter and check-coder on the number of T-units per paper for a random selection of 32 compositions.

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Student #	Composition #	Experimenter Count	Check-coder Count
78389210	1 2 3	18 .12 19	18 12 19
	4 5	15 14	14 13
	6 7 8	9 10 10	9 10
79393658	1	22	22
	2 3	12 21	11 21
	4 5	16 11	16 11
	6 7	8	7 19
81276388	0	. 37	18 37
	2 3	23 16	22
	4 5	41 9	41 9
	6 7	6 13	6 13
81283632	8	23	23
01209092	2	36 21	∑37 21
	2 4 5	23	24
	6 7	21 30	21 30
	8	22	22

	L CYCTEM						00/00	/62 0.05	2		
SPSS SAICH	I SYSIEM						08/26	/83 PAGE	3		
	IAME (CREA	TIUN DATE	• 08/26/83)			ст					
					, , ,						
ARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	*(DIFFERENCE) * MEAN	STANDARD DEVIATION	STANDARD ERROR	* 2-TAIL * * CORR. PROB. *	T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
ARRM 1		11.8231	2.069	0.265	*			* *			
	61	11.5082	1.771	0.227	* 0.3149 *	1.566	0.201	* 0.678 0.000 *	1.57	e0	0.122
ESCM1					*			* *			
IARRM 1		11.8231	2.069	0.265	*			* *			
	61	13.9324	2.487	0.318	* -2.1093 *	2.323	0.297	* 0.493 0.000 * * *	-7.09	60	0.000
XPOM 1					*			* *			;
IARRM 1		11.8231	2.069	0.265	*			* *			-
RGUM1	61	12.9752	2.541	0.325	* -1.1521 * *	2.696	0.345	* 0.330 0.009 * * *	-3.34	60	0.001
ESCM 1		44 5082		0 007	*			* *			
	61	12 0224	0 497	0.227	* -2.4242	2.375	0.304	* 0.418 0.001 *	-7.97	60	0.000
XPOM1		13.3324	2.407	0.318	*			* *			
ESCM1		11.5082	1 771	0.227	* *			* * *			
	61	12.9752	2.541	0.325	* -1.4670 *	2.615	0.335	* 0.306 0.016 *	-4.38	60	0.000
RGUM1					*			* *			
XPOM1		13,9324	2.487	0.318	*			* *			
											0.004

Mean T-unit Length and Standard Deviations for

Compositions by Topic

Mode	Topic	W/TU	S.D.
Narration	Trip	11.624	2.125
Narration	Story	12.022	2.552
Description	House	10.948	1.961
Description	Person	12.068	2.261
Exposition	Racism	13.193	3.292
Exposition	Citiżen:	14.672	2.999
Argument	Arranged	13.259	2.907
Argument	Mixéd	12.691	2.774
APPENDIX P

One example of a composition written primarily out of mode.

#80188097

Arranged Marriages

I was the godmother of a young girl in my country. Her father was a blacksmith and he decided to look for a son-in-law who is a blacksmith, too. He thought that it is the best thing in the World to work with a son-in-law in a common workshop. It happened that she fell in love with an other young man. Her father locked her up in the house and she couldn't make just one step alone, even to the doctor, to the chirch or to the own yard. She married a blacksmith and she had very nice wedding and she was a beautiful bride, but her face looked as she went to the shooting. She was very unhappy, but she didn't have any choice because she had finished only elementary school and couldn't find a job and leave her father's house before her marriage. Now she is married about : 15 years and I think she has never fallen in love with her husband. There are many similar cases in my country, but I don't believe that an arranged marriage can work as a happy one, even if it has many conditions for happiness. Every young person who is forced or persuaded feels very hurt during all one's life. Every one thinks that he lost something the most valuable in his life--a freedom of the own selection. A marriage is a very serious decision and everybody should decide alone, because consequences bears alone, too.

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