

ANALYTIC AND SYNTHETIC APPROACHES TO COMPOSITION:
A PROPOSED COMPARATIVE EVALUATION DURING THE 1978-1979 ACADEMIC YEAR
OF E306 OPTIONS

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Introduction

The Freshman Composition Program (FCP) at the University of Texas at Austin is unique in several respects; among its other unique features, the FCP affords the student at least two distinct options for completing the E306 requirement, options characterized by different rhetorical and pedagogical approaches to the teaching and learning of writing skills. One option relies on Kinneavy's A Theory of Discourse for its underlying rhetorical theory and is largely traditional in its classroom practices, while the other grounds itself in the "generative rhetoric" of Francis Christensen and uses a modified Keller-type tutorial system as the medium of instruction. In addition, the former option generally approaches writing skills holistically and analytically, assuming that a piece of written discourse is greater than the sum of its parts and that much, though certainly not all, improvement in writing performance derives from careful and systematic discourse analyses. The second option, on the other hand, assumes the whole to be inherent in its parts and approaches the development of writing skills synthetically, encouraging the development of those skills through a substantially greater emphasis on a step-by-step synthesis of lesser skills into more complex skills. Stated in another way, the traditional course may be characterized, generally, as working from the whole to the parts while the synthetic approach may be seen as working systematically from the part to the whole.

Although these two curricular and instructional options have been available concurrently to University of Texas freshmen for some five years, and have from time to time been evaluated in limited ways, to date no comprehensive systematic evaluation of either course has been completed to determine its relative effectiveness within the FCP. Such evaluation is necessary if informed decisions regarding the future of either course are to be made.

Goals of the Two E306 Options

Inasmuch as students earn credit for E306 through both options, the courses reflect a common set of goals, two of which are broadly cognitive in nature and one of which is clearly affective. These course goals may be stated as follows:

Cognitive Goals

1. To teach the student to produce referential discourse that is well organized, fully developed, and rhetorically effective.
2. To improve the student's reading skills.

Affective Goal

To improve, within a social context, the student's attitude toward the act of writing and toward the study of composition and rhetoric as a discipline.

Research Design

For the present comparative evaluation of the two E306 options, 500 University of Texas freshmen will be assigned to sections using either the

analytic or the synthetic approach to the teaching and learning of writing skills. To determine the degree of comparability of the two student groups, the mean scores for each group on the SAT, the TSWE, and the ECT will be compared through the appropriate statistical tests.

The comparative evaluation of the two E306 options will follow a simple pretest-posttest design. However, because of the large number of instructional variables involved (see Appendix A, Figure 1), it will be necessary to create and offer four courses, at the very least, which have not previously been taught through the ECP. These four courses, together with the two courses (marked with an asterisk) which have been a part of the FCP, are presented graphically in Appendix A, Figure 2. With the teacher variable controlled, it is believed that these six courses will provide a substantial basis for a comparative evaluation of the two existing options.

Through the use of the "Pretest-Posttest Evaluation Scheme" presented graphically in Appendix A, Figure 3, evaluative comparisons will be done among the six courses along the dimensions of (1) "Objective Measures of Writing-Related Skills," (2) "Quantitative and Qualitative Measurements of Discourse Samples," and (3) "Objective Measures of Affective Changes." The specific variables included under each of these three headings are delineated both in Appendix A, Figure 3, and in the following section.

Hypotheses

The research design will allow the testing of the following series of null hypotheses which state that there will be no significant difference in the improvement of student performance within any of the paired instructional groups (see Appendix A, Figure 2) along the dimensions of

- a. quality of essays controlled for rhetorical type and subject matter (see Appendix B) as rated according to a modified Phillips Discourse Analysis Scale for Referential Discourse (PAS) which scores the following 15 items on a five-point Likert-type scale:
 - (1) comprehensiveness, (2) coherence, (3) accuracy, (4) information value, (5) structure, (6) logical relationships, (7) title, (8) introduction, (9) conclusion, (10) usage, (11) objective language, (12) syntax, (13) punctuation, (14) spelling, and (15) the proximity of completed essay to assignment;
- b. Syntactic complexity as indicated by (1) mean words per clause, (2) mean clauses per T-unit, (3) mean words per T-unit, (4) mean T-units per sentence, (5) mean words per sentence, (6) mean subordinate clauses per T-unit, (7) mean frequency of prepositional phrases, (8) mean frequency of free modifiers in the terminal position, (9) mean frequency of subordinate clauses, (10) mean frequency of noun clauses, (11) mean frequency of adjective clauses, and (12) mean frequency of adverb clauses;
- c. developmental texture or density as indicated by (1) essay word length, (2) mean number of sentences per body paragraph, (3) mean number of paragraphs per essay, (4) mean number of T-units per body paragraph, and (5) mean number of clauses per body paragraph;

how
can these be
evaluated
against
sources
that are
1 1/2 years
old?

- d. the semantic or lexical component as indicated by (1) word frequency, (2) mean number of graphemes per word, (3) mean frequency of word type, and (4) the standard word frequency index score (SFI) for each essay;
- e. writing skills as indicated by the gain scores on the McGraw-Hill Writing Test, Forms A and B (see Appendix C);
- f. reading comprehension as indicated by gain scores on the "Paragraph Comprehension" component of the McGraw-Hill Reading Test, Forms A and B (see Appendix C); and
- g. attitudes toward writing and the study of composition and rhetoric as indicated by gain scores on the Miller-Daly, Likert-type instrument for measuring writing apprehension (see Appendix D) and by a course-instructor evaluation form.

Summary of Non-Departmental Budget Items

To complete the comparative evaluation of the E306 components, the following salary requirements must be met:

Dr Witte--a one-course reduction during the Spring Semester, 1979, plus one-sixth salary during the First Summer Term, 1979 (this latter is in addition to a regular course assignment during the Second Summer Term, 1979).

Mr. Cameron--a one-course reduction during the Spring Semester, 1979, plus one-sixth of full-time equivalent salary during the First Summer Term, 1979.

In addition to these salary requirements, completion of the comparative evaluation presupposes the following non-salary expenses having been met. A breakdown of these estimated expenses appears in Appendix E.

Essay Readers	\$350.00
Training of Essay Readers	100.00
Computer Programming	100.00
Essay Coders	585.00
Training of Essay Coders	100.00
Keypunch Services	
For Student Essays	877.50
For Other Data	200.00
Computer Cards	
For Student Essays	170.63
For Other Data	37.50
Computer Tape	24.00
Purchase of McGraw-Hill Tests	<u>150.00</u>

TOTAL \$2694.63

Appendix A

Three Graphics Showing the E306
Instructional Variables and Their Relationship
to the Pretest-Posttest Evaluation Design

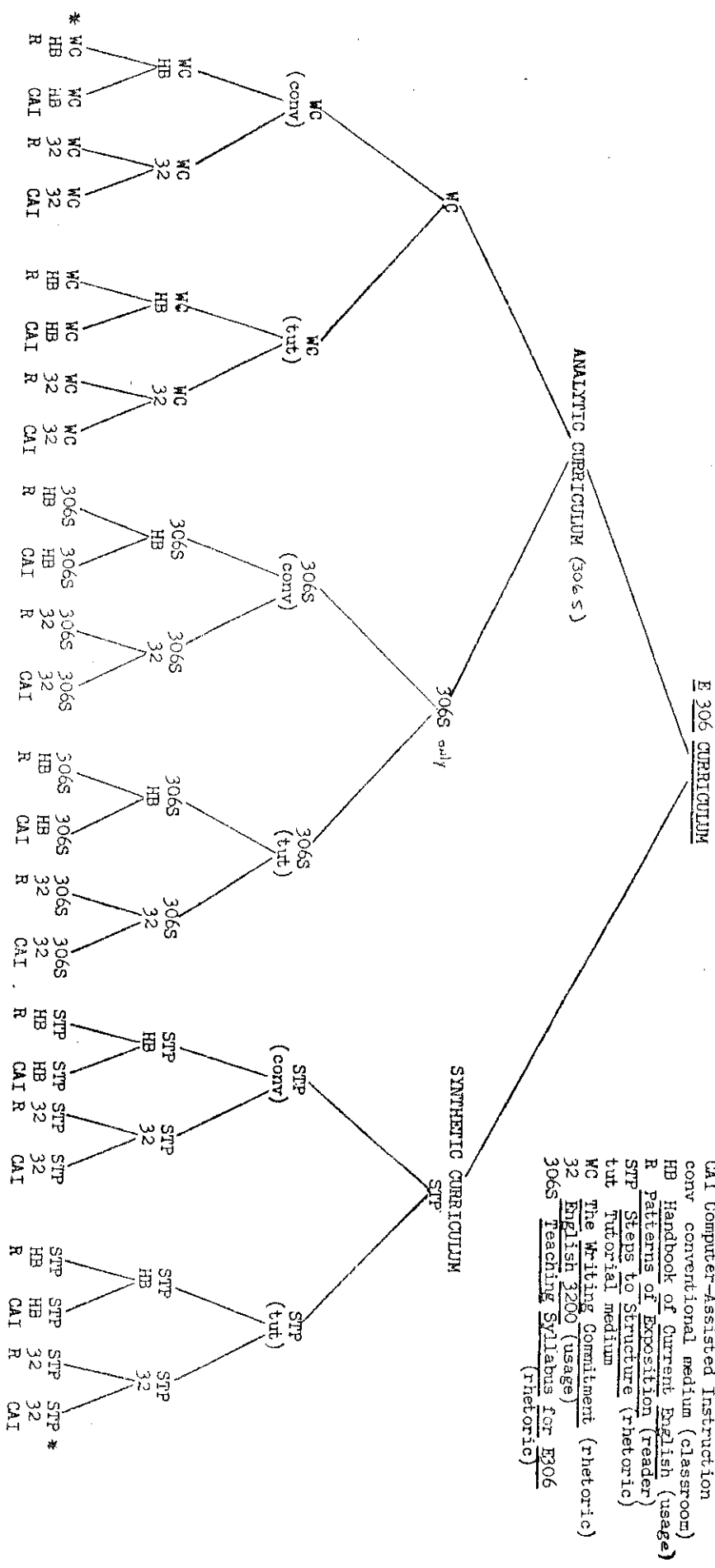


Figure 1. A Tree Diagram Illustrating the Possible Combinations of E306 Instructional Variables. (Previously taught courses are marked with an asterisk.)

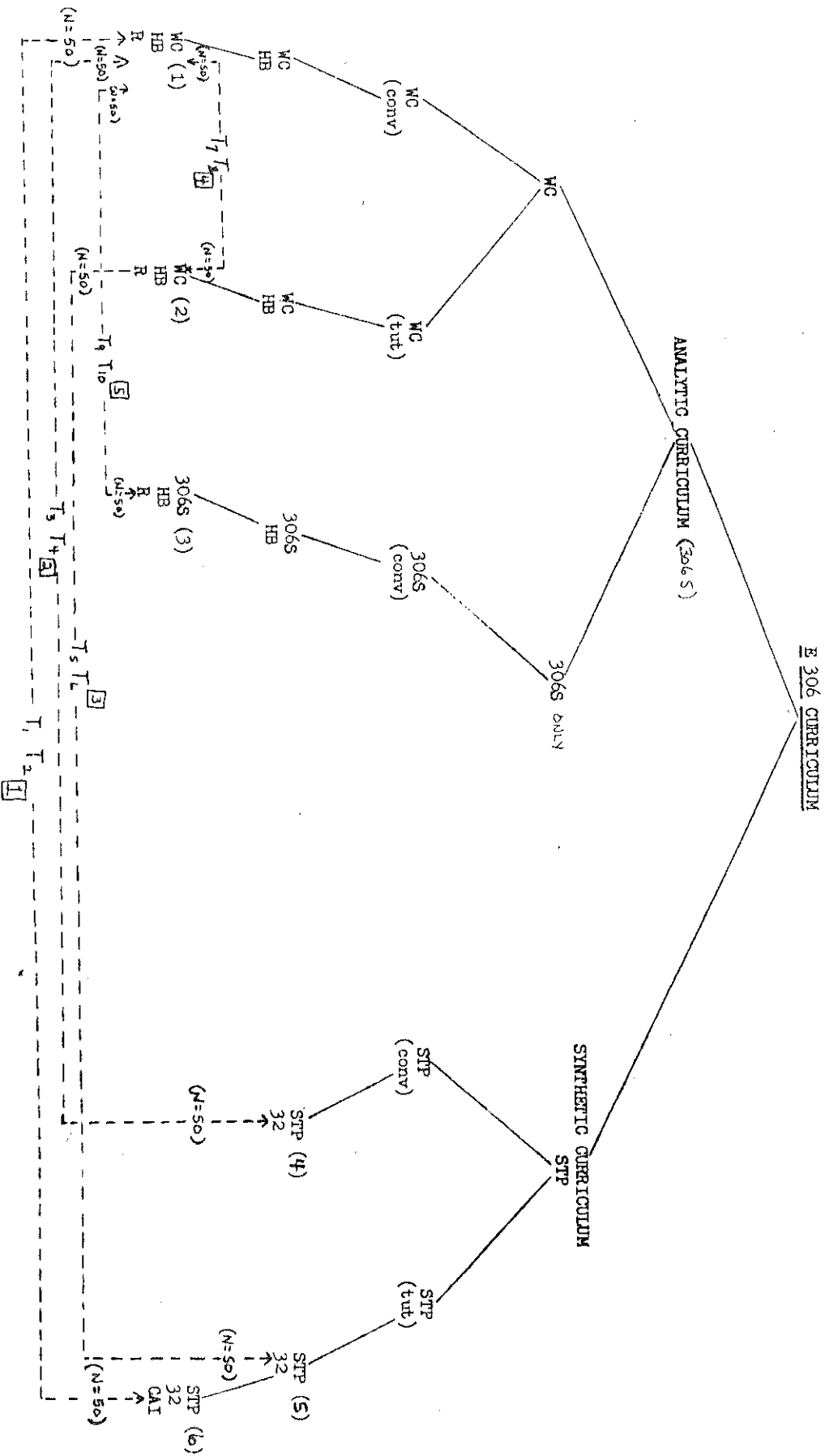


Figure 2. An Abridged Tree Diagram Showing the Proposed Course Pairings for the Comparative Evaluation. (Legend appears on the following page.)

Legend for Figure 2

WC	<u>The Writing Commitment (rhetoric)</u>
306S	<u>Teaching Syllabus for E306 (rhetoric)</u>
STP	<u>Steps to Structure (rhetoric)</u>
conv	Conventional Medium of Instruction (Classroom)
tut	Tutorial Medium of Instruction
HB	<u>Handbook of Current English (Grammar/Usage)</u>
32	<u>English 3200 (Grammar/Usage)</u>
R	<u>Patterns of Exposition (Reader)</u>
CAI	Computer-Assisted Instruction
T ₁ -T ₁₀	Teachers (Each T designated for a given pair of courses will be assigned one section [n=25] of each course in the pair.)
---	Lines consisting of dashes connect courses paired for comparison.
(1-6)	Designates courses to be compared
1	Comparison of analytic-conventional course (1) with synthetic-tutorial course (6)—testing for course effectiveness (n = 50 + 50)
2	Comparison of analytic-conventional course (1) with synthetic-conventional course (4)—testing for effect of content (n = 50 + 50)
3	Comparison of analytic-tutorial course (2) with synthetic-tutorial course (5)—testing for effect of content (n = 50 + 50)
4	Comparison of analytic-conventional course (1) with analytic-tutorial course (2)—testing for effect of instructional medium (n = 50 + 50)
5	Comparison of analytic-conventional course (1) with analytic-conventional course (3)—testing for effect of rhetoric text (n = 50 + 50)

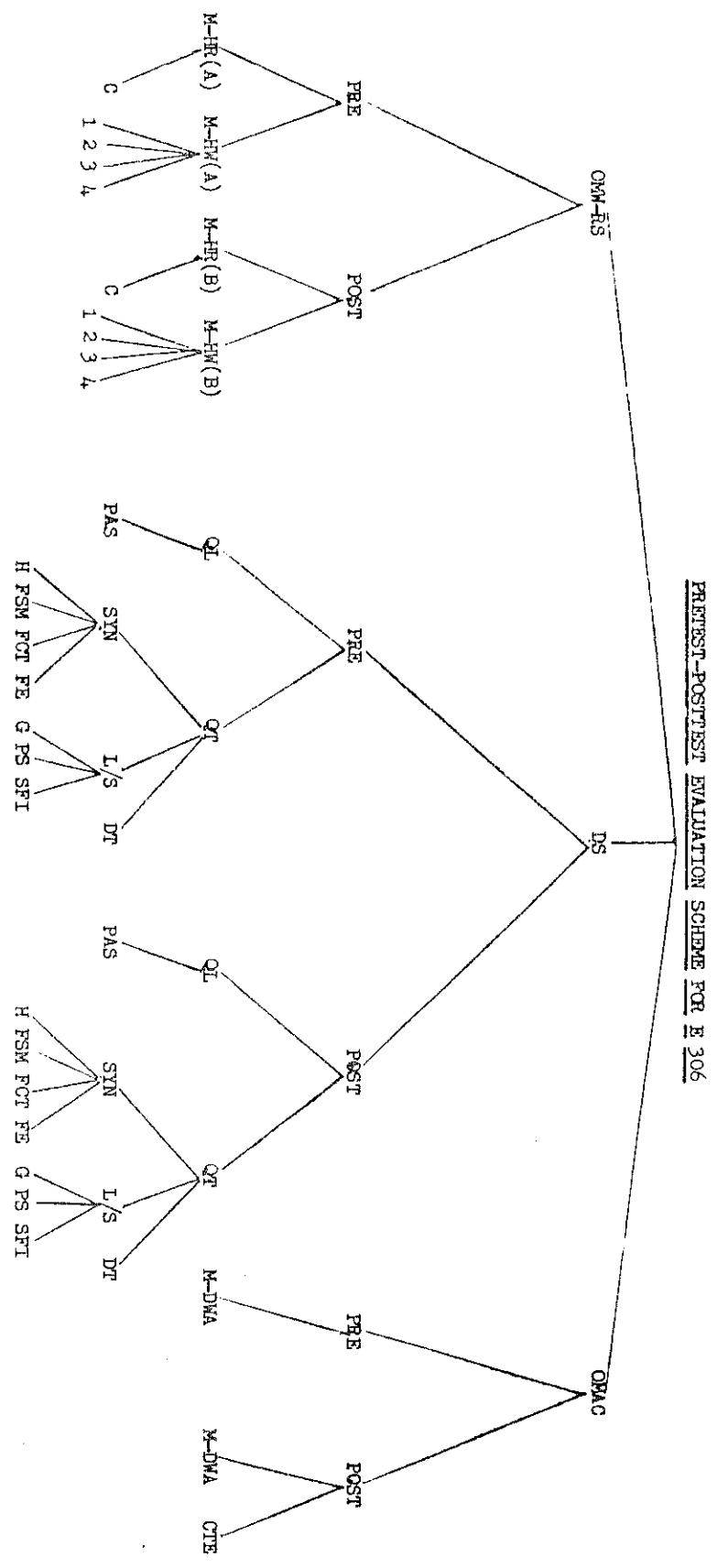


Figure 2. A Tree Diagram of the Pretest-Posttest Evaluation Scheme.
 (Legend appears on the following page.)

Legend for Figure 2

OMI-RS	Objective Measures of Writing-Related Skills
DS	Discourse Sample
OMAC	Objective Measures of Affective Change
PRB	Pretest
POST	Posttest
M-HR	McGraw-Hill Reading Test
M-HW	McGraw-Hill Writing Test
C	Comprehension
QT	Qualitative
QR	Quantitative
PAS	Phillips Analytical Scale for Referential Discourse
HR	Holistic Rating
SYN	Syntactic Component
L/S	Lexical/Semantic Component
H	Hunt's Indices and Their Derivatives
FSM	Frequency of Sentence Modifiers
FCT	Frequency of Clause Type
FE	Frequency of Embedded Sentences
1-4	Subscales of M-HW
DT	Density or Texture of Development
M-OWA	MILLER-OWA WRITING APPREHENSION INSTRUMENT
CITE	COAKSEY/TEACHER EVALUATION INSTRUMENT
Q	Graphemes
PS	Parts of Speech
SEI	Standard Word Frequency Index

Appendix B

Writing Topics

Topic A₁

Each of us behaves differently when we move from one group to another. We play different roles in different situations. For example, we do not act at home precisely as we act on dates, in the classroom, or before an employer. Nor do we behave with a single friend as we behave with a group of friends.

In an extensive and detailed essay, develop your ideas about the changes in our behavior. Use specific illustrations from your personal experience, from observations of others, or from books, movies, and television. You may want to explore questions of your own or answer questions like these: Why do we act differently in different situations? Are the changes in our behavior motivated by some need? Are other people misled by our behavior changes? Do such changes indicate something insincere or hypocritical about us? What happens when we do not change our behavior from one situation to another?

Topic B₁

Each of us likes to escape from reality. We often make believe that our world is different than it is. For example, we imagine ourselves reigning as homecoming queen or serving as class president, scoring the winning touchdown, or dating the most popular person in school. We identify with heroes and heroines of adventure movies, romantic stories, science fiction, and athletic events.

In an extensive and detailed essay, develop your thoughts about escaping from reality. Use specific illustrations from your personal experience, from observations of others, or from books, movies, and television. You may want to explore questions of your own or answer questions like these: Why do we escape? Is our desire to do so motivated by some need? Do you think that escape is irresponsible? harmful to ourselves and society? beneficial? necessary? satisfying? Do we escape in different ways? Do we escape less often and less completely as we mature? What happens if we are unable to escape?

Topic A₂

One issue commanding a great deal of attention nationally is the significant decline in the ability of high school graduates to read and to write. At least one solution to this "literacy crisis" has been proposed. The proposed solution would require high school students to demonstrate that they can read and write well before they graduate from high school. As might be expected, reactions to this proposed solution are divided. Some people insist that such a requirement would be unfair to the students because knowing how to read and write well is not necessary in many of the jobs for which high school graduates qualify. Other people insist that employment skills are not at issue. These other people insist that by knowing how to read and write well the individual is more likely to continue growing intellectually, socially, and culturally after his or her high school years.

In a multi-level essay (that is, an extensive and detailed essay), argue objectively for one point of view or the other. Your argument should be well organized and easy to follow. It should be unified and complete, and it should be free of all logical fallacies or errors in reasoning. Support for your

position should come from your knowledge of the issue and its implications, and that support should be presented objectively without the use of first-person pronouns. Before you begin to write, you may want to explore questions of your own or to explore questions such as these: Are reading and writing essential to the full development of the individual? In what ways are reading and writing used in daily life? Would an individual deficient in reading skills be more likely to be misled by television commercials, by newspaper and magazine advertisements? How do well-developed, or underdeveloped, reading and writing skills affect people's lives? Is there any relationship between reading and writing skills and the ability to appreciate cultural artifacts such as movies, poems, popular songs, novels, or television shows? Are reading and writing related to employment opportunities? to successful employment?

Topic B₂

Composition courses are required in many high schools for most students. Many people, both educators and non-educators, believe that composition courses play an extremely important part in the educational process. These people argue that composition courses develop writing skills which will serve the student well both in other courses and in the world of work. However, in the last few years, composition courses have been severely criticized because, the critics assert, they do a poor job of teaching students to write. Some people insist that the problem is one of relaxed standards in high school composition courses. These people also insist that the effectiveness of high school composition courses could be increased if the courses made greater demands on the student, thus making it more difficult for the student to earn passing marks or grades. Other people assert that composition courses in high schools are not related to the world outside the classroom. According to these people, composition courses should be abolished because they have no practical value.

In a multi-level essay (that is, an extensive and detailed essay), argue objectively for one of the above three points of view. Your argument should be well organized and easy to follow. It should be unified and complete, and it should be free of all logical fallacies or errors in reasoning. Support for your position should come from your knowledge of the problem and its implications, and that support should be presented objectively without the use of first-person pronouns. Before you begin to write, you may want to explore questions of your own or to explore questions such as these: Is there a relationship between what the student does in a high school composition course and the world outside the classroom? Do high school composition courses have a value apart from the teaching of writing? What standards should be used in assessing student progress in high school composition courses? In what ways are composition courses practical? impractical? What should the goals of a high school composition course be? Why are some high school composition courses effective? ineffective? Is writing related to other language skills? What role should composition courses have in a high school curriculum? Is knowing how to write well vital to the future employment of high school graduates? vital to the future employment of some but not of others?

Appendix C

Sample Computer Printouts Showing the
Components of the MHWT and the MHRT

ENGLISH 113 JANUARY, 1975 CTION NJM. 1
 MCGRAW HILL BASIC SKILLS SYSTEM 4
 WRITING TEST RESULTS (10) Raw Score (15)

Raw Score (71 poss.) ENGLISH 113 JANUARY, 1975 CTION NJM. 1
 Raw Score (26) Raw Score (15)
 Punctuation (11) RESULTS REPORTED BY RAW SCORE
 No Errors (4) Paragraph Construction (5) Transition (6) Topic Sentences (3)
 Capitalization (4) Grammar (14) Relative Pronouns (10) Concluding Sentences (3)
 Sentence Types (10) Paragraph Construction (5) Transition (6) Topic Sentences (3)

STUDENT ID	TOTAL SCORE	RANK DRD.	LANGUAGE MECHANICS			SENTENCE PATTERNS			PARAGRAPH PATTERNS							
			TO	FROM	AVG	TO	FROM	AVG	TO	FROM	AVG					
190874	45	17.0	19	2	7	8	2	1	1	4	12	3	2	3	4	5
190959	29	23.0	9	1	3	5	0	2	2	4	10	2	2	2	1	3
191823	54	6.5	21	3	9	8	1	4	5	4	21	8	3	3	2	1
191887	54	6.5	21	1	10	8	2	2	3	4	20	8	5	3	3	2
191980	51	10.0	23	4	10	7	2	4	2	4	17	9	2	11	3	3
192056	48	14.5	21	3	8	8	2	2	4	3	14	7	0	4	3	3
192407	62	1.0	26	3	11	10	2	3	5	5	22	9	3	5	3	3
192490	24	24.0	13	0	8	4	1	4	2	0	4	2	0	2	0	1
192990	60	2.0	27	3	11	11	2	2	4	5	20	7	4	5	4	3
193034	49	12.0	19	3	7	8	1	1	6	5	16	5	3	4	4	3
193113	52	9.0	18	2	8	6	2	2	3	5	21	9	4	3	5	2
193154	50	11.0	20	2	7	10	1	1	15	8	15	8	2	3	2	3
193306	48	14.5	19	2	9	6	2	2	16	7	16	7	3	3	3	2
193335	41	18.0	17	4	5	6	2	4	15	6	15	6	2	4	3	2
193547	33	20.0	14	2	5	6	1	2	12	5	12	5	2	2	3	1
193587	58	4.0	24	2	10	10	2	2	20	8	20	8	3	5	4	3
193591	48	14.5	20	3	7	8	2	2	18	7	18	7	2	5	4	2
194141	58	4.0	24	2	11	11	0	0	21	8	21	8	3	5	5	2
194352	34	19.0	12	0	6	5	1	1	10	3	10	3	0	4	3	3
194795	53	8.0	21	3	8	8	2	2	21	7	21	7	4	5	5	2
195502	58	4.0	24	3	10	8	3	3	20	9	20	9	2	4	5	3
196946	30	22.0	12	0	5	5	2	2	10	4	10	4	2	3	1	2
199887	48	14.5	20	2	7	9	2	2	16	8	16	8	4	1	3	3
199926	32	21.0	9	2	4	3	0	0	11	5	11	5	2	0	4	2

II. SECTION PROFILE

AVERAGE	46.63	18.9	2.2	7.8	7.4	1.5	16.0	6.8	2.5	3.4	3.4	11.8	2.6	2.5	2.3	2.1	2.2
STD.DEV.	10.87	5.1	1.1	2.3	2.2	0.8	4.7	2.0	1.4	1.5	1.4	2.2	0.7	0.7	0.9	0.7	0.7

III. ALL STUDENTS PROFILE

AVERAGE	44.85	18.5	2.1	7.6	7.2	1.5	15.1	6.2	1.9	3.4	3.5	11.3	2.5	2.3	2.4	2.1	2.1
STD.DEV.	9.19	4.3	1.1	2.1	2.3	0.8	4.0	2.0	1.2	1.4	1.4	2.4	0.7	0.8	0.8	0.8	0.8

McGraw-Hill Reading Test

STUDENT ID	TOTAL SCORE	RANK ORDER	READING RATE COMPREHENSION	SKIMMING SCANNING	PARAGRAPH COMPREHENSION	PARAGRAPH COMPREHENSION SUB SCALES									
						SUB 1	SUB 2	SUB 3	SUB 4	SUB 5	SUB 6				
125942	56	27.00	10	10	16	2	3	1	3	3	3	4	5	5	(5 points possible--objective tests)
191352	50	7.50	13	23	22	4	2	4	5	4	4	4	4	4	(5 points possible--critical reading)
191343	63	3.00	15	26	22	3	5	3	3	3	3	3	3	3	(5 points possible--organization)
191905	54	12.00	10	27	17	1	3	3	3	3	3	3	3	3	(5 points possible--scientific principles)
192054	46	41.00	9	20	17	3	3	3	3	3	3	3	3	3	(5 points possible--significant facts)
192125	34	20.00	9	9	16	1	5	2	1	2	4	4	4	4	(5 points possible--main ideas)
192225	59	7.50	11	27	21	3	4	3	3	3	3	3	3	3	
192323	61	5.50	16	22	23	1	4	3	4	4	4	4	4	4	
192400	43	23.50	12	16	17	4	4	2	3	3	3	3	3	3	
192477	42	29.00	6	18	18	4	5	2	3	3	3	3	3	3	
192633	45	23.50	10	15	20	3	4	2	3	3	3	3	3	3	
192679	59	7.50	12	22	25	5	4	2	3	3	3	3	3	3	
192715	49	16.50	13	17	19	3	3	2	3	3	3	3	3	3	
192735	68	2.00	17	26	25	4	5	4	3	3	3	3	3	3	
192755	75	1.00	18	28	29	5	5	4	5	5	5	5	5	5	
192756	52	17.00	13	22	17	2	4	2	2	2	2	2	2	2	
192771	43	21.00	13	18	15	2	3	2	1	1	1	1	1	1	
192816	42	4.00	16	22	24	5	3	2	2	2	2	2	2	2	
192822	53	13.00	13	17	23	5	5	4	4	4	4	4	4	4	
193003	50	7.50	13	19	26	4	4	3	4	4	4	4	4	4	
193066	50	11.00	13	25	18	4	3	3	2	2	2	2	2	2	
193083	50	12.00	13	19	18	4	3	2	2	2	2	2	2	2	
193081	48	10.00	10	17	21	4	5	3	3	3	3	3	3	3	
193556	47	10.50	9	20	20	4	3	2	3	3	3	3	3	3	
193550	41	20.00	8	15	18	3	3	2	2	2	2	2	2	2	
194016	48	18.50	12	17	19	4	4	2	2	2	2	2	2	2	
194397	61	5.50	18	21	22	3	4	4	4	4	4	4	4	4	
197657	40	21.00	11	16	19	3	4	4	2	2	2	2	2	2	

II. SECTION PROFILE

TOTAL SCORE	READING RATE COMPREHENSION	SKIMMING SCANNING	PARAGRAPH COMPREHENSION	PARAGRAPH COMPREHENSION SUB SCALES					
				SUB 1	SUB 2	SUB 3	SUB 4	SUB 5	SUB 6
55.27	12.25	19.79	20.25	3.43	3.82	2.80	2.80	3.18	4.11
7.463	2.589	4.641	3.471	1.289	0.945	0.932	1.044	1.056	1.066

III. ALL STUDENTS PROFILE

TOTAL SCORE	READING RATE COMPREHENSION	SKIMMING SCANNING	PARAGRAPH COMPREHENSION	PARAGRAPH COMPREHENSION SUB SCALES					
SUB 1	SUB 2	SUB 3	SUB 4	SUB 5	SUB 6				
51.60	12.83	19.53	19.51	3.33	3.50	3.03	2.68	3.19	3.77
7.170	2.858	4.502	4.137	1.130	1.193	0.996	1.126	1.113	1.126

Appendix D

The Miller-Daly Instrument for Measuring
Writing Apprehension

_____ Student ID Number

____ Section Number

Directions: Below are a series of statements about writing. There are no right or wrong answers to these statements. Please indicate the degree to which each statement applies to you by circling whether you (1) strongly agree, (2) agree, (3) are uncertain, (4) disagree, or (5) strongly disagree with the statement. While some of these statements may seem repetitious, take your time and try to be as honest as possible. Thank you for your cooperation in this matter.

- | | | | | | |
|---|---|---|---|---|---|
| 1. I avoid writing. | 1 | 2 | 3 | 4 | 5 |
| 2. I have no fear of my writing being evaluated. | 1 | 2 | 3 | 4 | 5 |
| 3. I look forward to writing down my ideas. | 1 | 2 | 3 | 4 | 5 |
| 4. I am afraid of writing essays when I know they will be evaluated. | 1 | 2 | 3 | 4 | 5 |
| 5. Taking a composition course is a very frightening experience. | 1 | 2 | 3 | 4 | 5 |
| 6. Handing in a composition makes me feel good. | 1 | 2 | 3 | 4 | 5 |
| 7. My mind seems to go blank when I start to work on a composition. | 1 | 2 | 3 | 4 | 5 |
| 8. Expressing ideas through writing seems to be a waste of time. | 1 | 2 | 3 | 4 | 5 |
| 9. I would enjoy submitting my writing to magazines for evaluation and publication. | 1 | 2 | 3 | 4 | 5 |
| 10. I like to write my ideas down. | 1 | 2 | 3 | 4 | 5 |
| 11. I feel confident in my ability to express clearly my ideas in writing. | 1 | 2 | 3 | 4 | 5 |
| 12. I like to have my friends read what I have written. | 1 | 2 | 3 | 4 | 5 |
| 13. I'm nervous about writing. | 1 | 2 | 3 | 4 | 5 |
| 14. People seem to enjoy what I write. | 1 | 2 | 3 | 4 | 5 |
| 15. I enjoy writing. | 1 | 2 | 3 | 4 | 5 |
| 16. I never seem to be able to write down my ideas clearly. | 1 | 2 | 3 | 4 | 5 |
| 17. Writing is a lot of fun. | 1 | 2 | 3 | 4 | 5 |
| 18. I expect to do poorly in composition classes even before I enter them. | 1 | 2 | 3 | 4 | 5 |
| 19. I like seeing my thoughts on paper. | 1 | 2 | 3 | 4 | 5 |
| 20. Discussing my writing with others is an enjoyable experience. | 1 | 2 | 3 | 4 | 5 |
| 21. I have a terrible time organizing my ideas in a composition course. | 1 | 2 | 3 | 4 | 5 |

[continued on next page]

----- Student ID number

___ Section Number

- | | | | | | |
|---|---|---|---|---|---|
| 22. When I hand in a composition I know I'm going to do poorly. | 1 | 2 | 3 | 4 | 5 |
| 23. It's easy for me to write good compositions. | 1 | 2 | 3 | 4 | 5 |
| 24. I don't think I write as well as most other people. | 1 | 2 | 3 | 4 | 5 |
| 25. I don't like my compositions to be evaluated. | 1 | 2 | 3 | 4 | 5 |
| 26. I'm no good at writing. | 1 | 2 | 3 | 4 | 5 |

Appendix E

Details of Non-Salary Budget Items

Essay Readers (\$350.00): The estimated cost of hiring essay readers (probably six) to rate 700 student essays (a stratified random sample) with the Phillips Discourse Analysis Scale for Referential Discourse (PAS). It is estimated that one reader, paid at \$5.00 per hour, can rate ten essays per hour.

Training of Essay Readers (\$100.00): The estimated cost of conducting two training sessions (1 1/2 hours each) for six essay readers paid \$5.00 per hour, plus the estimated cost (\$10.00) of producing training materials.

Computer Programming (\$100.00): The estimated cost of having a computer expert write computer programs capable of gathering lexical, syntactic, and structural data from 700 previously coded essays.

Essay Coders (\$585.00): The estimated cost of hiring essay coders (probably six) to code the 700 student essays for the syntactic and structural variables. It is estimated that one trained coder paid \$5.00 per hour can code six essays per hour.

Training of Essay Coders (\$100.00): The estimated cost of conducting two training sessions (1 1/2 hours each) for six essay coders paid \$5.00 per hour, plus the estimated cost (\$10.00) of producing training materials.

Keypunch Services for Student Essays (\$877.50): The estimated cost of keypunching the previously coded 700 student essays. It is estimated that the 700 essays will average 500 words in length (total number of words, 350,000) and that the essays can be keypunched at the rate of 50 words per minute. Keypunch operators are paid \$7.50 per hour.

Keypunch Services for Other Data (\$200.00): The estimated cost of having keypunched for each of 175 students the SAT, TSWE, and ECT scores and the raw data collected from the biographical information sheet, the McGraw-Hill Reading Test (Forms A & B), the McGraw-Hill Writing Test (Forms A & B), the Phillips Discourse Analysis Scale for Referential Discourse (used on two "pretest" and two "posttest" essays for each student), the Miller-Daly Writing Apprehension Test (administered pre and post), and the course-instructor evaluation instrument.

Computer Cards for Student Essays (\$170.63): The estimated cost of computer cards for keypunching the 700 previously coded student essays. It is estimated that 65 cards per coded essay will be required for a total of 45,500 computer cards which are sold in boxes of 2,000 for \$7.50 per box.

Computer Cards for Other Data (\$37.50): The estimated cost of the computer cards (approximately 5 2000-count boxes) required for keypunching data other (see Keypunch Services for Other Data above) than the 700 coded essays.

Computer Tapes (\$24.00): The estimated cost of two 2400-foot computer tapes for the data collected during the evaluation.

Purchase of McGraw-Hill Tests (\$150.00): The estimated cost of purchasing Form B Test Booklets for the Reading Test and the Writing Test. (The two Form A versions of the tests were borrowed from another university.)