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Date September 3, 1980

A SENTENCE-COMBINING EXPERIMENT IN AN ELECTIVE HIGH SCHOOL CREATIVE
WRITING CLASS OF ELEVENTH- AND TWELFTH-GRADE STUDENTS

by

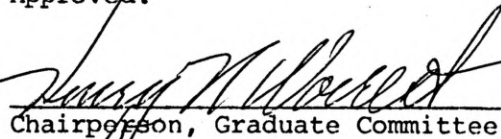
AILANA PETERSON DENISON

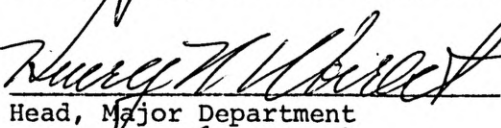
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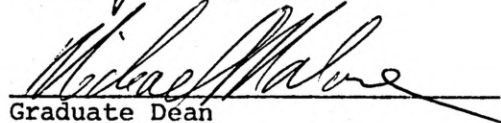
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Approved:


Chairperson, Graduate Committee


Head, Major Department


Graduate Dean

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ABSTRACT

The experiment was originated to determine if students in an advanced creative writing class at Stevensville High School, Stevensville, Montana, after having completed a semester-long project in sentence combining, would improve in syntactic maturity, as measured by several scales currently in use in the sentence-combining field. The researcher also made an informal assessment of student opinion to see if they enjoyed the exercises and felt them to be beneficial.

The 12 students, members of the eleventh and twelfth grades, practiced SC exercises an average of 15 minutes every day for 16 weeks using textbooks by Strong, O'Hare, and Morenberg, Daiker, and Kerek. Students completed a pretest instrument ("The Chicken" by Hunt) and a posttest instrument ("The Carver" by Strong), the results being segmented and analyzed by the researcher to determine mean differences in 12 measures of syntactic maturity, including seven utilized by Hunt and five suggested by Christensen. Data was submitted to analysis of variance through a one-tailed T-test at the .05 level of significance.

Analysis showed growth significant at the .05 level in the following measures: (1) words per T-unit, (2) words per clause, (3) adverb clauses per 100 T-units, (4) nonfinite verbs per 100 words, (5) number of absolutes, (6) final free modifiers per 100 words, and (7) total free modifiers per 100 words. No significant results were found in (1) clauses per T-unit, (2) noun clauses per 100 T-units, (3) adjective clauses per 100 T-units, (4) initial free modifiers per 100 words, and (5) medial free modifiers per 100 words. Student response was positive to questions about the usefulness of the exercises to the students. Since the students had made gains in the most important factors of syntactic maturity and had enjoyed the work, the researcher concluded the treatment was effective and that SC exercises are helpful to young writers.

Recommendations of the researcher included the following: (1) SC exercises can be suggested as an effective tool for use in creative writing classes; (2) Repetition of this study should be made, reversing the order of the test instruments; (3) Further research on language norms for older students must be done; (4) More SC studies in creative writing classes would help substantiate these results; (5) Additional norms for creative writing students, who are atypical, would be helpful.

Chapter 1

BACKGROUND AND GENERAL DESCRIPTION

Introduction

Since the ancient Greeks formulated the rhetorical rules that are still contained in many contemporary composition texts, teachers have searched for effective ways to help students improve their self-expression. Many composition philosophies have come into vogue and flourished, with little evidence of their worth other than the vague feelings of those propounding the ideas. As Kellogg Hunt (1979:150-151) has pointed out, in fact, college composition courses were generally relegated to inexperienced staff or graduate students so that the tenured professors could devote themselves to revered literature classes. Most English teachers received little training in teaching writing; guesswork and trial-and-error methodology were the constant companions of the composition instructor. This was true partly because, until recently, experimental research in writing was uncommon.

With the advent of structural and, later, transformational grammar systems, however, many advanced degree candidates and English education professors have turned aside from the traditional topics of literature toward language and composition research. Promising new teaching methods involving sentence combining and analysis of mature style characteristics have surfaced, but more research is needed in

applying sentence-combining techniques in varied classroom situations and further developing norms in syntactic maturation.

The researcher in this study was faced with a class in advanced creative writing--a class in which work was to be done on an individual contract basis with no classroom instruction except for individual conferences with students about their creative efforts. It was felt that sentence-combining work might benefit the students, many of whom seemed to have true creativity in their writing but very little sophistication in style.

Statement of the Problem

The problem of this study was to determine if students completing a semester-long project in sentence combining would improve in syntactic maturity, as measured by several scales currently being used by researchers in the sentence-combining field.

In addition, the researcher wanted to informally observe student reaction to sentence combining, which some English educators consider a technique suitable only with lower-grade students. Would these eleventh- and twelfth-grade students enjoy sentence-combining exercises and feel that their writing improved as a result of the practice they did?

Contribution to Educational Theory and Practice

While initial experiments in the field of sentence combining (SC) were conducted with seventh-grade students for the most part, researchers have begun to extend their efforts to students of other ages, most notably freshmen in college. Despite the increasing number of sentence-combining studies, the researcher was unable to find one reference dealing with sentence combining in a creative writing class, composed of students who are most in need of this syntactical development and who are extremely receptive to and interested in language manipulation ideas. As Frank O'Hare (1973:75) has been so widely quoted,

Composition teachers should realize that it is not enough for a young writer to have something to say. Finally, he must be able to express it, to manipulate sentence structures in order to recapture the experience for this reader.

The creative writer is especially interested in finding the most effective language he can in his work. Therefore, the creative writing classroom seems a logical environment for sentence-combining experiments, a setting too significant to be ignored by researchers.

General Questions to be Answered

(1) Will the creative writing students improve significantly from the pretest to the posttest in terms of the following scales:

- (a) Mean T-unit length (number of words per T-unit)
- (b) Number of clauses per T-unit
- (c) Mean clause length (number of words per clause)
- (d) Number of noun clauses per 100 T-units
- (e) Number of adjective clauses per 100 T-units
- (f) Number of adverb clauses per 100 T-units
- (g) Number of absolutes
- (h) Nonfinite verbs as a percentage of total words
- (i) Words in initial free modifiers as a percentage of total words
- (j) Words in medial free modifiers as a percentage of total words
- (k) Words in final free modifiers as a percentage of total words
- (l) Total words in free modifiers, all positions, as a percentage of words written

(2) Will the students, when questioned informally at the completion of the posttest, say they enjoyed the project and felt their writing improved as a result of the work done in class?

General Procedures

The subjects of this study consisted of eleventh- and twelfth-

grade students enrolled in an advanced creative writing class. Each student in the class wrote a pretest consisting of combining sentences in "The Chicken," a passage developed by Kellogg Hunt (1977) and normed through his research. The students practiced sentence-combining exercises for one semester, at the completion of which they combined sentences in "The Carver," an exercise taken from William Strong's textbook (1973:113-115). The students were also informally examined to determine their opinions of the program. Analysis of the pretest and posttest papers was performed by the researcher.

Limitations and Delimitations

Some limitations of this experiment were as follows:

- (1) The experiment was conducted at Stevensville High School, Stevensville, Montana.
- (2) Only those students who enrolled in Creative Writing II during the second semester, 1979-80 school year, were included in this experiment. The population size, therefore, was very small.
- (3) Because of scheduling changes during the semester, two students did not complete attendance in the class.
- (4) In order to be accepted into Creative Writing II, students were required to have attained at least a B in Creative

Writing I, a prerequisite course.

The delimitations of the experiment were as follows:

- (1) Two students added the class well after the beginning of the semester, eliminating the possibility of equality of treatment. Although these students wrote posttests and participated in most of the treatment exercises, their papers were not included in the analysis.
- (2) Although they had not taken Creative Writing I, three students were admitted to the class by the instructor on the basis that they showed the ability and interest required to successfully complete a contract-based class in writing.

Definition of Terms

For the purpose of this experiment, syntactic maturity (or maturity of writing) will be defined using the "elaboratedness of sentence structure" concept of Mellon (1969:84), the more complex structures being evidenced in the writing of older students and adults.

The measurements used for evaluation of the pretest-posttest mean differences will be defined in Chapter 3.

Summary

Although evidence has accumulated over a fifteen-year period attesting to the success of sentence combining as a method for the teaching of syntactic fluency, additional investigation in many classroom situations and at varied grade levels will fill in the gaps in sentence-combining research. This experiment, conducted in a creative writing class composed of eleventh- and twelfth-grade students, sought to measure the results of sentence-combining exercises upon the students' writing. Pretest and posttest instruments were analyzed for significant differences in means on several syntactic measurements. Informal assessment of student attitudes was also made.

Chapter 2

REVIEW OF THE LITERATURE

Introduction

Today sentence-combining research has diversified into many grade levels and areas of language arts, such as studies of reading comprehension, writing programs for college students, and instruction in English as a second language. Yet the field itself is, by the most generous estimate of John Mellon (1979:1), only twenty years old. This chapter presents the chronological development of sentence combining, including the influence of transformational-generative grammar and research into syntactic maturity.

Early Research in Defining and Measuring Syntactic Maturity

The beginnings of current research into the characteristics of syntactic maturity and measurement of its qualities would not have been possible without the development of structural grammar and, more importantly, the later evolution of transformational-generative grammar. Ideas propounded by Noam Chomsky in 1957 about the nature of language and the way it is generated were refined by researchers, providing some departures from measures formerly used to analyze language.

In 1964 Kellogg Hunt published a landmark study in the development of syntactic maturity instruments. He studied small groups of fourth-, eighth-, and twelfth-grade students, as well as a group of "superior" adults (authors of expository articles in Harper's and Atlantic magazines), developing the definition of the "minimal terminable unit" or "T-unit" as "one main clause plus whatever subordinate clauses happen to be attached to or embedded within it" (1965:305). Previous studies had used sentence length as a measurement, but Hunt realized that joining innumerable sentences together with and's, as elementary children often tend to do, was not an indication of mature writing.

Hunt's exhaustive study of writing samples from his four groups has supplied normative data for many researchers. Analysis of T-unit length, clause length, and sentence length by chi-square and contingency coefficient revealed that the T-unit appears to be the best measure of syntactic maturity, followed by mean clause length (Hunt, 1965:306).

In studying his data, Hunt (1966:71) also concluded that

Of the various differences in clause-to-sentence length factors between average twelfth graders and superior adults, the most distinctive difference is in clause length. Superior adults pack 36 percent more words into their clauses. . . .

This remarkable difference in clause length is enough to account arithmetically for three fourths of the difference in sentence length between twelfth graders and superior adults.

In an exhaustive examination begun in 1953 and published in its entirety in 1976, Walter Loban analyzed both the oral and the written language development of a group of children as it progressed from grades one through twelve. Loban substituted the term "communication unit" (CU) for Hunt's T-unit, enlarging the definition slightly to allow for structures peculiar to oral language. He also analyzed language according to an elaboration index (to show more complicated or mature transformations), as well as scales similar to Hunt's. Included in his summary of characteristics of those students skilled in language are the following (1976:88): (1) longer CU, (2) "greater elaboration of subject and predicate," (3) "more embedding in transformational grammar," and (4) "more use of dependent clauses of all kinds."

Roy O'Donnell, William Griffin, and Raymond Norris (1967) studied the language production of 180 children in six elementary grades to determine the types, uses, and number of SC transformations in T-units of oral and written language. They concluded (1967:44)

Findings in this study support the conclusion by Hunt (1964, 1965) that the mean length of minimal terminable syntactic units . . . is a sensitive measure of development toward maturity in children's language production.

The researchers found T-unit length to yield "a close approximation" (1967:98) of the results obtained through a complicated analysis of SC transformations and recommended the use of the T-unit because of its ease of computation.

Early Sentence-Combining Studies

Before the advent of transformational grammar, numerous studies were done in an attempt to show a positive correlation between the teaching of traditional grammar and improvement in writing quality. As O'Hare (1971:5) observed,

Study after study tested the hypothesis that there was a positive relationship between the study of grammar and some aspect or other of composition. Result after result denied this hypothesis. Many of the findings either clearly indicated, or at least strongly suggested, that the study of grammar not only did not have the desired result, but that there also resulted some undesirable side effects.

It was only natural that transformational-generative grammarians would do similar experiments in an effort to show the superiority of their system. Only seven years after Chomsky, Donald Bateman and Frank Zidonis (1966) experimented with ninth graders, teaching them a complex system of transformational rules. Their results did not show a significant increase in the structural complexity of well-formed sentences but did result in a significant increase in the proportion of well-formed sentences.

Departing from the emphasis on studying grammar as a means of correcting sentence errors, John Mellon (1969) conducted a five-month study with seventh-grade students, based on the hypothesis that "practice in transformational sentence-combining would enhance the normal growth of syntactic fluency" (1969:28). Using three groups (the

experimental group treated with transformational grammar; the control group exposed to traditional grammar; the placebo group given no grammar instruction), Mellon analyzed their language using twelve scales: mean T-unit length; subordination/coordination ratio; nominal phrases and clauses per 100 T-units; relative clauses, phrases, and words per 100 T-units; embedded kernel sentences per 100 T-units; cluster frequency; mean cluster size; embedding frequency; and mean maximum depth level. The experimental group showed growth on all twelve factors of syntactic fluency, significant at the .01 level. The control group also showed growth on four factors, but at much lower levels of achievement. The mean growth in T-units of the experimental group measured about one year in level of syntactic fluency, according to Hunt's research norms.

In a replication of Mellon's study with one significant alteration, Frank O'Hare (1973) eliminated completely any study of grammar in both experimental and control groups. Six factors of sentence maturity were used to evaluate the progress of O'Hare's two groups: words per T-unit; clauses per T-unit; words per clause; noun, adverb, and adjective clauses per 100 T-units. While the control group's pre-post change scores showed no significant growth at the .05 level, the experimental group made gains on all six factors at the .001 level. The mean growth in T-units of the experimental group showed an increase of approximately five years according to Hunt's syntactic fluency norms.

O'Hare also used a forced-choice evaluation of general quality on pairs of experimental and control papers, and experienced teachers chose the experimental group's compositions as superior to a significant degree. O'Hare's study lasted one year and occupied students for approximately 75 minutes per week in class, compared to the 90 to 120 minutes per week for Mellon's group.

Christensen's Theory of Stylistic Maturity

Opposing the general trend established by the work of Hunt, O'Donnell, and Mellon regarding the definition of syntactic or stylistic maturity, Francis Christensen (1968:575) attacked the types of growth measured by these researchers, feeling that real maturity in writing lies in another direction.

Producing the kind of growth stipulated by these studies may be possible, but is the kind of growth stipulated the kind of growth we want? . . . Maybe the kids are headed in the wrong direction. Maybe the lines of their growth, projected upward, would never meet the lines projected downward from the writing of skilled adults. Maybe, unless the direction is changed, unless the twig is bent, they will never write like skilled adults, but write, like most adults, the lumpy, soggy, pedestrian prose that we justly deride as jargon or gobbledegook.

Christensen (1968:576-577) also drew a careful distinction between the bound modifier or word modifier, which is "a close or limiting or restrictive modifier," and the free modifier, which is a modifier "not only of words but of constructions," including relative

and subordinate clauses; prepositional phrases; noun, verb, adjective, and adverb phrases or clusters; and verbid clauses or absolutes.

Christensen (1968:578) substantiated his theories by investigating six essays appearing in Harper's magazine, concluding that, while the writer's T-units were long, the base clauses (T-units minus free modifiers) were short. He felt the epitome of stylistic maturity is the cumulative sentence, in which a high proportion of free modifiers occur in the final position (after the base clause). He proposed some different measures of syntactic or stylistic maturity to replace those normally used by SC researchers: proportion of free modifiers, especially final free modifiers, and number of free noun, verb, and adjective phrases and frequency of verbid clauses, as well as frequency of structures of intra-T-unit coordination.

Researchers and proponents of more traditional measures have castigated Christensen's arguments. Charles Cooper (1973:98) stated,

The cumulative sentence with its final free modifiers is very common in modern prose, but it has not replaced the embedded sentence, an impression one can get on reading Christensen. Embeddings and accumulations can occur in the same sentences, of course. The fact remains that mature syntax is characterized in large part by amount and depth of embedding, and this is a developmental task the child must master.

Mellon (1969:79) warned that "Syntactic fluency is not the same as style" and stated that Christensen had confused the two. However, Christensen's (1968:573) definition of a mature style ("The syntactic features and the frequency and position of such features as appear in

what we would be willing to call mature writing") certainly does not seem to be too much at odds with Mellon's (1969:16) definition ("the range of sentence types observed in representative samples of a student's writing") and with the current concept of syntactic maturity.

O'Hare (1973:72), after discussing Christensen's arguments and on the basis of the evidence presented by Christensen and later researchers, concluded his judgment with the following words:

. . . we are a long way from defining satisfactorily a mature style or styles. Relativization and nominalization, final, medial, and initial free modifiers, short base clauses, all would appear to have their place in any definition of what constitutes a mature style.

One research study using Christensen's ideas in creating a scale of syntactic maturity was Edward Dixon's doctoral dissertation and subsequent data reports (1970a, 1970b, 1972). Combining Hunt's T-unit with six measures suggested by Christensen (both number of words in and instances of final free modifiers, intra-T-unit coordinations, and free modifiers in all positions), Dixon analyzed student writing from four grade levels. Analysis of these indices showed the T-unit to be the best single measure, followed by free modifiers in all positions. A combination of these two figures proved to be the most significant of all, according to Dixon (1970a).

In 1970 Anthony Wolk assigned a project to his college composition class, having each student analyze one professional essay and one

of the student's own. The conclusion (1970:60) was that students did use fewer free modifiers (20.9 vs. 31.0 percent for the professionals) and especially fewer final free modifiers (8.4 vs. 13.7 percent). Wolk himself counted twelve essays from modern magazines and, as a general summary of Christensen's theory, states (1970:63) that the words in final free modification should equal or be greater than the initial plus medial free modifier words.

A two-week experiment with eighth and ninth graders was published in 1974 by Michael Elliott, using materials taken from the Christensen rhetoric program. He collected no formal data and did no statistical analysis, instead quoting "evidence" consisting of examples of sentences written by his students after the unit. He explained (1974:28), ". . . of the ten or so students who worked on this assignment, five came up with sentences that, I contend, justified the unit and the methods exploited in it"

Later Attempts to Refine Scales of Syntactic Maturity

In an article published in 1973, Endicott proposed a new scale in psycholinguistic terms, a complicated system that assigned a complexity ratio to each sentence by analyzing the transformations which were necessary to produce the sentence. Unfortunately, the system is extremely intricate and is subject to variation because of linguistic

interpretation. O'Donnell, in critical analysis of new proposed scales (1976:32), indicated that, while Endicott's scale may be able to discriminate between structures, "it is not so obvious that it would always favor the more mature constructions." Furthermore, no testing had been reported using the scale, so it is unvalidated and not completely developed, judged O'Donnell (1976:33).

Golub and Kidder (1974) have constructed a scale called the Syntactic Density Score, which has been programmed for the computer. Based on Golub's research in finding syntactic predictors of excellence in writing, the scale covers ten measures of syntactic maturity, assigning loading or weight factors to each. Although the researchers stated this weighting was done by a process of "canonical correlation analysis" (1974:1129), O'Donnell (1976:37) criticized the measure's "high degree of redundancy" in the items measured, as well as the assigning of the loading factors. To further emphasize his dissatisfaction with the scale, O'Donnell cited an unpublished study of his in which he analyzed compositions by 32 ninth-grade students and found their mean Syntactic Density Score ranked at the fourth-grade level, according to Golub's conversion table.

Ann Gebhard (1978) analyzed compositions from a purposive sampling of entering college freshmen, comparing their work to essays from magazines like Atlantic and The New Yorker. While she indicated that fluency (merely the ability to write longer essays) seemed to be a

common characteristic of mature writing, she stated (1978:217), "Mean clause length is probably the most easily measurable indicator of writing quality available to purely quantitative assessment."

In discussion of a new scale they formulated, DiStefano and Howie (1979:98) re-examined the common objection to the use of the T-unit as an indicator of syntactic maturity, "based as it is on length of sentence without consideration for more complex syntactic factors such as extent and depth of modification and development of ideas." They proposed measurements based on the work of Christensen, measures which they feel weigh "expansion of ideas and the types of expansion which is at the heart of written communication" (1979:99). In this researcher's judgment, their system seems difficult to apply to complicated sentences and does not demonstrate any method of analyzing deletion transformations. The authors have furnished no research data to back up their claims of superiority.

Recent Sentence-Combining Research

In a replication of Mellon's and O'Hare's experiments, Warren Combs (1976a) added the further qualification of a delayed post-test. Although treatment time was much shorter, the total time students spent doing SC exercises was approximately the same as Mellon's and O'Hare's groups. The experimental group showed a growth in words per T-unit

of about two years (Hunt's norms) at the .001 level of significance. An analysis of free writing eight weeks after the posttest showed a decrease from posttest scores, but overall growth of about one year still remained. Again, a matched-pair rating of quality demonstrated preference for the experimental group's writing at the .05 level.

In a two-year study, Stewart (1978) used a program of sentence-combining exercises with first-year university students, who practiced for six weeks, a total of three hours per week. In 1976 the experimental group students showed a gain of 5.81 words per T-unit and 2.81 words per clause. In 1977 a new experimental group gained 4.50 words per T-unit and 3.56 words per clause.

Parallel studies conducted by Callaghan and Sullivan in grades nine and eleven in 1977 measured syntactic growth, reading ability, attitude change, overall quality of writing, and degree of change in a three-month delayed posttest, as reported by Callaghan (1977). Both researchers also studied three experimental treatments to determine whether a larger or smaller dose of SC would produce the best results and whether choral reading of the exercises would increase the effectiveness of practice. While reading gains were not significant, the students' attitudes towards SC improved greatly, and, in general, data (Sullivan, 1979:88) showed that the group receiving a smaller amount of practice and no choral reading made the highest overall gains in both ninth and eleventh grades in both words per T-unit and in the use of

final free modifiers, a measure suggested by Christensen. Comparing results for the experimental groups in ninth and seventh grade, it is interesting to note that the ninth-grade group attained T-unit lengths almost equivalent to the eleventh-grade group at posttest, a fact Sullivan discusses at some length and offers several explanations for, including the fact that economic backgrounds were not equivalent for the grade levels. In terms of final free modifiers, however, the eleventh-grade group achieved at much higher levels at posttest.

In an ambitious doctoral dissertation, Elray Pedersen (1977) studied T-unit and clause length growth in a seventh-grade experimental group. His fifteen-week experiment made some unusual assessments of the student writing samples obtained. In words per T-unit, the experimental group gained about 18 months in syntactic fluency (Hunt's norms). Compositions written by members of the experimental group were judged superior at the .001 level in a matched-pair design by teacher-raters. On fourteen qualities of superior composition obtained from English teacher interviews, sentence-combining students' writing was preferred over the control group's in every quality at a significant level, particularly development of ideas, maturity, and concreteness (.001 level). Using measures not commonly found in English education, a type-token ratio (number of nonrepeated words divided by total number of words) and a comparison of semantic words (nouns, verbs, adjectives, adverbs) to grammatical words (articles, pronouns, conjunctions,

prepositions), Pedersen found the experimental students to be using four more different words per hundred through the type-token ratio and three more semantic words per hundred. A delayed posttest eight weeks after the experiment also showed no decrease in words per T-unit, unlike Combs's group, which decreased in the interim between posttests.

Maimon and Nodine (1978,1978) reported results of their experiment in a year-long course of college freshmen. Practicing SC exercises for 15 to 20 minutes a day once a week, students gained an average of about 4.5 words per T-unit. A post-test one year later of the members of the original group still attending that college (57 percent) showed their T-unit lengths at the same or higher levels.

One of the most startling new studies is that of Morenberg, Daiker, and Kerek (1978), all of Miami University. Using Strong's Sentence Combining: A Composing Book and exercises they developed themselves, the researchers directed experimental sections of college freshmen in sentence-combining practice. No other instruction was given these compositions students, a radical departure from previous admonitions given by SC experts who always claimed that sentence combining is not a complete writing curriculum. After the fifteen-week treatment they describe (1978:247) as class "discussion centered on comparing and contrasting student responses to the exercises, with the teacher making extensive use of the blackboard, overhead projector, and handouts," the writing of the experimental group showed differences in

posttest means at the .01 or .001 levels in words per clause, holistic ratings, words per T-unit, and at or above the .05 level on five out of six factors of an analytic scale (ideas, supporting details, voice, sentence structure, and diction/usage). Reading gains were not significant in this experiment.

. Another study of college freshmen by M. Beverly Swan (1979) exposed an experimental group to 15 weeks of sentence combining for 30 minutes per week. Measurements taken at the end of eight weeks and at the end of the experimental period showed no significant difference in pretest-posttest means, although there was evidence of growth.

Using a "generative-rhetoric approach" based on Christensen's work, Lester Faigley (1979) experimented with four sections of freshman composition. Faigley (1979:95) describes this "generative-rhetoric approach" as "a method, like sentence combining, which concentrates on sentence-level operations, but unlike sentence combining, requires students to supply content." Under analysis of words per T-unit, words per clause, clauses per T-unit, percentage of words in final free modifiers, and percentage of T-units with final free modifiers, Faigley found significant growth in words per T-unit and words per clause plus a fourfold increase in percentage of T-units with final free modifiers and percentage of words in final free modifiers. A holistic rating was used to test overall quality, showing superior achievement of the experimental group. Faigley was disconcerted, however, when he subjected

his results to multiple regression analysis and discovered that the first three measures accounted for less than two percent of the holistic ratings. Even when the two Christensen measures were added, only 20 percent of the ratings were explained. After citing studies showing that content and organization are prime factors in quality judgments by evaluators, Faigley concluded (1979:99-100),

. . . what is ultimately important to a writing program is that students focusing upon the syntactic component of the writing process are able to grasp principles which shape and organize larger units of discourse. To this end syntactic approaches to composition have become exciting methods for teachers and potent methods for students.

Negative results were found by James Ney (1976) in an experiment with college freshmen at Arizona State University. The scores for his control group and a group engaged in normal SC practice were not significantly different, and scores of a third group which dissected sentences and then put them back together dropped. Daiker, Kerek, and Morenberg (1978:36) carefully examined Ney's study since "Ney's is the first published research to suggest that sentence-combining does not enhance syntactic maturity and may even retard it." Among the flaws they found in the study, they felt the total treatment time (about four and a half hours total in eleven weeks) was insufficient, compared to successful studies. They were especially critical of the "decomposition-recomposition" group's activities, citing Mellon, O'Hare, Strong, Cooper, and Combs's emphasis in their

SC exercises on "the synthetic process of putting together rather than the analytic process of taking apart" (1978:38).

Summary

Sentence combining theory began with the development of transformational-generative grammar in the early 1960's. The most significant study of syntactic development has been that of Kellogg Hunt (1965a), who established norms on many measures of semantic achievement for fourth-, eighth- and twelfth-grade writers, as well as a group of adults. He developed the T-unit (minimal terminable unit) as the basic measurement of syntactic maturity, one which has been widely accepted, employed, and validated by English education researchers. The ideas of transformational-generative grammar in large part spurred the ability to measure qualities of writing, leading to the experiments of early SC researchers Mellon (1969) and O'Hare (1973).

Although Francis Christensen (1968) questioned sentence-combining theory and proposed his own measures, his scales of stylistic maturity are seldom used by researchers today. Attempts of subsequent linguists to supplant Hunt's measurements have generally been unsuccessful. With the increasing information gained through sentence-combining research, normative data is being obtained on effectiveness of SC exercises at various grade levels and on the use of varying

methods of presenting the exercises with different treatment periods.

Evidence is also being collected regarding the amount of growth retained after completion of the studies, the correlation between syntactic measurements and quality ratings, and the effect of mode of discourse upon maturity of writing.

Chapter 3

PROCEDURES

Introduction

This experiment compared achievement in pretest and posttest instruments of a group of 12 students who engaged in sentence-combining exercises for one semester. This chapter describes the experimental group, the SC treatment, the pretest and posttest instruments, the measurements used to analyze the results of these instruments, the hypotheses of the experiment, and the statistic used to test significance of the results.

Population Description

The experimental group was composed of 12 students attending Stevensville High School, Stevensville, Montana, during the 1979-1980 school year. Because of the fact that the experimental class, Creative Writing II, is restricted to students who have received at least a B grade in Creative Writing I or who have attained the consent of the instructor, the subjects of the experiment must be considered to be non-typical members of their high school population and, of course, of high school students in general. They were not, however, atypical

in all probability from students who would enroll in a creative writing class in any rural, small high school in Montana.

The group was composed of seven twelfth-grade students, of whom five were girls and two boys; plus five eleventh-grade students, three boys and two girls. All students are Caucasian and come from low- to upper-middle-class income level backgrounds. After graduation, the seniors had the following plans regarding further education: two hoped to begin college in the fall, three planned to attend business college or technical training schools, one entered the military with hopes of attending college later, and one student had no plans for further education at graduation time.

Description of the Treatment

After students wrote the pretest on the second day of class, the researcher introduced the idea of sentence combining, explaining that SC exercises might help improve their writing by giving them new ways of self-expression, and studiously avoiding the suggestion that longer writing is better writing.

During the 16-week treatment period, each 53-minute class period began with combining exercises. Generally, the researcher would transcribe no less than eight sentences onto the blackboard in the classroom, exercises taken from Sentencecraft (O'Hare, 1975), The

Writer's Options (Daiker et al, 1979), and Sentence Combining, A Composing Book (Strong, 1973). Students took a few minutes to look over the exercises on the board; then suggestions would be given for two or three (occasionally more) possible combinations. The researcher would write these sentences alongside the kernel sentences and elicit discussion from students about differing emphases presented by each version. Often students claimed to prefer a particular version because "it sounds better." All versions were accepted as good solutions, although occasional adjustments were made to correct grammatical errors.

Once a week students were asked to write out their answers to the exercises before we compared results. Otherwise, all work was done mentally and orally until the sentences were written on the blackboard.

The treatment period lasted a minimum of ten minutes daily, generally running 15 minutes and occasionally extending 20 minutes. Because of school activities and holidays, five class periods during the 16-week treatment time were canceled, resulting in a total practice time of approximately 15 hours.

It is important to note that Creative Writing II is an elective English class at Stevensville High School. Obviously, students who do not enjoy some aspect of writing will not enroll in this class. The course is organized on a contract basis, students consulting with the

instructor and completing work according to agreements made during the semester. In the prerequisite course, Creative Writing I, students write poetry, short story, and drama assignments at the direction of the teacher to gain experience in various areas of literature. In the second course, however, students are entirely free to do any type of writing they wish. Some prefer short stories; others deal exclusively with poetry; a few compose essays or short plays; and many students vary their writing modes from contract to contract. The quantity of written words and form of this writing fluctuate greatly from student to student, introducing a variable into this experiment which could not be controlled within the limits of the curriculum at Stevensville High School.

Because of the limited number of students at the school, no control group was possible at the time of this design. Even though the school has an elective system, there are no other advanced writing classes.

Outside of the group work in sentence combining, no general instruction was done in the classroom except for motivation to encourage creativity. The researcher felt that additional individual work in sentence combining or rhetorical analysis might contaminate the experiment, so, in evaluating student contract work, the instructor only occasionally gave SC suggestions to students. Individual student contracts permitted evaluation by any means the student wished. Although

most students chose teacher evaluation, several reproduced their work for class judgement or shared their work with one other student. However, the emphasis of both teacher and student evaluation was positive comments, especially notations of interesting ideas or superior writing. Correction of spelling and mechanical errors was also made on instructor-evaluated papers.

Method of Collecting Data

At the beginning of the semester and the end of the semester, students completed instruments through which syntactic maturity can be measured. The pretest passage was "The Chicken," a well-known instrument developed and normed by Kellogg Hunt (1977:91-104). The posttest passage was "The Carver," an exercise selected from William Strong's widely used SC textbook (1973:113-115). Although the latter exercise has not been normed or suggested as a test instrument, it was chosen over a repetition of "The Chicken" or the only other instrument known to the researcher, Hunt's "Aluminum" passage (1977:91-104), which is in the expository mode. Recent research, especially as confirmed by Witte and Davis (1980) has demonstrated that mode of discourse can greatly influence T-unit length, and the researcher felt "The Carver" would yield a more accurate comparison with "The Chicken."

The pretest measure, "The Chicken," contains 245 words and 52

T-units, for a mean T-unit length of 4.7 words. "The Carver" contains 273 words and 60 T-units, for a mean T-unit length of 4.6 words. See Appendices A and B for copies of the instruments used.

Students were allotted the entire 53-minute class period to write each instrument. Instructions given for each of the measures were the same, those specified by Hunt for "The Chicken" (1977:103),

Read the story all the way through. You will see that it is not very well written. Study the story, and then write it over again in a better way. You will want to change many of the sentences, but try not to leave out any important parts of the story.

Both instruments were evaluated at the end of the experiment by the researcher. Rules of segmentation for T-units followed the principles employed by O'Hare (1973:47-78). Speaker tags (such as "He said, . . ." and "He asked, . . .") were not discarded but were counted as explained by O'Hare (1973:48). The word so was counted as a conjunction, in accordance with the explanation by O'Donnell, Griffin, and Norris (1967:55). Identification of clauses and of types of clauses (noun, adjective, and adverb) was made according to explanations found in The Holt Guide to English (Irmischer, 1972:491-496), as was the classification of nonfinite verbs (Irmischer, 1972:489-490). Absolutes were defined as verb clusters with subjects, as stated by Christensen (1963:158) and were identified following examples given in A New Rhetoric (Christensen, 1976) and other works of his. All measurements concerning free modifiers, in every position, were

calculated according to Christensen's explanations and examples in "A Generative Rhetoric of the Sentence" (1963) and A New Rhetoric.

The following measurements used in this experiment are defined in terms of the works mentioned in the previous paragraph:

- (1) Words per T-unit: the number of words written divided by the number of T-units written
- (2) Clauses per T-unit: the number of subordinate and main clauses divided by the number of main clauses (total T-units)
- (3) Words per clause: the number of words written divided by the number of total clauses, both subordinate and main
- (4) Noun clauses per 100 T-units: the number of subordinate clauses used as nouns, divided by the total number of T-units and multiplied by 100
- (5) Adjective clauses per 100 T-units: the number of subordinate clauses used as adjectives, divided by the total number of T-units and multiplied by 100
- (6) Adverb clauses per 100 T-units: the number of subordinate clauses used as adverbs, divided by the total number of T-units and multiplied by 100
- (7) Nonfinite verbs as a percentage of total words: the number of verb words used in nonfinite ways (as participles, gerunds, and infinitives), divided by the total words written and multiplied by 100
- (8) Number of absolutes: the total number of absolute

structures written per student in the rewriting of the instrument

(9) Words in initial free modifiers as a percentage of total words: the actual number of words used in free modification (see p. 13 of this paper) in the initial position (that is, occurring before the base/main clause), divided by the total words and multiplied by 100

(10) Words in medial free modifiers as a percentage of total words: the actual number of words used in free modification in the medial position (occurring within the main clause), divided by the total words and multiplied by 100

(11) Words in final free modifiers as a percentage of total words: the actual number of words used in free modification in the final position (occurring after the main clause), divided by the total words and multiplied by 100

(12) Total words in free modifiers as a percentage of total words: the total number of words used in free modification in the initial, medial, and final positions, divided by total words written and multiplied by 100

Reliability and Validity

Although the reliability and validity of the measurements used for analysis in this experiment are still being investigated by

language research specialists, sufficient work has been done on all measurements except those in the free modifier category to warrant their choice as scales of investigation in this experiment. Those free modifier measurements were chosen to investigate the effect of the sentence-combining treatment on Christensen's criteria for mature writing. Information about the development and testing of the measurements was detailed in Chapter 2 of this paper.

Analysis of Data

The achievements on the measurements of the experiment were compared using a T-test to determine significance. The mean scores were compared, whenever possible, to the findings of other researchers working at similar grade levels.

For each significant analysis of variance discussed in the following chapter, a validity coefficient has been calculated according to a formula given by Dial (1979:118). He states that this coefficient "measures the amount of the variance being explained or predicted, hence reporting the validity of a result" (p. 117).

The analysis of data is presented in Chapter 4 in the form of a table with subsequent analysis of each measurement. Discussion of student attitudes towards sentence combining follows the analyses.

Statistical Hypotheses

A T-test for paired responses was used to judge results at the .05 level of significance. The critical T value for a one-tailed test with 12 subjects (11 degrees of freedom) at the .05 level is 1.796.

All individual hypotheses can be summarized in the following null and general hypotheses:

H_0 : There is no significant difference in mean scores between posttest and pretest results on the 12 measures of this experiment.

H_1 : There is a significant positive difference in mean scores between posttest and pretest results on the 12 measures of this experiment.

Precautions Taken for Accuracy

Because of the relative isolation of the researcher and the lack of research funds, precautions taken for accuracy concentrated on double checking work. The researcher hand tallied the results of segmentation and categorization of the data, but all measures were calculated and re-examined twice. A desktop electronic calculator was used for computation of individual scores on each of the 12 measurements.

The T-test calculations were performed on the computer terminals at Montana State University, using the MSU Statistics Library.

Summary

The experiment consisted of a 16-week sentence-combining treatment with a group of 12 students enrolled in Creative Writing II in Stevensville High School, the total treatment period consisting of approximately 15 hours of work on exercises taken from well-known SC textbooks. Students completed a pretest instrument ("The Chicken") and a posttest instrument ("The Carver"), the results being segmented and analyzed by the researcher to determine mean differences in words per T-unit; clauses per T-unit; words per clause; noun, adjective, and adverb clauses per 100 T-units; nonfinite verbs as a percentage of total words; number of absolutes; initial, medial, final, and total free modifiers as a percentage of words written. Data was submitted to analysis of variance through a one-tailed T-test at the .05 level of significance.

Chapter 4

ANALYSIS OF DATA

The following table presents a summary of the statistical analysis of the experimental data:

Table 1				
Comparison of Pretest and Posttest Mean Scores on Twelve Measures of Syntactic Maturity				
Measures	Pretest Mean	Posttest Mean	Difference in Means	T-value
Words/T-unit	12.23	17.43	+5.20	2.081*
Clauses/T-unit	1.34	1.47	+ .13	1.352 (NS)
Words/clause	9.34	11.54	+2.20	2.094*
Noun clauses/100 TU	8.52	.76	-7.76	-3.223 (NS)
Adjective clauses/100 TU	10.28	13.66	+3.38	.623 (NS)
Adverb clauses/100 TU	15.45	27.64	+12.19	1.867*
Nonfinite verbs/100 words	6.05	8.21	+2.16	2.139*
Number of absolutes	0	3.67	+3.67	5.805*
IFM/100 words	11.99	9.31	-2.68	-.802 (NS)
MFM/100 words	1.71	2.20	+ .49	.547 (NS)
FFM/100 words	12.78	38.28	+25.49	5.994*
Total FM/100 words	26.49	49.79	+23.29	5.078*

Degrees of freedom = 11

*Significant at the .05 level (critical t +1.796, one-tailed test)

Analysis of Data: Words per T-unit

The pretest mean of the experimental group was 12.23 words per T-unit, placing the students slightly above the norms Hunt (1977:100) obtained on this particular instrument (12.0 W/TU for twelfth graders and 13.0 W/TU for university level).

The posttest mean of the group was 17.43, an increase in means of 5.20 W/TU, which is significant at the .05 level. The validity coefficient for this T-value is .2825. Compared to the general norms given by Hunt (1965a:56), the posttest mean W/TU achievement of the experimental group places them about halfway between the twelfth-grade level of 14.4 W/TU and the superior adult level of 20.3 W/TU. This is higher than the scores obtained on words per T-unit by Swan (1979) in essays in the argumentative and expository modes by college sophomores, juniors, and seniors. The group in this study also attained a greater T-unit posttest length than the group of college freshmen in the Morenberg, Daiker, Kerek study (1978).

As indicated in Appendix C, the range among individual students in this experiment was great: from 9.38 W/TU to 15.57 W/TU at pretest and from 10.67 W/TU to 44.25 W/TU at posttest. Nine students added to their T-unit length during the treatment period; three students showed a decline in T-unit length, although one of those three dropped only .15 W/TU. One student (listed as E1 in the appendix) who almost

tripled his T-unit length, changed from 15.57 W/TU at pretest to 44.25 W/TU at posttest. Although these sentences were incredibly long, for the most part they were well-formed and were relatively free of grammatical and syntactical errors. The researcher considers part of the amazing growth of this student's writing to be due to his delight in discovering that long sentences are not considered poor writing. Evidently during a basic composition course taken during the sophomore year, he had been told that no sentence should be longer than two lines. In fact, students' grades were lowered if their sentences exceeded this arbitrary limit. It is possible, therefore, that the natural syntactical growth of these students was restricted by this admonition and that the 5.20 W/TU mean growth for the group was due, at least in part, to the removal of this impediment to syntactic maturity.

Analysis of Data: Clauses per T-unit

The posttest mean of the experimental group improved only .13 (from 1.34 to 1.47) or one-eighth of a clause per T-unit. While this figure was not significant at the .05 level, no real growth was expected in this measure. As Hunt has stated (1965b:308),

The average twelfth-grader has approached the ceiling on the number of subordinate clauses, and on the number of T-units per sentence, but he has not approached the limits of development in clause length.

While there is growth in subordinating clauses to a main clause throughout the elementary school years, this tapers off markedly and ceases to become a significant factor after high school.

The researcher was surprised to see, however, that the experimental group in this study produced a mean clause length below the 1.68 length of twelfth graders and the 1.78 length of superior adults indicated in Hunt's norms (1965a:56). In fact, the experimental group achieved at a level much closer to Hunt's eighth graders. Although part of this difference can perhaps be explained by the observation that these students are writing more non-clausal structures than dependent clauses (as indicated in the analysis of types of dependent clauses that follows later in this chapter), the researcher is at a loss to explain such a wide gap between the national norms of Hunt and the accomplishment of the creative writing students.

Analysis of Data: Words per Clause

According to Hunt's 1965 norms, students at grade 12 write 8.6 words per clause; superior adults write 11.5 words per clause. At 9.34 words per clause, the mean pretest score for the subjects of this study was above normal.

The posttest measure showed a mean score of 11.54 words per clause, a gain of 2.20 words per clause over the pretest measure,

which is significant at the .05 level. This ranks the posttest achievement of the group equal to the norms established by Hunt for superior adults. The validity coefficient is .2850.

Again, as Hunt has stated (1965b:308),

Clause length more than any other single factor measured here distinguishes superior adults from average twelfth-graders. The superior adult packs a great many non-clause structures into his clauses.

A quick glance at the free modifier and absolute statistics demonstrates the high percentage of non-clause structures employed by the writers in this experiment. Here, as in other studies, the figures for T-unit length and words per clause must be regarded as more valid measures of the achievement of these students.

Looking at the individual student achievement on this measure, the researcher saw a decline in number of words per clause for the first three students listed in Appendix C, all of whom were twelfth-grade members. Only one of these three students was among the three students who decreased their T-unit length, however. Therefore, only one of the group members experienced a decline in both T-unit length and clause length. This student (T1) wrote no dependent clauses in either her pretest or posttest paper and showed growth only in the number of absolutes used in her writing; on all other measures, she declined in score.

Analysis of Data: Noun, Adjective, and Adverb Clauses

There was a drastic decrease in the number of noun clauses per T-unit between the pretest and posttest instruments (from 8.52 to .76 noun clauses per 100 T-units).

Adjective clauses increased from 10.28 to 13.66 clauses per 100 T-units, a gain of 3.38 clauses, although these results were not significant at the .05 level. Stotsky (1975:45) indicates that research shows "use of adjective clauses is a strong index of syntactic and mental maturity."

Adverb clauses increased from 15.45 clauses per 100 T-units at the time of the pretest to 27.64 clauses per 100 T-units at posttest, an increase of 12.19 adverb clauses per 100 T-units, which is significant at the .05 level. The validity coefficient for this measure is .2401.

The students in this experiment wrote a mean total of 34.25 subordinate clauses per 100 T-units on the pretest instrument and 42.06 subordinate clauses per 100 T-units on the posttest instrument, an increase of 7.81 subordinate clauses per 100 T-units. Compared to Loban's data (1976:40) for twelfth-grade writers of 59.33 dependent clauses per 100 CU (communication units) in written language, the group in this study scored somewhat lower than national norms. Hunt's data (1965a:89) is similar to Loban's, showing grade 12 students

writing about 68 subordinate clauses per 100 T-units, again higher than the figure for the experimental students. In fact, the ratio of subordinate clauses to T-units in the present study corresponds more closely to Hunt's norm (1965a:89) for eighth graders (.42 subordinate clauses/TU), but this finding is consistent with the second item in Table 1, clauses per T-unit, and can be considered of lesser importance in the overall judgement of syntactic maturity.

As Loban has stated (1976:39),

. . . superior writers often prefer a tighter way to coil their thoughts than dependent clauses permit. For example:

Dependent Clause: After he had finished the crossword puzzle, he went to bed.

Tighter: Having finished the crossword puzzle, he went to bed.

Thus, to reach a valid conclusion one must look beyond the statistical data on dependent clauses.

Christensen (1963:161) has substantiated this idea, saying that the production of the cumulative sentence (in his opinion, the epitome of stylistic maturity) requires "a shift from the subordinate clause . . . to the cluster," a construction of noun- or verb-related words.

Assuredly, students in this experimental group could have written more dependent clauses per T-unit, but they evidently preferred the non-clausal structures of nonfinite verbs, prepositional phrases, and absolutes. The treatment did include multiple examples of subordination transformations, but the students made their own decisions

about the most "appealing" structures, and their bias is evident in the structures they chose to produce in their final instruments.

Considering the individual students in the experiment, the researcher was amazed at the fluctuations that occurred. Two students who had previously written a fairly high number of subordinate clauses in the pretest (a total of 38.89 and 47.06 subordinate clauses/100 TU) dropped to absolutely no subordinate clauses in the posttest. Only one student (E3) wrote any noun clauses at all on the posttest, while eight of the twelve had initially written noun clauses on the pretest. Perhaps part of the fluctuation was due in some cases to the subject matter of the instruments.

Analysis of Data: Nonfinite Verbs

As students add words to T-unit length without increasing the number of subordinate clauses per T-unit to a significant degree, they should be adding nonfinite verb structures, especially if they are adding real substance to their sentences. The students in this study increased the percentage of nonfinite verbs in their writing from 6.05 to 8.21 nonfinite verbs per 100 words, a gain of 2.16 verbs. These results are significant and the .05 level, and they yield a validity coefficient of .2937.

Loban (1976:67-68) reported his results in terms of verbs as a percentage of total words and then nonfinite verbs as a percentage of total verbs. If we change his figures to a base of nonfinite verbs as a percentage of total words, his High Group (above-average language ability) students produced 2.34 nonfinite verbs in grade 11 and 2.99 nonfinite verbs in grade 12 for every 100 words. The group in this study started out with a figure twice that of Loban's students and at posttest scored almost three times as much, which indicates the unusually high percentage of participles, gerunds, and infinitives used by these creative writing students.

Student T1, the girl who showed no growth during this study except in absolutes, achieved the highest posttest rating in percentage of nonfinite verbs, which is interesting in light of the fact that she wrote absolutely no subordinate clauses in either test. To the researcher, this confirms the judgements of Loban and Christensen mentioned above: students who do not demonstrate high percentages of subordinate clauses may have gone beyond that stage to tighter, more sophisticated structures.

Analysis of Data: Number of Absolutes

At the time of the pretest not one student in this experiment included an absolute in his writing, but in the posttest the mean

number of absolutes written was 3.67 per student, a gain of 3.67, which is significant well above the .05 level. The validity coefficient is .7539.

Although the researcher has not found any data computed by either Hunt or Loban on absolutes, Christensen (1976:23) speaks of it as "an indispensable construction" and (1968:577) "one of the most important" of the free modifier constructions.

Examples of absolutes in sentences from "The Carver," as rewritten by the experimental students, serve to illustrate their effectiveness:

The wood carver sits in the shadows, shoulders hunched, face calm, his mouth a thin-lipped line showing concentration.

The carver watches the wood, his knife peeling away the wood skin to reveal an eyebrow.

The shavings fall from the carving of the face, its texture rough, its lines bold and clean, its eyes wide and deep set, staring into space.

Smells of the blossoming orchards drift in, the white blossoms bringing with them memories of faces of a time long past.

These examples are from four different student papers, but other students did equally well on this measure in terms of quality.

Of the twelve students in this experiment, only one wrote no absolutes at posttest, while one student produced seven examples and three students wrote six absolutes.

Analysis of Data: Initial Free Modifiers per 100 Words

The statistics for free modifiers changed in some respects, but a decrease of 2.68 words in initial free modification (from 11.99 words to 9.31 words) was not significant at the .05 level.

It is very difficult to find comparative data on the Christensen measures of this experiment, but Wolk (1970:60) presented data from a college composition class (level not identified) which analyzed 41 student essays and 41 professional essays. The mean student percentage of initial free modifiers was 8.7; the adult percentage was 9.7. The students in this study, therefore, performed above the college level, near the professional level on both instruments.

Looking at the raw data for students, we can see that their results were extremely variable, one student dropping from 21.38 words in initial free modification during the pretest to 3.82 words in the posttest, while a second student increased from 10.12 to 37.29 percent.

Analysis of Data: Medial Free Modifiers per 100 Words

The use of the medial free modifier remained fairly constant in this experiment, increasing from 1.71 words per hundred at pretest to 2.20 words at posttest, a gain of .49 words in medial free modification. This result is not significant at the .05 level.

Drawing again on Wolk's 1970 data for comparison, we see that his college student writers used 3.8 percent medial free modifiers, as compared to 7.6 percent for professional writers. The achievement of the experimental students is well below Wolk's figures. Perhaps part of this might be due to the mode of the essays he analyzed; the researcher would assume they were expository, a more formal mode than the narrative mode used by the creative writing students. The feeling of the researcher is that a more formal mode lends itself to use of medial free modification.

Again, raw data is extremely variable in this case. One half of the experimental students used no medial free modifiers in their posttest instrument; four of those showed no instances of medial free modifiers in the pretest either. Only two students neared the level of Wolk's student or professional writers at the time of the posttest.

Analysis of Data: Final Free Modifiers per 100 Words

The increase in use of the final free modifier from 12.78 words per hundred at pretest to 38.28 words at posttest was significant well beyond the .05 level (beyond .0005, in fact). The validity coefficient was .7656 on this measure.

The figures computed by Wolk (1970:60) were 8.4 percent final free modifiers for college students and 13.7 percent for professional

writers. Dixon (1970a, Table II) obtained a count of words in final free modification which placed twelfth-grade students at slightly less than ten percent of total words written as final free modifiers. By comparison, the posttest performance of the creative writing students at 38.28 is greatly superior to Wolk's and Dixon's figures.

While it was not the investigator's intention to concentrate so heavily upon this sentence pattern, the students evidently liked the concept of final free modification. Christensen, of course, regarded this type of layering as the height of professional style, and, in this light, the students' writing quality could be considered improved.

A glance at the raw data shows that, except for one student whose percentage of final free modifiers remained almost identical, every student increased dramatically on this measure, one student jumping from no words in final free modification to 47.31 words per hundred. Another student's proportion changed from about 25 to almost 70 percent of his writing.

Analysis of Data: Total Free Modifiers per 100 Words

From a mean 26.49 words per hundred written in all three types of free modifiers at pretest, the experimental students reached a posttest mean of 49.79 words per hundred, a result significant beyond

the .05 level. In actuality, if the individual free modifier statistics are considered, there was a slight drop in the means for initial and medial free modifiers, neither statistically significant, and the gain in total free modifiers derives entirely from final free modifiers. Obviously, however, student sentence patterns have changed to lean more heavily upon the cumulative sentence.

The validity coefficient for this measure is .7010, lower than the .7656 coefficient for final free modifiers only.

In his analysis of professional, semi-professional, and non-professional writers, Christensen (1968:577) found that total free modifiers composed about 32 percent of the words in articles studied. Wolk (1970) discovered his students used about 21 percent of their written words as free modifiers, and professional writers used 31 percent. Dixon (1970a) reported figures of about 21 percent free modifiers for twelfth graders, as well as for college seniors. The experimental students' percentage of almost 50 was extremely high. Again, part of this difference is undoubtedly due to the narrative mode of the test instruments, as contrasted with the expository modes the other researchers probably encountered in their analyses.

In individual data, only two students made gains in all three free modifier categories from the pretest to the posttest. Three additional students increased their use of initial and final free modifiers, using no medial modifiers in either the pretest or posttest.

Attitude Survey

Students were questioned informally after they had all turned in their posttest papers in an effort to determine their attitudes towards the experiment. All students said they had enjoyed the exercises, although one mentioned that working every day was sometimes "boring." They preferred oral work to written work, partly, as one student explained, because they were doing quite a bit of writing for their class contracts in creative writing.

Most importantly, however, all twelve students agreed that they felt the sentence-combining exercises had made an improvement in their own writing. They had learned new ways to word their ideas and had begun to pay more attention to sentence structure.

An interesting comment was made by one student and corroborated by two others: after some of the exercises the group did in class, these students found they were more "inspired" in their own writing. They occasionally got ideas from the exercises in class that they could use in their poems, but, aside from that, they felt more ready to write. Strong's exercises, especially, interested them.

Summary

Analysis of the data from this experiment showed that gains significant at or beyond the .05 level were made by the students in words per T-unit, words per clause, adverb clauses per 100 T-units, nonfinite verbs per 100 words, number of absolutes, final free modifiers per 100 words, and total free modifiers per 100 words. Research studies in the past have identified words per T-unit and words per clause as the two most important measures of syntactic maturity in students from grades ten through thirteen.

No significant changes were made in clauses per T-unit, noun or adjective clauses per 100 T-units, or initial and medial free modifiers.

There were gross fluctuations in individual scores, as discussed under each separate section of the analysis of data. Complete raw data is contained in Appendix C.

Informal questioning of the students revealed that most felt the sentence-combining project had been enjoyable and had helped them improve their writing.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

Summary of the Experiment

This experiment was designed to fill the need for some type of instruction in the researcher's advanced, contract-based creative writing class, to determine if a sentence-combining project would increase the syntactic maturity of students and prove to be an enjoyable and valuable study in their eyes.

Based upon the work of Hunt, Christensen, Mellon, O'Hare, Strong, Daiker, Morenberg, and Kerek, among others, the experiment involved 12 high school seniors and juniors enrolled in Creative Writing II at Stevensville High School, Stevensville, Montana. The students participated in oral and written sentence-combining exercises taken from texts by Strong (1973), O'Hare (1975), and Daiker, Morenberg, and Kerek (1979c), practicing approximately 15 minutes every school day for 16 weeks. Writing other than the SC exercises was contracted individually, in various modes according to student preferences. No control group was possible.

"The Chicken" (Hunt, 1977) was used as a pretest combining passage, and "The Carver" (Strong, 1973) served as the posttest. Analysis of the student papers was made according to 12 measures of

syntactic maturity: words per T-unit, clauses per T-unit, words per clause, noun clauses per 100 T-units, adjective clauses per 100 T-units, adverb clauses per 100 T-units, nonfinite verbs as a percentage of total words, number of absolutes written, words in initial free modifiers as a percentage of total words, words in medial free modifiers as a percentage of total words, words in final free modifiers as a percentage of total words, and total words in free modifiers as a percentage of total words written. Data was analyzed for pretest and posttest measurements using a T-test.

Results of the experiment showed growth significant at the .05 level on the following measures: words per T-unit, words per clause, adverb clauses per 100 T-units, nonfinite verbs as a percentage of total words, number of absolutes, final free modifiers as a percentage of total words, and total free modifiers (all positions) as a percentage of total words. The other five measures (clauses per T-unit, percentages of noun and adjective clauses, and percentage of initial free modifiers and medial free modifiers) did not show significant results. Informal questioning of students revealed a positive attitude on their part toward the SC exercises and changes in their writing that resulted from the practice.

There were fluctuations and variations in the data for individual students; the raw data is contained in Appendix C.

Conclusions

Examination of the results of this experiment shows that there were significant gains in seven of the 12 measures used to examine the pretest-posttest differences in student writing. Judged against the common criteria in such studies, the students displayed improvement in the two most important measures of syntactic maturity for their age levels: words per clause and words per T-unit. In addition, they made substantial gains in Christensen's ultimate measure of stylistic maturity, use of the final free modifier. In all three of these measures, the mean level of student attainment was higher than the norms for twelfth-grade (or, in some cases, college-age) students. The fact that the students universally enjoyed the exercises and felt they had benefited from practicing them is even more encouraging.

If it were not for the small size of the experimental group, the experiment might seem to rather conclusively show the efficacy of using sentence combining work in creative writing. However, because the various t values computed in the T-tests are measured against a critical value based on the number of students involved, it seems reasonable to assume that the treatment was effective and that SC exercises are helpful to young writers.

Recommendations

- (1) When the positive results of this experiment--both the test measures and the attitude inventory--are combined with the fact that proven alternative teaching methods are almost nonexistent, the researcher feels no qualms about suggesting SC exercises as an effective tool for use in creative writing class.
- (2) Repetition of this study should be made as a means of substantiating the growth found by the researcher.
- (3) In the replication of this study, the researcher should reverse the order of the pretest and posttest instruments to rule out the possibility of the improvement being due to the order in which these narratives are given. While the mode of both is the same, they contain very different subject matter.
- (4) Further research should be done to obtain norms for college-level students (freshman to senior), which would be helpful in judging the progress made by high school students. Presently norms for college level are not very easily obtained.
- (5) The researcher would like to see more studies done in creative writing to determine the general effects of SC

exercises in this area of composition.

- (6) Because the students in creative writing are atypical in terms of their interest in writing and language, it would be helpful to obtain some general norms on their growth as a subgroup of the general population. This would help us judge the effectiveness of various teaching methods often recommended for creative writing classes.

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APPENDICES

APPENDIX A. Pretest Instrument

The Chicken

A man lived in a farmhouse. He was old. He lived alone. The house was small. The house was on a mountain. The mountain was high. The house was on the top. He grew vegetables. He grew grain. He ate the vegetables. He ate the grain. One day he was pulling weeds. He saw something. A chicken was eating his grain. The grain was new. He caught the chicken. He put her in a pen. The pen was under his window. He planned something. He would eat the chicken for breakfast. The next morning came. It was early. A sound woke the man. He looked out the window. He saw the chicken. He saw an egg. The chicken cackled. The man thought something. He would eat the egg for breakfast. He fed the chicken a cup of his grain. The chicken talked to him. He talked to the chicken. Time passed. He thought something. He could feed the chicken more. He could feed her two cups of grain. He could feed her in the morning. He could feed her at night. Maybe she would lay two eggs every morning. He fed the chicken more grain. She got fat. She got lazy. She slept all the time. She laid no eggs. The man got angry. He blamed the chicken. He killed her. He ate her for breakfast. He had no chicken. He had no eggs. He talked to no one. No one talked to him.

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APPENDIX B. Posttest Instrument

The Carver

The carver carves wood. The carver sits in the shadows. His shoulders are hunched. His face is calm. His mouth is a line. The line is thin-lipped. The line shows concentration. Chips surround him. The chips are wood. The chips are curls. The curls are white. The curls smell sweet. The curls litter the earth. The earth is brown. The earth is hard packed. The carver watches the wood. An eyebrow emerges. His knife peels away the skin. The skin is wood. A bone begins to protrude. The bone is along the cheek. Lips unfold. The lips are thin. The lips are concentrated. The unfolding is slow. Chips fall to the side. Smells drift in. The smells are of orchards. The orchards are blossoming. The blossoms are white. The smells bring memories. The memories are of faces. The faces are in another time. The time is long past. The shavings fall. The falling is from the face. The face is the carving. Its texture is rough. Its lines are bold. Its lines are clean. Its eyes stare into space. The eyes are wide. The eyes are deep set. The nose is straight. The nose is flared. The flaring is at the bottom. The flaring is above the mouth. The mouth is grim. The mouth is patient. Then the carver lifts his carving. He brushes away the shavings. He examines the carving. The examination is with care. The care is that of a craftsman. His lips relax. The relaxing is a half-smile. The

carved lips remain grim. The carved lips remain patient. The carver
has recreated a piece. The piece is of the past.

(from Sentence Combining, A Composing Book by William Strong and
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APPENDIX C. Raw Data

Below begins the tabulation of the raw data for this experiment. Letters and numbers at the far left identify each individual student (T for twelfth graders and E for eleventh graders).

	WORDS PER T-UNIT						CLAUSES PER T-UNIT	
	Pretest Data			Posttest Data			Pretest	Posttest
	<u>WDS</u>	<u>TU</u>	<u>W/TU</u>	<u>WDS</u>	<u>TU</u>	<u>W/TU</u>	<u>C/TU</u>	<u>C/TU</u>
T1	212	15	14.13	160	15	10.67	1.00	1.00
T2	216	18	12.00	183	11	16.64	1.28	1.82
T3	182	15	12.13	191	14	13.64	1.33	1.79
T4	279	27	10.33	169	13	13.00	1.19	1.15
T5	229	16	14.31	163	6	27.17	1.31	1.67
T6	205	18	11.39	137	12	11.42	1.39	1.00
T7	168	17	9.88	161	9	17.89	1.18	1.44
E1	109	7	15.57	177	4	44.25	2.29	2.50
E2	215	18	11.94	192	12	16.00	1.39	1.67
E3	122	13	9.38	167	11	15.18	1.08	1.45
E4	159	14	11.36	157	14	11.21	1.21	1.14
E5	244	17	14.35	170	14	12.14	1.47	1.00
MEAN	195	15.08	12.23	168.92	11.25	17.43	1.343	1.470

	WORDS PER CLAUSE		NOUN CLAUSES PER 100 WORDS		ADJECTIVE CLAUSES PER 100 WORDS	
	<u>Pre- test</u>	<u>Post- test</u>	<u>Pretest</u>	<u>Posttest</u>	<u>Pretest</u>	<u>Posttest</u>
T1	14.13	10.67	0	0	0	0
T2	9.39	9.15	5.56	0	5.56	17.65
T3	9.10	7.64	13.33	0	0	42.86
T4	8.72	11.27	11.11	0	0	3.70
T5	10.90	16.30	12.50	0	6.25	0
T6	8.20	11.42	16.67	0	11.11	0
T7	8.40	12.38	0	0	5.80	0
E1	6.81	17.70	0	0	71.43	57.14
E2	8.60	9.60	11.11	0	5.56	6.25
E3	8.71	10.44	0	9.09	0	36.36
E4	9.35	9.81	14.29	0	0	0
E5	9.76	12.14	17.65	0	17.65	0
MEAN	9.34	11.54	8.518	.758	10.28	13.66

	ADVERB CLAUSES PER 100 WORDS		NONFINITE VERBS		ABSOLUTES	
	<u>Pre- test</u>	<u>Post- test</u>	<u>Pre- test</u>	<u>Post- test</u>	<u>Pre- test</u>	<u>Post- test</u>
T1	0	0	12.26	11.88	0	2
T2	16.67	54.55	1.85	7.10	0	0
T3	20.00	35.71	3.30	4.19	0	6
T4	7.41	7.69	3.94	5.92	0	2
T5	12.50	66.67	6.99	10.43	0	4
T6	11.11	0	3.41	10.22	0	6
T7	11.76	44.44	4.17	6.83	0	7
E1	57.14	50.00	15.60	8.47	0	6
E2	22.22	58.33	3.72	6.77	0	2
E3	7.69	0	3.28	7.78	0	2
E4	7.14	14.29	6.29	8.92	0	3
E5	11.76	0	7.70	10.00	0	4
MEAN	15.45	27.64	6.05	8.21	0	3.667

	INITIAL FREE MODIFIERS		MEDIAL FREE MODIFIERS		FINAL FREE MODIFIERS	
	<u>Pre- test</u>	<u>Post- test</u>	<u>Pre- test</u>	<u>Post- test</u>	<u>Pre- test</u>	<u>Post- test</u>
T1	9.91	2.50	3.77	0	25.94	25.63
T2	11.11	14.75	1.39	3.28	11.11	32.79
T3	3.30	4.19	0	1.57	12.64	47.64
T4	10.39	0.59	2.87	0	1.08	40.83
T5	10.48	4.29	2.62	2.45	24.89	69.33
T6	10.24	5.84	6.34	3.65	10.24	29.20
T7	8.33	11.18	0	0	8.93	40.99
E1	10.12	37.29	0	0	33.33	44.07
E2	20.00	20.83	0	0	8.84	23.96
E3	15.57	0	0	0	0	47.31
E4	21.38	3.82	3.14	8.92	9.43	22.29
E5	13.11	6.47	0.41	6.47	6.97	35.29
MEAN	11.99	9.31	1.71	2.20	12.78	38.28

TOTAL FREE
MODIFIERS

	<u>Pre- test</u>	<u>Post- test</u>
T1	39.62	28.13
T2	23.61	50.82
T3	15.93	53.40
T4	14.34	41.42
T5	37.99	76.07
T6	26.83	38.69
T7	17.26	52.17
E1	43.45	81.36
E2	28.84	44.79
E3	15.57	47.31
E4	33.96	35.03
E5	20.49	48.24
MEAN	26.49	49.79

APPENDIX D. Letter of Permission



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September 4, 1980

Ailana P. Denison
P.O. Box 327
Stevensville, MT 59870

Dear Ms. Denison:

Thank you for your letter of August 26th.

We are pleased to grant you permission to reprint "The Carver", exercise, pages 113-115 of SENTENCE COMBINING: A COMPOSING BOOK, by William Strong, for use as an appendix in the paper for a master's degree at Montana State University, Bozeman.

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Sincerely,

Gerald Summer
Manager
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