

**An Exploratory Study of Sentence
Structure Instruction in Improving
Chulalongkorn University Law Students'
Writing Ability**

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Abstract

This research explores the effect of sentence structure instruction and sentence-combining practice on writing performance in answering essay questions and on syntactic complexity measured in paragraph writing of second-year Chulalongkorn University Law students taking the English for Academic Purposes (Law) I course. Four groups of students participated in the study: the experimental higher and lower proficiency groups and the control higher and lower proficiency groups. The two experimental groups of different proficiency levels were given treatment of different types of sentence structure instruction and sentence-combining practice for twelve weeks while the two control groups of different proficiency levels were taught in the regular EAP Law course. The test scores were rated holistically, taken into consideration different aspects of the writing skill. The results show the two experimental groups' posttest scores were significantly higher than their pre-test scores. Their post-test scores were also significantly higher than their peers in the control groups. The students' writing was also analyzed to measure their syntactic complexity using six elements of T-unit analyses: the number of words,

the number of clauses, the number of T-units, the average number of words per clause, the average number of words per T-unit, and the average number of clauses per T-unit. The results show significant gains in some elements of syntactic complexity of both the experimental higher and lower proficiency groups. There were no gains in syntactic complexity for the control groups. From the questionnaire, students' attitudes towards sentence-combining instruction and practice were positive, but the amount of materials covered also had to be taken into consideration. Pedagogical and research implications and suggestions for future research were included.

Rationale

Among different English language skills studied by Thai learners, writing is considered the most difficult. Even many native speakers of English at the tertiary level have failed to master this important skill due to the lack of sufficient development during elementary and secondary school (Saddler & Graham, 2005). This is also confirmed by the 1998 and 2002 National Assessment of Educational Progress, which revealed only a partial mastery of writing skills and knowledge amongst the majority of students in the 4th, 8th, and 12th grades (Greenwald, Persky, Campbell, & Mazzeo, 1999; Persky, Daane, & Jin, 2003, cited in Saddler & Graham, 2005).

Among the several factors involved in successful academic writing, sentence structure plays a vital part. As Fowler states:

“Choppy sentences are awkward and stiff...[as] they prevent ideas from flowing easily. Worst of all, they may cause the reader to lose interest in the message” (Fowler, 1999: 9).

To write effectively, a variety of sentence lengths and structures is therefore essential (Fowler, 1999).

Considerable research on sentence-combining (SC) exercises has been carried out with native speakers of English with the results showing that these exercises improve the students' abilities

to construct sentence structure, increase the length of sentences, and use greater sentence varieties in their writing composition (Raimes, 1983a). However, there has not been much empirical research on sentence-combining in ESL writing instruction (Johnson, 1992) and even less in the EFL context. In spite of minimal empirical research and debatable theoretical backup,

“sentence-combining continues to be one of the most widely used instructional alternatives to formal grammar instruction in second language writing instruction” (Johnson, 1992: 62).

However, unlike native speakers of English and arguably many speakers of English as a second language, most EFL learners in Thailand do not possess an innate ability to produce English sentence structure and therefore, they need to receive proper training in sentence-combining to integrate English sentence structure in their own writing. According to Monroe (1975), native speakers’ ability to use syntactic patterns is not automatically acquired by second language learners. That is why good sentence-combining practice is a prerequisite for second/foreign language learners to “internalize syntactic patterns of the target language” (Cooper, 1977: 254).

The EAP courses for Chulalongkorn University Law students may not be ‘composition classes,’ yet the courses are very much involved with writing, at least within the realm of students writing in response to essay questions posed in in-class exercises, homework assignments, and mid-term and final examinations. Thus, the students’ lack of knowledge and practice in constructing well-organized syntactic structures may affect their marks. It is hoped that if the students are familiar with and understand sentence structure and are well-trained in sentence-combining, they will be able to perform better in their assignments as well as their examinations.

The Purposes of the Study

1. to investigate whether the instruction and practice of sentence structure and sentence-combining will help improve the writing ability of EAP (Law) students and thereby enable them to improve their scores when answering essay questions in the post-test;
2. to investigate whether there will be any significant difference in the post-test scores between students who received instruction and practice in sentence-combining and students taught in the regular EAP Law class;
3. to investigate whether the instruction and practice of sentence structure and sentence-combining will help increase students' syntactic complexity in the post-test;
4. to investigate whether there are any significant differences in six elements of T-unit analysis in the post-test essay answers between the subjects who received instruction and practice in sentence-combining and those taught in the regular EAP Law class;
5. to investigate whether there is any correlation between the writing ability demonstrated by performance in answering essay questions and the analysis of six T-unit elements; and
6. to explore student attitudes towards the teaching of sentence-combining.

Research Hypotheses

1. There will be no statistically significant difference between the pre- and post-test paragraph writing scores of the subjects in all four groups ($p = 0.05$).
2. There will be no statistically significant difference in the post-test paragraph writing scores between the experimental and the control groups ($p = 0.05$).
3. There will be no statistically significant differences in the six elements of T-unit analysis between the pre- and post-test paragraph writing taken by the subjects in all four groups ($p = 0.05$).

4. There will be no statistically significant differences in the six elements of T-unit analysis in the post-test paragraph writing between the experimental and the control groups ($p = 0.05$).

Review of the Literature

Sentence-combining

Writing is perhaps the most difficult skill in academic learning. In fact, “writing is not a natural ability that automatically accompanies maturation” (Lieberman & Lieberman, 1990, cited in Grabe & Kaplan, 1996: 6). Rather, writing “involves training, instruction, practice, experience, and purpose” (Grabe & Kaplan, 1996: 6). Even many native speakers of English do not handle writing well in college (Saddler & Graham, 2005), and therefore, learners must be taught to express their thoughts in a logical fashion from an early age. Sentence generation is recognized as one of the major processes employed by efficient writers while composing, (Hayes & Flowers, 1986, cited in Saddler & Graham, 2005).

Transformational grammar, particularly that of Chomsky’s Syntactic Structures (1957), played a part in inspiring the teaching of sentence structure through practice (Frank, 1993), resulting in the use of sentence-combining practice to improve students’ writing. However, in the language or composition classroom, this approach of asking students to combine sentences is not a recent development. “In fact, SC is probably older than diagramming, its spiritual enemy” (Strong, 1985).

Research findings on early instruction in sentence-combining showed that it had positive effects on both syntactic fluency and writing quality (Crowhurst, 1983). Although not viewed as part of the writing curriculum at the beginning, sentence-combining has since gained popularity as a means to teach and hence improve students’ writing ability, from elementary school to university level.

Sentence-combining has been defined in several ways. For Strong (1983: xv, cited in Reutzel & Merrill, 1985: 3), it is the process of “putting short, choppy sentences together to make more interesting, readable ones.” According to Elder (2006: 5),

“the sentence-combining operation begins with a simple form; a single or kernel sentence. In order to increase the length of the sentence one has to add a word, clause, or phrase. This follows the pattern of chunking.”

Sentence-combining, as characterised by Jenkinson (1999: 8), is

“the combining of two or more short, basic sentences (called kernels) into a longer, more complex sentence in such a way that the important information from each short sentence is retained.”

Finally, Phillips (1996: 2) gives the following definition of sentence-combining:

“...a technique of putting strings of sentence kernels together in a variety of ways so that completed sentences possess greater syntactic maturity.”

Since the 1960's, after the well-known studies by Hunt, a number of research studies have been implemented and the results have yielded a positive relationship between sentence-combining and writing, where sentence-combining exercises help students to accelerate syntactic maturity or syntactic fluency (Bateman, 1959, cited in Frank, 1993; Bateman and Zindonis, 1964, cited in O'Hare, 1971; Combs, 1975; Fischer, 1973; Hunt & O' Donnell, 1970; Kameen, 1978; Mellon, 1969; Mellon, 1969, cited in O' Hare, 1973; Miller & Ney, 1968; Morenberg et al., 1978; Obenchain, 1971; Pedersen, 1977; Perron, 1974; Vitale et al., 1971, cited in Olson, 1981; Daiker et al., 1978; Garrott 2001; Jordan, 1991; McKee's 1982, cited in Brant, 1989; Mellon, 1964; Mellon, 1969; O'Hare, 1973; Combs, 1976, cited in Daiker, Kerek, & Morenberg, 1978; O' Donnell, Griffin, & Norris, 1967; Cooper, 1976; Monroe, 1975, cited in Cooper, 1977; O' Hare, 1973; Olson, 1981; Pedersen, 1977, cited in Brant, 1989; Saddler and Graham, 2005; Willig, 1985). This is also true with college-age students (Kellog, 1987, cited in Saddler & Graham, 2005):

“...Sentence-combining activities build writing fluency, improve tacit knowledge of structure, promote flexibility, and allow for more complex writing” (Grabe & Kaplan, 1996: 335).

T-unit Analysis in Sentence-combining Studies

T-unit or ‘minimal terminable unit’ analysis was first introduced by Hunt (1965), after being motivated by Chomsky’s notion of kernel sentences and transformations. This tool has been used to measure writers’ syntactic complexity in a considerable number of sentence-combining studies in both English as a first language and a second language. For example, it has been found that T-unit length (the number of words per T-unit) grows consistently with grade (Hunt, 1970; Klecan-Aker & Hedrick, 1986; O’ Donnell, Griffin, & Noris, 1967, cited in Craig, 1998).

A T-unit is defined as “a main clause plus all subordinate clauses and nonclausal structures attached to or embedded in it” (Hunt, 1970: 4, cited in Gaies, 1980: 54). For example, the sentence “Whatever the outcome may be, it would mean a new world in which abortions could be banned in many states.” has one T-unit, consisting of one main clause and two dependent clauses. Many researchers use at least two variables to determine the complexity of the T-unit: T-unit length (the number of words per T-unit) and the number of subordinate clauses per T-unit. A longer T-unit (greater number of words in the T-unit) with more subordinate clauses is considered to be more complex (Vavra, 2000, cited in Haji Pour Nezhad, 2001).

Research has shown that it is reasonable to use mean T-unit length or the average number of words per T-unit to measure overall syntactic complexity (Gaies, 1980). In ESL writing research, the T-unit has also been used as a measure to evaluate second language writers’ syntactic complexity, and the analysis using T-units to assess the syntactic maturity has been viewed as satisfactory because of its objective and reliable method by ESL researchers (Gaies, 1980). According to Strong (1976), T-unit length is “the most reliable index of syntactic maturity.”

In this study, to objectively state with some certainty the results of the students' writing, two types of assessment have been employed to measure student improvement in overall writing quality when answering questions as well as in sentence structure in particular: first, the holistic scoring by the raters of the students' ability to answer the questions, taking into consideration content, grammar, sentence structure, organization, mechanics and overall impression, and second, the T-unit analysis by the researchers.

Method and Design

Population

The population in this research is 180 second-year Chulalongkorn University Law students enrolled in sections 1-6 of the EAP I (Law) course.

Subjects

The subjects were placed into four groups based on the Foundation English course mid-term exam scores of the previous academic year:

- The more proficient English subjects receiving instruction and practice in sentence-combining (the experimental high English proficiency group) (section 2);
- The more proficient English subjects taught in the regular EAP Law class (the control high English proficiency group) (section 1);
- The less proficient English subjects receiving instruction and practice in sentence-combining (the experimental low English proficiency group) (section 6);
- The less proficient English subjects taught in the regular EAP Law class (the control low English proficiency group) (section 5).

The pre-test was administered at the beginning of the term before the instruction and treatment. Using the Mann Whitney U Test, Table 1 shows that prior to the instruction, there was no statistically significant differences in paragraph writing mean scores between the experimental groups and their peers. Table 2 also shows no statistically significant differences in the use of six T-unit

elements between the experimental groups and their peers (sections 1 and 2, and sections 5 and 6).

Table 1 : Differences in Pre-test Scores between Control Groups and Experimental Groups

Group	N	Mean rank	z-value	Mean	S.D.
Control High	18	16.19	-1.313	15.3772	5.19058
Experimental High	18	20.81		17.8711	4.92454
Total	36				
Control Low	18	15.67	-1.614	9.3078	5.15041
Experimental Low	18	21.33		11.2867	4.30593
Total	36				

* $p < 0.05$

Table 2 : Differences in Six T-unit Elements of Pre-test between Control High Proficiency and Experimental High Proficiency Groups

Categories	Groups	n	Mean Rank	z-value	Mean	S.D.
Words	Control High	18	18.56	-0.032	286.61	81.78
	Experimental High	18	18.44		294.62	77.73
	Control Low	18	17.81	-.396	213.50	74.45
	Experimental Low	18	19.19		207.39	52.38
Clauses/ phrases	Control High	18	18.14	-.206	36.61	9.77
	Experimental High	18	18.86		38.73	9.70
	Control Low	18	19.56	-.602	27.28	9.40
	Experimental Low	18	17.44		25.87	8.74
T-units	Control High	18	20.53	-1.160	17.61	4.29
	Experimental High	18	16.47		17.58	4.26
	Control Low	18	19.75	-.714	14.67	5.27
	Experimental Low	18	17.25		13.22	4.01
Words per clause/ phrase	Control High	18	18.89	-.221	7.94	0.76
	Experimental High	18	18.11		7.62	0.78
	Control Low	18	15.42	-1.756	7.80	1.06
	Experimental Low	18	21.58		8.24	1.24
Words per T-unit	Control High	18	16.00	-1.424	16.42	3.22
	Experimental High	18	21.00		16.83	2.33
	Control Low	18	15.11	-1.930	14.88	2.61
	Experimental Low	18	21.89		16.09	2.77
Clauses per T-unit	Control High	18	15.81	-1.535	2.08	0.45
	Experimental High	18	21.19		2.22	0.29
	Control Low	18	16.44	-1.174	1.90	0.35
	Experimental Low	18	20.56		1.97	0.28

* $p < 0.05$

It can therefore be concluded that prior to the instruction, there was a comparability of paragraph writing, in the usage of sentence-combining, and in English proficiency between the control and the experimental higher proficiency groups and between the control and the experimental lower proficiency groups.

Materials

Three types of materials were used in this research:

1. Test materials, comprising two articles with two essay questions for each article.

1.1 Seven articles dealing with controversial law-related issues with two essay questions for each article were selected by the researchers.

1.2 The seven tests and the questions were rated on a scale of five for difficulty, ranging from very easy to very difficult (scales 1-5) by five Chulalongkorn University Language Institute (CULI) instructors who have been teaching English language for many years and five Chulalongkorn University Law students who had just passed the EAP (Law) II course.

1.3 Four texts which had been rated by the same ten raters as 'moderately difficult' (scale 3) were chosen as potential test materials. The other three texts were not chosen because they were rated either as very difficult or very easy.

1.4 The four texts were then rated by the other two groups of EAP (Law) I students of comparable English proficiency in sections 3 and 4 who did not participate in this study. The students in section 3 read two selected texts and answered the essay questions. Likewise, the students in section 4 read the other two selected texts and answered the questions.

1.5 The test papers collected from the students in sections 3 and 4 were given to two CULI instructors to grade holistically, using a band of 10, based on the guided answers and criteria provided.

1.6 The scores given by the two raters were then averaged.

1.7 The average scores (means) were calculated to find the difficulty index and the discrimination index (Mehrens & Lehman 1984).

1.8 Based on the results of the difficulty index and the discrimination index, two texts, “Virginia Law Ends Deadline for DNA Evidence” and “Half-hearted Attempt at Saving Face” together with two essay questions for each text, were chosen as the test materials for this research (see Table 3 for the difficulty index and the discrimination index).

Table 3 : Difficulty Index and Discrimination Index for Two Questions for Both Articles

Text	Difficulty index	Discrimination index
Virginia Law Ends Deadline for DNA Evidence		
Question 1	0.54	0.54
Question 2	0.47	0.63
Half-hearted Attempt at Saving Face		
Question 1	0.48	0.52
Question 2	0.46	0.47

Difficulty index: 0.41-0.60 = moderately difficult

Discrimination index: 0.40 and above = very good quality of text
(Ebel, 1972)

2. A questionnaire of 10 open-ended questions on the subjects' attitudes towards the sentence-combining instruction was created for the two groups of subjects who received the treatment in order to learn about their attitudes towards the instruction of sentence-combining.

3. Teaching materials comprised 1) “Writing Academic English” (Oshima & Hogue, 1999), 2) current news materials of controversial law-related issues and tasks, and 3) EAP (Law) I main course materials and supplements.

Procedure

1. The pre-test was administered in the second week of the class in which the subjects in all four groups read the two selected texts and answered the two essay questions for each text. This is to ensure that the experimental and control groups were of comparable ability in their paragraph writing and sentence-combining based on the six T-unit elements.

2. The two experimental groups studied different types of sentence structure, did combining sentences activities, and practiced combining sentences in paragraph writing in response to essay questions integrated into the course materials for one term (12 weeks) whereas the two control groups studied the regular EAP (Law) I course.

3. The post-test was administered at the end of the term to all subjects.

4. The two experimental groups answered a questionnaire on their attitudes towards the treatment in the last week of the course.

5. All the pre- and post-test papers were collected, coded, and mixed so as to prevent the two independent raters from distinguishing whether the papers were pre-test or post-test and experimental or control.

6. Guided answer keys in response to the four questions asked in the texts were produced by the researchers and then given to the two independent raters as guidelines.

7. The two raters graded the test papers of both the pre- and post-tests of all the subjects in the four groups holistically, using overall impression and taking into consideration various aspects in writing, i.e., content, grammar, sentence structure, organization, and mechanics.

8. The pre- and post-test scores were calculated to find inter-rater reliability between the two raters. Inter-rater reliability varied from 0.882-0.978 for the pre- and post-tests, which is considered high, demonstrating that there is a high consistency in the ratings of the tests by both raters.

9. For statistical reasons, in order to have the same number of subjects in all four groups, 18 test papers from each group were randomly selected. The test scores were then statistically calculated to assess the subjects' writing ability.

10. All test papers of the four groups of subjects were analyzed by the researchers based on the six T-unit elements: the number of words, the number of clauses/phrases, the number of T-units, the average number of words per clause/phrase (clause length), the average number of words per T-unit (T-unit length), and the average number of clauses per T-unit.

11. The analysis was then calculated to find the means of the frequency counts of the six T-unit elements to assess their usage by the subjects.

12. The researchers collected the questionnaire and analyzed qualitatively the subjects' attitudes towards the instruction and practice of sentence structure and sentence-combining.

Statistics and Data Analysis

1. The Wilcoxon Signed-Ranks Test was used to compare the differences in the writing scores and the mean frequency differences in the use of the six T-unit elements between the pre- and post-tests of all four groups of subjects at the significance level of $p = 0.05$.

2. The Mann Whitney U Test was used to compare the differences in writing scores and the mean frequency differences in the use of the six T-unit elements of the post-test between the control and the experimental high proficiency groups (groups 1 and 2), and between the control and the experimental low proficiency groups (groups 5 and 6) at the significance level of $p = 0.05$.

The Findings

1. From the First Research Hypothesis, the findings are as follows:

1.1 For the experimental high and low proficiency groups, there was a statistically significant gain in post-test essay scores

compared with the pre-test ($p < 0.05$), thus rejecting the null hypothesis. (See Table 4)

1.2 For the control high and low proficiency groups, there was no statistically significant increase in post-test essay scores compared with the pre-test ($p > 0.05$), thus accepting the null hypothesis. (See Table 4)

Table 4 : Difference between Pre- and Post-test Scores of All Four Groups

Groups	Ranks	N	Mean rank	z-value	Pre-test X	Pre-test S.D.	Post-test X	Post-test S.D.
Experimental High (n = 26)	Negative ranks	5	7.70	-3.480*	17.12	5.20	21.18	4.08
	Positive ranks	21	14.88					
	Ties	0						
	Total	26						
Control High (n = 18)	Negative ranks	8	9.94	-.261	15.38	5.19	15.69	6.12
	Positive ranks	10	9.15					
	Ties	0						
	Total	18						
Experimental Low (n = 23)	Negative ranks	5	7.40	-3.072*	11.48	4.94	14.16	3.29
	Positive ranks	18	13.28					
	Ties	0						
	Total	23						
Control Low (n = 18)	Negative ranks	6	9.92	-1.133	9.33	5.12	10.54	4.03
	Positive ranks	12	9.29					
	Ties	0						
	Total	18						

* $p < 0.05$

2. From the Second Research Hypothesis, the findings are as follows:

2.1 The experimental high proficiency group had a higher statistically significant gain in the post-test essay scores than the control high proficiency group ($p < 0.05$), thus rejecting the null hypothesis. (See Table 5)

2.2 The experimental low proficiency group had a higher statistically significant gain in the post-test essay scores than the control low proficiency group ($p < 0.05$), thus rejecting the null hypothesis. (See Table 5)

Table 5 : Difference in Post-test Scores between Control and Experimental Groups

Group	n	Mean rank	z-value	Post-test x	Post-test S.D.
Control High	18	12.86		15.69	6.12
Experimental High	18	24.14	-3.212*	21.45	4.21
Total	36				
Control Low	18	14.28		10.59	4.05
Experimental Low	18	22.72	-2.405*	14.16	3.03
Total	36				

* $p < 0.05$

3. From the Third Research Hypothesis, the findings are as follows:

3.1 For the experimental high proficiency group, there were statistically significant differences in four T-unit elements between the pre- and post-tests ($p < 0.05$): the number of words, the number of clauses/ participial phrases, the number of T-units, and the average number of words per T-unit (T-unit length). These students statistically wrote more words, more clauses, and more T-units in the post-test. More importantly, they also had a significant gain in T-unit length, meaning that, on average, they wrote a greater number of words per T-unit in the post-test than in the pre-test. In other words, their post-test T-unit length was significantly longer than their pre-test T-unit length. For the other two categories, the average number of words per clause/participial phrase (clause length) and the average number of clauses per T-unit were not statistically significant ($p > 0.05$). It should be noted, however, that on average the experimental high proficiency group wrote more number of words per clause/participial phrase (clause

length) and more number of clauses per T-unit in the post-test than in the pre-test. (See Tables 6 and 7)

3.2 For the control high proficiency group, there was a decline in the average number of all six categories, three of which were statistically significant: the number of words, the number of clauses/participial phrases, and the number of T-units ($p < 0.05$). The mean frequency shows that this group significantly wrote fewer words, fewer clauses, and fewer T-units in the post-test than in the pre-test. More importantly, the average number of words per clause (clause length), the average number of words per T-unit (T-unit length), and the average number of clauses per T-unit written by this group decreased in the post-test although not significantly. ($p > 0.05$). (See Tables 6 and 7)

3.3 For the experimental low proficiency group, there were statistically significant differences in three T-unit elements between the pre- and post-tests ($p < 0.05$): the number of words, the number of clauses, and the number of T-units. The mean frequency shows that the subjects in the experimental low proficiency group wrote more words, more clauses, and more T-units in the post-test. As for the clause length, although this group wrote more words per clause (longer clause length) in the post-test, the gain was not significant ($p > 0.05$). There was also a slight decline in the average number of words per T-unit (T-unit length), and the average number of clauses per T-unit, but it was not significant ($p > 0.05$). (See Tables 6 and 7)

3.4 For the control low proficiency group, there were no statistically significant gains in any of the six T-unit elements between the pre- and post-tests ($p > 0.05$). In fact, the statistics showed no change in one T-unit element and a decline in five T-unit elements although not significant. (See Tables 6 and 7)

Table 6 : Mean Frequency of Six T-unit Elements between Pre-test and Post-test of Four Groups

Categories	Groups	N	Pre X (S.D.)	Post X (S.D.)
Words	Exp. High	26	294.62 (77.73)	370.73 (76.75)
	Control High	18	286.61 (81.78)	232.72 (84.61)
	Exp. Low	23	207.39 (52.38)	247.22 (56.86)
	Control Low	18	213.50 (74.45)	199.39 (77.40)
Clauses	Exp. High	26	38.73 (9.70)	46.77 (11.61)
	Control High	18	36.61 (9.77)	29.17 (9.21)
	Exp. Low	23	25.87 (8.74)	29.48 (7.34)
	Control Low	18	27.28 (9.40)	25.72 (9.72)
T-units	Exp. High	26	17.58 (4.26)	21 (5.44)
	Control High	18	17.61 (4.29)	15 (4.80)
	Exp. Low	23	13.22 (4.01)	15.52 (3.71)
	Control Low	18	14.67 (5.27)	14.67 (6.45)

Categories	Groups	N	Pre X (S.D.)	Post X (S.D.)
Words/clause	Exp. High	26	7.62 (0.78)	8.02 (0.64)
	Control High	18	7.94 (0.76)	7.91 (1.25)
	Exp. Low	23	8.24 (1.24)	8.48 (0.95)
	Control Low	18	7.90 (1.06)	7.80 (1.11)
Words/T-unit	Exp. High	26	16.83 (2.33)	17.96 (2.01)
	Control High	18	16.42 (3.22)	15.64 (3.5)
	Exp. Low	23	16.09 (2.77)	16.04 (1.86)
	Control Low	18	14.88 (2.61)	14.01 (3.03)
Clauses/T-unit	Exp. High	26	2.22 (0.29)	2.25 (0.31)
	Control High	18	2.08 (0.45)	1.97 (0.28)
	Exp. Low	23	1.97 (0.28)	1.90 (0.26)
	Control Low	18	1.90 (0.35)	1.81 (0.43)

Table 7 : Differences in Six T-unit Elements between Pre- and Post-test of Four Groups

Groups	Mean Rank Words	Z	Mean Rank Clauses	Z	Mean Rank T-unit	Z	Mean Rank W/ Clauses	Z	Mean Rank W/ T-unit	Z	Mean Rank Clauses /T-unit	Z
Experimental High	3.50 14.33	-4.280*	7.00 14.68	-3.749*	7.92 14.61	-3.104*	10.30 15.50	-1.841	10.78 14.94	-1.994*	14.00 13.07	-.190
Control High	11.50 5.50	-2.286*	11.32 4.75	-2.275*	9.00 7.00	-2.073*	9.44 9.56	-0.22	9.27 9.86	-.719	9.64 9.29	-.893
Experimental Low	9.25 12.58	-3.072*	10.08 12.03	-2.147*	8.75 12.53	-2.412*	11.22 12.50	-1.125	14.10 10.38	-.091	14.10 8.18	-8.86
Control Low	10.65 8.06	-.915	10.25 6.75	-.725	10.44 8.75	-.087	10.22 8.78	-.283	9.27 9.86	-.719	11.22 7.78	-.675

* p < 0.05

4. From the Fourth Research Hypothesis, the findings are as follows:

4.1 For the experimental and the control high proficiency groups, the mean frequency of the post-test shows that the experimental high proficiency group outperformed their control peer group in all six T-unit elements; five of which were statistically significantly different ($p < 0.05$). That is, the experimental high proficiency group significantly wrote more words, more clauses/participial phrases, and more T-units. More importantly, on average, they significantly wrote a greater number of words per T-unit [longer T-unit length] and a greater number of clauses per T-unit in the post-test than their control peers. However, in one T-unit element, the average number of words per clause or clause length, although the experimental high proficiency group wrote more words per clause than their control peers, the gain was not significantly different ($p > 0.05$). (See Tables 8 and 9)

4.2 For the experimental and the control low proficiency groups, the mean frequency of the post-test shows that the experimental low proficiency group outperformed their control peers in all six T-unit elements in the post-test paragraph writing; three of

which were statistically significantly different ($p < 0.05$). That is, the experimental low proficiency group wrote more words. More importantly, this group produced a significantly greater clause length and T-unit length, meaning that, on average, they wrote significantly more words in each clause and in each T-unit than their control peers. In the other three elements: the number of clauses/ phrases, the number of T-units, and the average number of clauses per T-unit, the gains were not statistically significantly different ($p > 0.05$). (See Tables 8 and 9)

Table 8 : Differences in Six T-unit Elements in the Post-test between Control Groups and Experimental Groups

T-unit elements	Groups	n	Mean rank	z-value
Words	Control High	18	10.97	-4.287*
	Experimental High	18	26.03	
	Control Low	18	13.06	-3.101*
	Experimental Low	18	23.94	
Clauses/phrases	Control High	18	11.36	-4.070*
	Experimental High	18	25.64	
	Control Low	18	15.17	-1.902
	Experimental Low	18	21.83	
T-units	Control High	18	12.17	-3.622*
	Experimental High	18	24.83	
	Control Low	18	15.69	-1.607
	Experimental Low	18	21.31	
Words per clause/phrase	Control High	18	18.19	-.174
	Experimental High	18	18.81	
	Control Low	18	13.56	-2.816*
	Experimental Low	18	23.44	
Words per T-unit	Control High	18	14.36	-2.357*
	Experimental High	18	22.64	
	Control Low	18	14.11	-2.499*
	Experimental Low	18	22.89	
Clauses per T-unit	Control High	18	14.36	-2.360*
	Experimental High	18	22.64	
	Control Low	18	16.28	-1.266
	Experimental Low	18	20.72	

* $p < 0.05$

Table 9 : Mean Frequency of the Six T-unit Elements in the Post-test between Control High Proficiency Group and Experimental High Proficiency Group

T-unit elements	N	Control High Post-test X (S.D.)	Exp High Post-test X (S.D.)	Control Low Post-test X	Exp Low Post-test X
Words	18	232.72 (84.61)	377.50 (59.79)	199.39 (77.4)	262.00 (51.74)
Clauses	18	29.17 (9.21)	47.72 (10.81)	25.72 (9.72)	30.89 (7.10)
T-units	18	15.00 (4.80)	21.17 (4.23)	14.67 (6.45)	16.39 (3.56)
Words / clause	18	7.91 (1.25)	8.04 (0.71)	7.80 (1.11)	8.58 (0.92)
Words / T-unit	18	15.64 (3.50)	18.02 (1.84)	14.01 (3.03)	16.41 (1.95)
Clauses/ T-unit	18	1.97 (0.28)	2.26 (0.30)	1.81 (0.43)	1.90 (0.26)

The Qualitative Description of the Attitudes of the Subjects towards the Sentence-combining Instruction and Writing in General

Towards the end of the term, the students in sections 2 and 6 who received instruction in sentence structure and practice in sentence-combining were asked to fill out the questionnaire (see Appendix A) related to sentence-combining instruction. The purpose of this questionnaire was simply to find out the students' attitudes towards sentence structure and sentence-combining instruction and other suggestions which may be useful to the study and materials production in the future.

From the questionnaire, it can be concluded that the subjects felt that they had gained more confidence in writing after the treatment they received for one term. They stated that they had previously studied some grammatical points but the instruction in sentence structure and sentence-combining helped reinforce their writing ability. They conceded that their writing improved after participating in the study and that they were able to write longer sentences of greater complexity. They also believed that they could apply the knowledge gained in this class to their writing in other

courses with increased confidence. The instruction also positively motivated their future studies. However, some felt overwhelmed by the amount of material covered in this term, considering the fact that they also had to study the other components required in this course. In addition, some believed that vocabulary was more important than sentence structure in answering the essay questions in the exams.

Discussion of the Findings

The discussion of the findings can be divided into several areas:

1. Sentence-combining instruction and practice for the period of one term have a positive effect on students' paragraph writing in response to essay questions. Their writing ability clearly improved, as was demonstrated by their significantly higher post-test scores after instruction as well as the higher post-test mean score when compared to those who did not receive instruction and practice. They had an opportunity to learn different types of sentence structure and were taught to combine various kinds of phrases and clauses in a number of ways considered essential in academic writing. The necessity of knowing and being able to use various types of sentence structure in academic writing coincides with Oshima and Hogue's (1991, 1999) point of view.

2. The method of teaching based on the degree of difficulty – from simple to complex – was employed gradually. The students had opportunities to apply their knowledge gained from instruction to actual writing since the instruction and practice were integrated into the EAP (Law) core lessons and supplementary materials. During the course of instruction, the students actually answered the questions in paragraph writing, integrating a variety of sentence structures and combining sentences into different types of sentence structures. It is likely that this combination helped improve their writing ability. As stated by Grabe and Kaplan (1996), materials taught in the classroom can be manipulated to teach sentence-combining activities. Textbooks containing sentence-combining tasks can generally be found to teach writing in the writing class. According to Grabe and Kaplan (1996: 335):

“Sentence-combining, like all other aspects of the writing curriculum, is best generated out of the writing of the students as well as the supporting material used for content units and curriculum projects. Using this approach within a meaningful context is more likely to motivate students and lead to greater fluency and complexity in student writing.”

3. The students’ positive attitude towards the instruction, as shown by the answers from the questionnaire, may also contribute to improvement in the students’ writing:

“Attitude is everything. It embraces the power to make people believe or not believe in their ability to do any task as well as their desire to participate in a specific activity. In the field of education, attitude about learning can have a significant impact on the success of any student...In a language arts classroom, positive attitudes about writing are necessary...” (Westervelt, 1998:3. For more information on attitudes, see Brown, 1987).

4. It is likely that the integration of different kinds of sentence-combining into core lessons and supplementary materials which gave students an opportunity to use their knowledge to practice actual writing may render a positive feeling as the students could see it was beneficial to their writing in in-class assignments, homework, and exams. Telling students that sentence-combining exercises will help them write “more interesting sentences that sound better to readers” (Saddler, 2005: 469) may help motivate them to make progress in their writing. (For more information on motivation, see Brown, 1987; Gardner, 1982; Hudson, 2000, cited in Norris-Holt, 2001; Norris-Holt, 2001)

5. Students in the experimental groups of both higher and lower proficiency gained higher scores in the post-test. They also significantly outperformed those students of comparable proficiency who did not receive treatment in this area. It can therefore be concluded that sentence-combining instruction and practice benefit both students who have mastered the foreign language and those

with a lower foreign language proficiency level when writing in response to essay-type questions.

6. Past studies which used sentence-combining to improve students' compositions conducted with both native speakers and second language learners employed sentence-combining to improve students' writing composition in general (e.g., O' Hare, 1973, cited in Strong, 1976; Willig, 1985; Olson, 1981; Mckee, 1982, Pedersen, 1977, cited in Brant, 1989; Myers, 1997). This study, on the other hand, focused on the instruction of sentence-combining and students' application of their knowledge in this area to 'answer essay-type questions in the content area (English for Academic Purposes in Law) in the form of paragraph writing.' The research findings in this study reveal that sentence-combining practice not only has a positive effect on writing composition in general, but it also renders encouraging results in students' paragraph writing in response to essay questions in a content-based course.

7. Instruction and practice of sentence-combining also contribute to more syntactic complexity to a certain degree as revealed by the improved results of some of the T-unit elements for learners of both high and low English proficiency levels who received the treatment. One of the reasons why sentence-combining exercises are successful is because they train the student "to hold longer and longer discourse in his head – to embed and subordinate at greater depth as a means of expressing thought" (Strong, 1986, cited in Fowler, 1999: 11).

8. For students with high proficiency level, the results show that five out of the six T-unit elements showed statistically significant differences compared to the students with comparable proficiency who were not taught sentence-combining. These gains may be explained according to two separate aspects. The first aspect is related to the number of words, clauses, and T-units in the students' paragraph writing in the post-test. The second aspect is related to the average number of words per clause (clause length), words per T-unit (T-unit length), and clauses per T-unit used by these students in the post-test.

In the first aspect, the high English proficient students in the experimental group significantly wrote more words, more clauses,

and more T-units in the post-test than their peers in the control group who did not receive the treatment. Although a greater number of words, clauses, and T-units does not signify a greater depth in syntactic complexity, it could be an indication that the practice of sentence-combining helps learners write and express their ideas with more ease, so they feel more comfortable with expressing their thoughts. According to Neman, "Sentence-combining is of value to us ... because it improves the overall style of the writing of most students who practice it." (Neman, 1980, cited in Fowler, 1999: 10). This also coincides with their better post-test scores in their answers and the better mean scores they received when compared to their peers in the control group.

The second aspect has to do with syntactic complexity. The results show that this group of students significantly wrote a greater number of words per T-unit, meaning that their average T-unit length was longer in the post-test than in the pre-test, and was longer than that of their peers who did not receive sentence-combining practice. Past research (e.g., Mellon, 1964, cited in Willig, 1985; O' Hare, 1973, cited in Strong, 1976; Willig, 1985; Olson, 1981; Daiker et al., 1979; Cooper, 1977; Monroe, 1975; cited in Cooper, 1977; Mckee, 1982, Pedersen, 1977, cited in Brant, 1989; Combs, 1975; Fischer, 1973; Mellon, 1969; Miller & Ney, 1968; Morenberg et al., 1978; O' Hare, 1973; Obenchain, 1971; Pedersen, 1977; Perron, 1974; Vitale et al., 1971, cited in Olson, 1981) supports the notion that longer T-unit length (more words per T-unit) signifies more syntactic complexity. In other words, there is growth in the syntactic maturity in students' writing. According to Strong (1976: 60), T-unit length is "the most reliable index of syntactic maturity." As a result of this study, it can be concluded that mean T-unit length is a stable indicator of syntactic complexity for students of high proficiency if they receive sufficient sentence-combining treatment.

Furthermore, after the treatment, the number of clauses per T-unit these students wrote significantly increased more than those written by their peers who did not receive the treatment. Again, this shows more in-depth usage of clauses in each T-unit. The conclusion can therefore be drawn that sentence-combining treatment also improves high English proficient students' ability to

write more clauses per T-unit. This finding is supported by the study by Mckee (1982), whose ESL students having previously scored between 400-650 on the TOEFL test significantly gained more clauses per T-unit after the eight-week treatment.

With regard to mean clause length (average number of words per clause), which is another element of the T-unit often used in research to show syntactic complexity, the experimental higher proficiency group did not have a significant gain in the post-test writing. Also, despite the fact that the experimental high proficient students did write with longer clause length in the post-test than their peers in the control group, the gain was not statistically significant. One explanation may be that, unlike other past studies using T-units to analyze syntactic complexity in 'compositions,' which generally involved longer texts, this study required students to write answers in response to questions posed from reading articles, thus, somewhat restricting students' answers. Therefore, in this situation, clause length may not be sensitive enough to render a significant gain compared to T-unit length, which is a larger unit.

9. Similar to the results of students of higher English proficiency in the experimental group, the results for students of lower English proficiency in the experimental group are two-fold:

Firstly, these students significantly wrote more words, more clauses, and more T-units in the post-test than in the pre-test. They also significantly wrote more words than their peers in the control group. Similar explanations could apply, viz. sentence-combining instruction and practice may help even lower English proficiency students to feel more confident in expressing their ideas in answering essay questions.

With regard to clause length, T-unit length, and the number of clauses per T-unit, which are indicators of syntactic complexity, there were no significant differences between the pre- and post-tests. However, when compared to their peers who did not receive the treatment, the findings show that these experimental low proficiency students significantly produced greater clause length and T-unit length, meaning that they significantly wrote more words per clause and per T-unit. Therefore, it may be interpreted that

sentence-combining instruction and practice also help increase even lower English language proficiency students' syntactic complexity when compared to their peers who did not receive any such instruction or practice.

Consequently, it may be concluded that instruction and practice of sentence-combining can achieve some positive effect even on students with lower English proficiency. Therefore, Zamel's (1980) cautious remark that second language students need to attain a certain level of linguistic ability in order for sentence-combining to work may only be partially true.

10. Regarding the control high and low proficiency groups, the increase in their post-test essay scores was not statistically significant. In addition, the syntactic complexity in their paragraph writing as measured by the average clause length and T-unit length and the average number of clauses per T-unit also declined in the post-test. The conclusion can therefore be drawn that students who do not receive proper sentence-combining practice may lack awareness in employing sentence-combining to their advantage and, therefore, are not able to make use of such knowledge to benefit their writing. Crowhurst (1983: 64) concludes the following from Mellon's (1974) comments on sentence-combining:

Sentence-combining does not produce – especially in older students – automatic or involuntary use of syntactic operations. It makes readily available certain syntactic resources. Linguistic resources which were already within the student's competence are raised to conscious control. The student must still be taught when and how to use these resources to rhetorical advantage.

11. It may be concluded that there is some correlation between the quality of writing (as measured by the significant higher post-test scores of the experimental groups) and an improvement in syntactic complexity (as measured by T-unit analyses). The findings reveal that there were gains in both of these measurements; that is, those students who gained higher scores in the post-test essay answers also had gains in some of the T-unit elements. Perhaps the correlation between these two factors is more prominent in students who have greater mastery of the foreign language than students with lower proficiency. Findings in previous

studies showed positive results of sentence-combining instruction on both syntactic fluency and writing quality (Crowhurst, 1983).

12. Some studies reported inconsistencies in sentence-combining (e.g., Crowhurst, 1983; Kline, 1983, cited in Johnson, 1992; Haswell, 1981; Faigley, 1980, cited in Keen, 2004), and yet many studies found encouraging results (Mellon, 1964, cited in Willig, 1985; Olson, 1981; Daiker et al., 1979; Bateman, 1959, cited in Frank, 1993; Mckee, 1982; Garrott, 2001; Kameen, 1983). For example, some of the positive effects of sentence-combining on students' writing in Kameen's (1983) study such as longer mean T-unit length correlate with studies conducted by other researchers, whereas other positive results in the same study such as longer clause length coincide with different studies. Still, there is one type of instruction which does not produce a satisfactory result – the number of subordinate clauses per T-unit.

On the other hand, Davis and Witte (1979) and Witte and Davis (1980) conducted two similar studies with the finding in one revealing T-unit length not to be a stable individual characteristic (Witte & Davis, 1980) while, in the other, T-unit length was stable both as an individual as well as a group characteristic (Davis & Witte, 1979). The key difference was that in the study which showed stability, the students had received 'intensive writing instruction'.

In this study, students of both above average and lower English proficiency who have received sentence-combining treatment were found to outperform their peers of comparable proficiency who had no formal sentence-combining instruction and practice. With regard to many T-unit elements measured in this study, some aspects of syntactic complexity growth have been found. Based on the past literature previously reviewed and the findings of this study, different results of sentence-combining instruction in research studies may not necessarily indicate inconsistencies in sentence-combining, as some have argued, for the following reasons.

First of all, a variety of components constitutes good quality of writing such as grammar, organization, rhetorical style, and sentence structure, to name a few.

Secondly, within sentence-combining instruction itself, there are several aspects to cover. Some of these are noun clauses, adjective clauses, adverbial clauses, participial phrases, simple, compound, complex, and a combination of compound-complex sentences.

Finally, if one study teaches students several aspects of sentence structure and investigates the many components in students' writing mentioned above such as mean clause length, mean T-unit length, or the average number of clauses per T-unit, it may be unlikely that the researcher receives all the positive results in the same study. Inconsistencies previously reported by some researchers may occur from their attempts to investigate too many aspects at the same time, since writing, as has been stated by many educators, is a complex process.

13. Comments gathered from the questionnaire on students' attitudes towards the teaching of sentence structure and practice in sentence-combining integrated into the core course lessons and supplementary materials reveal that the students were satisfied with the instruction and practice because they believed it to be useful to their writing and helpful in improving their writing ability. However, some felt overwhelmed by the amount of materials covered during the course, particularly considering that other components in the course had to be covered as well.

Pedagogical Implications and Future Research Suggestions

Some pedagogical implications can be drawn and future research suggested as a result of the research findings:

1. The results of this research study reveal that sentence-combining treatment benefits students' writing in response to essay questions. It is therefore suggested that sentence structure instruction and sentence-combining practice be integrated into content-based courses such as English for Academic Purposes so that students have the opportunity to practice this as part of their course.

2. The results of this research study reveal that students of different English language proficiency levels gain benefits from the

instruction of sentence structure and practice of sentence-combining as demonstrated by the improvement in their test scores. Therefore, sentence-combining may be taught to students of both higher and lower language proficiency levels without reservation.

3. The results of this research study showed that there might be some correlation between the overall quality of paragraph writing in response to essay questions and some aspects of syntactic complexity represented by the gains in some T-unit elements, although the correlation is slightly more noticeable in higher language proficiency students than in those of lower proficiency. The conclusion can therefore be drawn that gains in syntactic complexity may enhance the quality of writing, particularly of those who have mastered the language to some degree. Pedagogically, teachers should be encouraged to teach sentence-combining to increase syntactic maturity, which also appears to lead to a better quality of paragraph writing.

4. To gain the most benefit from the teaching of sentence-combining, it might be important for students of low language proficiency to know and understand more basic grammar rules relating to the production of good sentence structure before they are taught how to combine different kinds of sentence structures. This conclusion coincides with the reservations regarding teaching sentence-combining to students with low language ability made by Zamel (1980).

5. Based on the students' comments in the questionnaire, it can be concluded that the instruction of sentence structure and practice in sentence-combining are useful to students. However, teachers may have to take into consideration the amount of materials covered during the course, considering the fact that other components in the course have to be taught as well. Thus, the time element plays a vital role and should be taken into consideration when integrating such instruction and practice into a content-based course.

6. This research focused on the development of students' writing ability and syntactic complexity throughout the course. Future research may have to take other factors in writing into consideration.

7. This research did not use error-free T-units, which many first language researchers have used, to analyze sentence structure due to the limited content written by students in response to essay questions. In addition, it is difficult to find any error-free paragraph writing by Thai students in English. However, future research may consider using error-free T-units to analyze data.

8. Past studies (Mellon, 1969; O' Hare, 1973; Combs, 1976, cited in Daiker et al., 1978; Pedersen, 1977, cited in Brant, 1989) and this research have shown that the sentence-combining instruction and practice help improve students' writing ability. However, a limited amount of teaching and practice time, i.e., only one term, may not guarantee a long-lasting improvement in actual writing. It is advisable that the instruction and practice be implemented at secondary school level before students further their studies in subject-specific university English courses. This suggestion is in congruence with several research studies in sentence structure and sentence-combining which use secondary school students as subjects (e.g. Marcus, 1994; Willig, 1985). This knowledge should be reinforced when students enter university and throughout their studies to retain the skill as research has shown that memory retention may not last if students do not practice on a regular basis (e.g. Combs' 1976 study, cited in Zamel, 1980; Crowhurst, 1983). A substantial number of research studies indicate that the instruction and practice of sentence-combining lead to syntactic fluency. However, the results of some studies show that a lack of regular practice will result in a reduction in syntactic fluency gains and so constant practice is needed to maintain such gains. According to Mellon (1974, cited in Crowhurst, 1983: 64), "sentence-combining does not lead to changes or growth in the students' basic linguistic ability, but raises to conscious control innate linguistic resources."

9. Some researchers such as Grabe and Kaplan (1996: 335) treat grammar and sentence-combining as two different components, believing that sentence-combining should "...be seen in a discourse context, recognizing the function of the output combination within the larger structure." Mellon (1979: 42-43) believes that sentence-combining "is ready for classroom use... With sentence combining, the time for action has arrived. Sentence-combining produces no

negative effects, and works better than most of the activities in current composition teaching.” Writing includes several other aspects that need to be considered. Exercises in sentence-combining should be part of many other components in a writing program. Keep this in mind, and they can benefit writers in composing interesting, meaningful, and varied sentences in their written product (Saddler, 2005).

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References

- Andrew, R. et al. (2006). The effect of grammar teaching on writing development. *British Educational Research Journal*, 32(1), 39-55
- Arapoff, N. (1967). Writing: A thinking process. *TESOL Quarterly*, 1(2) 33-46.
- Barnitz, J. G. (1998). Revising grammar instruction for authentic composing and comprehending. *Reading Teacher*, 51 (7), 1-14. [On-line]. Available: [http://web13.epnet.com/citation.asp?tb=1&_ug=sid+FA1262F5%2D25D2%](http://web13.epnet.com/citation.asp?tb=1&_ug=sid+FA1262F5%2D25D2%20) [21/11/2005]
- Blau, E. K. (1982). The effect of syntax on readability for ESL students in Puerto Rico. *TESOL Quarterly*, 16(4), 517-528.
- Bond, C. (1972). A New approach to freshman composition: A trial of the Christensen method. *College English*, 33(6), 623-627.
- Brant, J. K. (1989). *Sentence-combining in the secondary ESL classroom - A review of the research literature*. ED 307811.

- Broadhead, G. J. & Berlin, J. A. (1981). Twelve steps to using generative sentences and sentence combining in the composition classroom. College Composition and Communication, 32(3), 295-316.
- Brown, H. D. (1987). Principles of learning and teaching. Englewood Cliffs, New Jersey: Prentice-Hall, Inc.
- Chin, B. A. The Role of grammar in improving student's writing. Sadlier-Oxford. [On-line]. Available: <http://www.sadlier-oxford.com/lang/papers/chinpaper.html> [10/6/2002]
- Christensen, F. (1968). The problem of defining a mature style. College Composition and Communication, 57, 572-579.
- Clifford, J., & Waterhouse, R. F. (1983). Sentence combining: Shaping ideas for better style. Indianapolis, IN: Bobbs-Merrill.
- Combs, W. E. (1977). Sentence-combining practice: Do gains in judgments of writing 'quality' persist? Journal of Educational Research, 70 (6), 318-321.
- Cooper, C. R. (1973). An outline for writing sentence-combining problems. The English Journal, 62(1), 96-102.
- Cooper, T. C. (1977). A strategy for teaching writing. The Modern Language Journal, 61(5/6), 251-256.
- Cotton, K. (1988). Teaching composition, research on effective practices. Topical synthesis No. 2 School improvement research series II. ED 296343
- Craig, H. K. et al. (1998). Average C-unit lengths in the discourse of African American children from low-income, urban homes. Journal of Speech, Language & Hearing Research, 41(2), 433. (12p.) [On-line]. Available: <http://ehostvgw2.epnet.com/fulltext.asp?resultSet.Id=R00000001&hitNum=50> [14/4/2002]
- Crowhurst, M. (1983). Sentence combining : Maintaining realistic expectations. College Composition and Communication, 34(1), 62-90.
- Daiker, D. A., Kerek, A., & Morenberg, M. (1978). Sentence-combining and syntactic maturity in freshman English. College Composition and Communication, 29(1), 36-41.
- Daiker, D. A. et al. (1979). Sentence-combining and the teaching of writing. Selected papers from the Miami University Conference (Oxford, Ohio, October 27-28, 1978). ED 259393.
- David, C. & Bubolz, T. (1983). Evaluating students' achievement in a writing center. ED 230976.

- Davies, F. (1988). Designing a writing syllabus in English for academic purposes: Process and product. In P. C. Robinson (Ed.), Academic writing: Process and product: ELT Documents 129, (130-142). Hong Kong: Modern English Publications and the British Council.
- Ebel, R. L. (1972). Essential of educational measurement. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Elbow, P. (1981). Writing with power: Techniques for mastering the writing process. NY: Oxford University Press.
- Elder, W. J. (1981). Sentence-Combining. Yale – New Haven Teachers Institute. [On-line]. Available: <http://www.yale.edu/ynhti/curruculum/units/1981/4/81.04.06.x.html> [26/10/2001]
- Evans, R. et al. (1988). The effects of sentence-combining instruction on writing and on standardized test scores. Journal of Educational Research, 82(1), 53-57.
- Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. College Composition and Communication, 32, 365-387.
- Fowler, E. D. (1999). Improving style in students' written compositions. ED 435096.
- Frank, M. (1993). Using sentence-combining practice to teach sentence structure. ED 366208.
- Gaies, S. J. (1980). T-Unit analysis in second language research: Applications, problems and limitations. TESOL Quarterly, 14(1), 53-59.
- Garrot, C. L. (2001). Syntactic maturity: The complex sentence in intermediate Spanish. ED 454730.
- Grabe, W., & Kaplan, R. (1996). Theory and practice of writing. New York: Addison Wesley Longman Limited.
- Graves, R. L. (1978). Level of skill in the composing process. College Composition and Communication, 29(3), 227-232.
- Hairston, M. C. (1977). Teaching sentences without using traditional terminology. ED 147849.
- Haji Pour Nezhad, G. (Oct., 2001). Item complexity judgment when it comes to testees: Episode 1. Shiken: JALT Testing & Evaluation SLG Newsletter. V.5(3). [On-line]. Available: http://www.jalt.org/test/haj_1.htm [14/4/2002]
- Huxford, L. (2004). Developing an understanding of the pedagogy of writing in the middle years (age 8-11). Australian Journal of Language & Literacy, 27(3), 234-244.
- Jablon, R. L. (2004). Undergraduate writing skills; Or, whatever happened to basic grammar? Phi Kappa Phi Fokum, 84(4) 57-58.

- Jenkinson, A. (1999). Improve student reading and writing. Sentence-combining activities for elementary and secondary teachers. ED 430256
- Johnson, K. E. (1992). Cognitive strategies and second language writers: A Re-evaluation of sentence-combining. Journal of Second Language Writing, 1(1), 61-75.
- Jordan, Z. L. (1991). The effects of sentence-combining instruction on the syntactic fluency of the writing of a selected group of middle school students. UMI ProQuest Digital Dissertations. [On-line]. Available: <http://wwwlib.umi.com/dissertations/fullcit/9215107>
- Kameen, P. T. (1978). A mechanical, meaningful, and communicative framework for ESL sentence combining exercises. TESOL Quarterly, 12(4), 395-401.
- Kameen, P. T. (1983). Syntactic skill and ESL writing quality. In A. Freedman, I. Pringle, & J. Yalden (Eds.), Learning to write: First language/second language, (162-170). New York: Longman Inc.
- Keen, J. (2004). Sentence-combining and redrafting processes in the writing of secondary school students in the UK. Linguistics and Education, 15(1/2), 81-97.
- Krapels, A. R. (1991). An overview of second language writing process approach. In B. Kroll (Ed.), Second language writing: Research insights for the classroom, (37-56). New York: Cambridge University Press.
- Larsen-Freeman, D. (1997). Grammar and its teaching: Challenging the myths. ERIC L & L Digest. [On-line]. Available: <http://www.cal.org/ericcl/digest/larsen01.htm/> [14/6/2001]
- Lavelle, E. (2003). The quality of university writing: A preliminary analysis of undergraduate portfolios. Quality in Higher Education, 9(1), 87-93.
- Louie, A. C. (1994). Improving composition for secondary ESL students through the process approach. A dissertation presented to the Faculty of the School of Education International and Multicultural Education Program, The University of San Francisco.
- Marcus, M. (1994). A classroom-based approach to improving revision skills in secondary school students. A Practicum I Report Presented to the ED. D Program in Child and Youth Studies in Partial Fulfillment of the Requirements for the Degree of Doctor of Education, Nova Southeastern University. ED 376495.
- Marzano, R. J. (1976). The sentence combining myth. English Journal, 65, 57-59.

- Mehrens, W. A., & Lehman, I. J. (1984). Measurement and Evaluation in Education and Psychology (3rd ed.). New York: Holt, Rinehart.
- Mellon, J. C. (1979). Issues in the theory and practice of sentence combining: A twenty year perspective. Sentence Combining and the teaching of writing. Selected papers from the Miami University Conference. Oct 27 & 28, 1978. Edited by Donald A. Daiker, Andrew Kerek, and Max Morenberg p.1-38. ED 259393.
- Mellon, J. C. (1981). Can sentence combining play a role in the revision process? (Report No. CS 206 694). Boston, MA: NCTE. (ERIC Document Reproduction Service No. ED 211979).
- Moffet, J. (1983). Teaching the universe of discourse. Portsmouth, NH: Boynton/Cook.
- Morenberg, M. (1992). Come back to the text ag'in, huck honey! Paper presented at the Annual Meeting of the National Council of Teachers of English (82nd, Louisville, KY, November 18-23, 1992). ED 3555
- Myers, S. (1997). Teaching writing as a process and teaching sentence-level syntax: Reformulation as ESL composition feedback. TESL-EJ, 2(4), 1-19.
- Norris-Holt, J. (2001). Motivation as a contributing factor in second language acquisition. The Internet TESL Journal, VII(6), 1-10. [On-line]. Available: <http://iteslj.org/Articles/Norris-Motivation.html> [10/8/2004]
- O'Hare, F. (1973). Sentence-combining: Improving student writing without formal grammar instruction. Urbana, IL: NCTE.
- Olson, A. G. (1981). Incorporating sentence combining into the advanced composition class. JAC 2-1-2, 1-10.
- Oshima, A., & Hogue, A. (1991). Writing Academic English (2nd ed.). New York: Addison-Wesley Publishing.
- Oshima, A., & Hogue, A. (1999). Writing Academic English (3rd ed.). New York: Addison-Wesley Longman.
- Oxford, Rebecca (1994). Language learning strategies: An update. ERIC L & L Digest. p. 1-9. [On-line]. Available: <http://www.cal.org/resources/digest/oxford01.html> [10/8/2004]
- Phillips, S. E. (1996). Sentence-combining: A literature review. ED 3985
- Raimes, A. (1983a). Techniques in Teaching Writing in ESL Classes. New York: Oxford University Press.

- Raimes, A. (1983b). Anguish as a second language? Remedies for composition teachers. In A. Freedman, I. Pringle, & J. Yalden (Eds.), Learning to write: First language/second language (pp. 258-287). New York: Longman.
- Raimes, A. (1987). Language proficiency, writing ability, and composing strategies: A study of ESL college student writers. Language Learning, 37(3), 439-468.
- Reeves, L. L. (1997). Minimizing writing apprehension in the learner-centered classroom. English Journal, 86(6), 38-45.
- Reutzell, D. R. & Merrill, J. D. (1985). Writing with basals: A sentence combining approach to comprehension. Paper presented at the Annual Meeting of the International Reading Association (30th, New Orleans, LA, May 5-9, 1985). ED 263612.
- Saddler, B. (2005). Sentence-combining: A sentence-level writing intervention. Reading Research, 58(5), 468-471.
- Saddler, B. (2007). Improving sentence writing ability through sentence-combining practice. Teaching Exceptional Children, 39(3), 6-11.
- Saddler, B., & Graham, S. (2005). The effects of peer-assisted sentence-combining instruction on the writing performance of more and less skilled young writers. Journal of Educational Psychology, 97(1), 43-54.
- Schleppegrell, M. J. & Colombi, M.C. (1997). Text organization by bilingual writers: Clause structure as a reflection of discourse structure. Written communication, 14 (4), 481-503.
- Silva, T. (1991). Second language composition instruction: Developments, issues, and directions in ESL. In B. Kroll (Ed.), Second language writing: Research insights for the classroom, (11-23). New York: Cambridge University Press.
- Singleton, C. (1983). Sentence-combining for the intermediate level ESL student. ED 267622.
- Sotillo, S. (May 2000). Discourse functions and syntactic complexity in synchronous and asynchronous communication. Language Learning & Technology. 4(1), 82-119. [On-line]. Available: <http://llt.msu.edu/vol4num1/sotillo/> [11/8/2004]
- Sternglass, M. (1976). Composition teacher as reading teacher. College Composition and Communication, 27(4), 378-382.
- Strong, W. (1973). Sentence Combining. New York: Random House
- Strong, W. (1976). Close-up: Sentence combining: Back to basics and beyond. English Journal, 65, 56, 60-64.

- Strong, G. (1993). Teaching writing with small groups. ED 369290.
- Tice, T. N. (1992). Sentence-combining. Education Digest, 57(7), 47.
- Vavra, E. (2002). Dr. Ed Vavra's KISS approach to sentence structure, p. 1-11. [On-line]. Available: http://curie.pct.edu/courses/evavra/ED498/Essay009_Def+Tunit.htm [14/4/2002]
- Weigle, S.C. (2002). Assessing Writing. Cambridge: Cambridge University Press.
- Weinstein, G. J. (1982). Sentence-combining; writing exercises, writing instruction; secondary education; traditional grammar. ED 21301
- Westervelt, L. (1998). Teaching writing using the process-oriented approach. ED 420864.
- Wiess, A. B. (1984). MORE: A classroom approach to the development of writing skills at the upper high school level. (Report No. CS 208 762). Cocoa Beach, FL: FCTE. ED 252 888)
- Willig, J. B. (1985). Using instruction in sentence combining to increase syntactic maturity in student writing. ED 323557.
- Witte, S. P. (1983). The reliability of mean T-unit length: Some questions for research in written composition. In A. Freedman, I. Pringle, & J. Yalden (Eds.), Learning to write: First language/second language, (162-170). New York: Longman Inc.
- Writing Techniques. [On-line]. Available: <http://www.geocities.com/testtimes/writing.html>.
- Zamel, V. (1980). Re-evaluating sentence-combining practice. TESOL Quarterly, 14(1), 81-90.
- Zamel, V. (1983). The composing process of advanced ESL students: Six case studies. TESOL Quarterly, 17(2), 165-187.

APPENDIX A
QUESTIONNAIRE

แบบสอบถาม

กรุณาตอบแบบสอบถามนี้ตามความเป็นจริง คำตอบของท่านจะไม่มีผลต่อคะแนนสอบ

ตลอดระยะเวลาหนึ่งเทอมที่ผ่านมาในวิชา EAP(Law)I ท่านได้เรียนเกี่ยวกับโครงสร้างของประโยคต่าง ๆ ในการเขียนตอบคำถามในเชิงอรรถันัย อาทิ Independent clauses, dependent clauses, subordinate clauses, participial phrases, relative clauses, etc. กรุณาตอบคำถามดังต่อไปนี้

1. เอกสารที่ใช้ในการสอนโครงสร้างประโยคต่าง ๆ ดังกล่าวในวิชา EAP (Law) I มีความเหมาะสมในแง่ของเนื้อหา ปริมาณ ความยากง่ายอย่างไร? อธิบาย
2. ท่านคิดว่าเอกสารที่ใช้ในการสอนเกี่ยวกับโครงสร้างรูปประโยคต่าง ๆ ในวิชา EAP (Law) I ช่วยให้ ท่านเข้าใจการเขียนโครงสร้างประโยคดีขึ้นหรือไม่ อย่างไร? อธิบาย
3. ท่านคิดว่าการสอนของอาจารย์เกี่ยวกับโครงสร้างประโยคต่าง ๆ และเอกสารดังกล่าวช่วยในการพัฒนาการเขียนในระดับ paragraph ของท่านมากน้อยเพียงใดหรือไม่? อธิบาย
4. ท่านคิดว่าความรู้ที่ได้รับจากการเขียนโครงสร้างประโยคต่าง ๆ ในวิชา EAP (Law) I ดังกล่าว ช่วยให้ท่านตอบข้อสอบประเภทอรรถันัย (essay questions) ในข้อสอบปลายภาคของวิชานี้ ดีขึ้นมากน้อยเพียงใด? อธิบาย
5. ท่านคิดว่าความรู้ที่ท่านได้จากการเรียนโครงสร้างประโยคต่าง ๆ ในวิชา EAP (Law) I ดังกล่าว ช่วยให้ท่านมีความมั่นใจในการเขียนแบบอรรถันัยมากน้อยเพียงใด? อธิบาย
6. ท่านมีความเห็นอย่างไร ถ้าจะรวมเอกสารโครงสร้างประโยคต่าง ๆ ที่ท่านได้เรียนมาแล้วในวิชา EAP (Law) I มาเป็นส่วนหนึ่งในวิชา EAP (Law) I และ II ในอนาคต?
7. หลังจากที่ท่านได้เรียนรู้โครงสร้างประโยคต่าง ๆ ดังกล่าวในวิชา EAP (Law) I ท่านมีทัศนคติที่ดีขึ้นต่อการเขียน (writing) หรือไม่?
8. ท่านได้นำความรู้เกี่ยวกับโครงสร้างประโยคต่าง ๆ ดังกล่าวไปประยุกต์ใช้ในการตอบคำถามในข้อสอบปลายภาคของวิชา EAP (Law) I หรือไม่และในลักษณะใด?
9. ข้อคิดเห็นอื่น ๆ (ถ้ามี)

