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Mary Constantine Sobieszczyk
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An Experimental Study of the Development of Critical Thinking through the Language Arts in a High School Senior English Program

by

Sister Mary Constantine, S.S.J. Sobieszczzyk

A Thesis Submitted to the Faculty of the Graduate School of Loyola University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

June
1962
LIFE

Sister Mary Constantine, SSJ, was born in Fancher, Wisconsin, 1917.

She graduated from St. Joseph's Academy, Stevens Point, Wisconsin, in June, 1934, and from De Paul University, Chicago, with the degree of Bachelor of Philosophy in June, 1950. She received her Master of Arts degree from the same institution in February, 1954. Her thesis was of an experimental nature, The Motivation Forces of Radio in the Elementary School. Since then Sister continued her education at the Catholic University, Notre Dame, Marquette, and Loyola Universities, directing her work toward a doctorate in education.

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One of her articles, "Thoughts about Food," was published in The Catholic School Journal, Volume 18, September, 1948, page 246; another article, "Teaching Accident Prevention," can be found in The Catholic Educator, May, 1949, pages 491-2. Sister is a member of the National Council on Measurement in Education and of the Secondary Division of the Chicago Archdiocesan Association of Teachers of English. Sister is presently on the staff of teachers at Lourdes High School and Immaculata College in Chicago.
PREFACE

This experimental study of critical thinking called for philosophical, psychological, curricular, and statistical consideration. The author is grateful to the many persons who aided in studying these various phases, in planning the procedures, and in executing the plans.

Special recognition is hereby made to Dr. Paul Dressel, of Michigan State University, for continued assistance contributed in the form of suggestions and materials; to Dr. Kenneth B. Henderson, of the University of Illinois, whose oral and written communications and generous sharing of work greatly guided the author in the formulation of plans; to Dr. William V. Haney, of Northwestern University, Dr. Nicholas Topetzas, of Marquette University, Dr. Robert Strickler, of Notre Dame as well as to Dr. Max D. Engelhart and Dr. Samuel T. Mayo, of Loyola University.

Grateful recognition is given to Mother Mary Benjamin, Superior of the Chicago Province of the Sisters of St. Joseph of the Third Order of St. Francis, for her solicitude and generosity in supplying materials and assistance, to the teachers who diligently cooperated in this effort, and to the various persons who helped produce the materials.

Acknowledgement is hereby given to the following for permission to use and duplicate instructional material: Dr. Paul Dressel, Dr. Kenneth B. Henderson, Dr. William V. Henry, Dr. Donald Costello, and the Macmillan Company and Prentice-Hall, Inc.
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CHAPTER I
INTRODUCTION

President Kennedy in his message on education reminded Americans that the human mind is our fundamental resource, that our progress as a nation can be no swifter than our progress in education, and that we must be concerned with the development of every young American's capacity.¹

The possibilities of developing the human mind have always been recognized by educators. Whether one begins with the warnings of Socrates about being wise enough not to trust unchecked judgments, whether one examines formal statements made by educational organizations, or whether one scrutinizes the aims of lesson plans made by individual teachers, one reaches the same conclusion: teaching students to think always ranked and still ranks high as an educational objective.

Stating such a general objective, however, is only an initial step; getting a true picture of the thought process and the nature of the intellect producing it is helpful information; but having the school actually and realistically become instrumental in developing the skills of critical thinking is a difficult long-term task, involving many specific skills within a variety of contexts. Such was the experience of four English teachers who

planned to incorporate critical thinking as an integrating principle in the teaching of senior English in high school.

Many factors contributed in motivating the writer to undertake a study of critical thinking in the teaching of English. During her years of teaching in the elementary school, she was interested in developing the skills of critical thinking; she was convinced that students can be taught to think critically, but she was not quite certain of the best procedures to be used. She found guidance in the forceful statement made by the National Council of the Teachers of English:

...democracy at its best demands of its citizens ability to think clearly, to attack problems intelligently, and to exercise critical judgment. Within the limits of their experience and ability students at every level of instruction should have opportunity to set forth their ideas concerning topics of interest to them, to substantiate their statements with evidence, to draw inferences carefully, and to order their ideas clearly for presentation to others. At the same time, they should have practice in those skills which freedom of speech and of press demand of the listener and the reader. They should evaluate critically ideas found in newspapers, books, and magazines, heard in discussion or over the radio, or presented on the screen, learning in the process to validate authority, to distinguish fact from opinion, to recognize untoward emotional appeal, and to detect false inferences or unsubstantiated generalizations.²

Then followed a study of the specific skills needed to achieve the above-mentioned goals, of the possibilities of including them in planning the usual English language arts program and of teaching them—relying upon a firm basis of a sound philosophy and psychology of education. A study of the literature in the field of teaching critical thinking proved that theory abounds but

that experimental evidence is lacking especially in the group or classroom setting as explained by David Russell's statement,

The study of children's thinking is a wide-open field for research workers in education and child development. Many investigations of children's percepts, memories, fantasies, and the way they do problem solving, critical thinking, and creative thinking are still needed, especially in the group of classroom setting. Only then can the aim of "teaching pupils how to think" operate in most classrooms as well as in those of some gifted teachers today.³

An examination of other pertinent literature revealed, emphatically, encouragingly and repeatedly, the desirability of conducting research studies within a classroom setting. A review of such literature is presented in the second chapter of this study.

After considerable study of the problem and its possibilities, an attempt was made to ascertain whether, to what extent, and by what instructional method critical thinking might be taught in a high school senior English program within the context of the usual language arts.

This attempt was begun by making a pilot study and conducting two summer workshops which were followed by teaching the experimental group according to the methods planned by the teachers during the summer sessions. Testing the control and experimental groups, as well as other means of evaluating, was used to determine the effect of teaching procedure upon students' ability to think critically.

The results of these subjective and objective evaluations are presented in this study and a discussion of the value of the course is explained, but the term "value" is an abstract one. When applied to critical thinking it demands an explanation. Such an explanation is the purpose of the following treatise of the philosophical and psychological principles upon which the rationale of this dissertation is based.

PHILOSOPHICAL BASIS OF THE STUDY

Critical Thoughts About Critical Thinking

The nature and importance of the topic of critical thinking made it necessary for the teachers involved in this experiment to study the nature of both education and the educand. Any discussion involving a subject as serious as the human mind necessitates a study of the philosophy underlying educational practices. When teachers lack a firm philosophy in regard to essential factors, there is danger that their students might be tossed about, as St. Paul warns by every wind of doctrine.

These "winds" may appear in an educational ideology which "blatantly ignores the mind, deprives worthy subjects of their intellectual content, and rewards the unquestioning attitude, the dispersal of interest, and fruits of mediocrity." Such winds may result in ignorance, ill will, apathy, and the lack of courage necessary to accept responsibility in facing difficulties and in making decisions as mature individuals. Consequently, a considerable portion of the summer workshop was devoted to the study of philosophies in

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American education, criticisms of educational achievements, and the nature and need of striving to have students learn to think critically.

Theory and practice teach us that knowledge is not necessarily virtue. The Socratic assumption that if a man knows the truth he will act in accordance with it is being constantly challenged in daily living. There is, however, a direct positive relationship between what man does and what he knows. Because he is a rational creature, he cannot be expected "to do" unless he knows.

Man's morality is determined according to the suitability of his behavior in relation to his ultimate destiny. That suitableness is determined not by custom or convenience nor by authority that has no other sanction but custom or convenience nor by biological, psychological, or sociological forces. The immediate foundation of morality in human actions is the judgement of reason. Man is in control of his own actions in his pursuit of happiness.  

It follows, then, that man's judgement of reason deserves much attention in the education of the individual, and it is not surprising that educators are willing to regard the development of the thinking process as one of the primary aims of education. The school must accept the responsibilities of helping the student to improve the problem-solving behavior of students and to develop the habit of basing action on rational considerations. This is especially important in a democracy where rational persuasion is the only

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acceptable manner of being ruled. Society expects, and has a right to expect, its educational system to help produce effective democratic citizens who are able to determine the motives of persuasion, to analyze communication materials, to check the logic and reasoning involved in arguments, and to express their own thinking in a wholesome and effective manner.

Considering the large number of girls involved in this study, their teachers realized that they ought to be aware of the role of girls as future mothers in preparing future citizens. It is true that the school is not the first nor the only agency responsible for the education of children, but it is also true that it does have an obligation to prepare its students for future living. It is necessary for girls to receive the intellectual, cultural, and moral training needed to make them good educators of their own children. A training in critical thinking should help them fulfill that important role well.

A basic source of information in planning the experiment was the chapter on thinking in Fitzpatrick's book, Philosophy of Education, which gives a comprehensive picture of man's power to reason, the training of the scholastic self, and the positive need for emphasis of meanings—all within the framework of a sound philosophy of education. He presents thoroughly the main proposition or principles concerning intellectual training, among which the following are most significant for the purpose of this study. The unity of experience must be recognized in the classroom since the intellectual objective is not a complete human objective because it must be related to man's emotions and will. The school often builds up in students a "scholastic self," efficient in the schoolroom but ineffective everywhere else. The important thing, in intellectual
training in problem-solving is that the problem be the child's problem whether or not it is a problem to all the rest of mankind. It is desirable that the old arts of meditation and contemplation be revived in modern life. Bacon's four idols of the tribe (human nature), of the cave (individual man), of the market place (intercourse and association), and of the theatre (influence of dogmas of philosophies and wrong laws of demonstrations) are just as much general pitfalls to man's thinking today as they were in the sixteenth century.6

In keeping with Scholastic Philosophy, His Eminence the late Samuel Cardinal Stritch, Archbishop of Chicago, exhorted the teachers of the archdiocese to integrate everything in their school activities and to train students to discipline their reason. This in no way abstracts from piety and religious observance, because grace builds upon and ennobles nature. Students should be guarded against vicarious thinking, against thoughtlessly acting in conformity with mass action, and against using mob psychology. By being indiscriminate conformists, students can injure their human personalities. The school is the place for whetting the appetite of the intellect, for learning, and for using the higher faculties for noble purposes.7

The teacher must have an open mind with regard to the findings of educational psychology, for it can aid her in discovering truth; but she must


7 Information obtained while attending the Nineteenth Annual Meeting of the Midwest Regional Unit, Secondary School Department, National Catholic Educational Association, April 2, 1957.
remember that psychology, even Scholastic Psychology, is only a part of philosophy and not the whole of it. She must be on guard against accepting the all-sufficient and materialistic tenets advocated by some American educational psychologists and philosophers. Their denial of a spiritual soul and their misinterpretation of free will cannot make complete philosophies to serve as adequate bases for interpreting man's rational nature. She must know that real intelligence is a creative or critical use of knowledge, not merely an accumulation of facts; that young people are often intelligent but rarely wise; that it is the duty of the school "to proclaim and sustain the individual's duty and his right to think for himself, to speak freely, and to believe whatever his conscience dictates and it must courageously combat all internal and external encroachments upon these basic freedoms."

Knowledge is only a means to an end; it should help to make this world a better place for others by encouraging virtues and avoiding such undesirable traits as those described by Alderman:

A graduate who is besotted with self-interest; who places security above service; who scoffs at morality and eschews religion; who is infatuated more with the carnal joys of the flesh than he is with the stimulating exercise of the mind; who lives for financial competence rather than a divine innovator; who prefers things to ideas and amusement to cerebration; whose tastes lead him to baubles rather than books, to skits rather than symphonies, to the mundane rather than the masterful; who is cynical rather than constructively critical; whose sense

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of values is infantile or in wintry hibernation—such a graduate of a liberal arts college should be an anomaly.9

The experienced teacher knows that knowledge and intelligence are not synonymous and that the minds of students are far from being angelic in nature. They rank last among the spiritual beings, but their rationality, their ability to use the recorded experiences of mankind and to do critical thinking, differentiates them from the creatures ranking below them. It was important that the teachers participating in this study have a correct understanding of the regal faculty of the intellect, for teachers' work with students is always influenced by such an understanding.

The school is in a position to inspire a quest for knowledge. It must accept that challenge, for all learning begins in wonder. Students must wonder before they can start thinking; without wonder there is no motivation. Young people are like adults: they think when they have to—in order to achieve some end. They must be truly interested. The more real their wonder, the more likely will learning take place. One of the problems of the school is to supply students with enough challenging, meaningful material. With such motivation, education should aim for self-direction and development of skills and insights necessary for further self-education. This will involve a consideration for individual differences which must be respected and provided for within a framework of democratic Christian living requiring the ability to make wise choices based upon thought and judgment. It is fitting that the cultivation of this ability becomes the focus and end of all education.

Such teaching is bound to be opposed to forcing masses of text-book facts into students' heads and demanding dexterity in regurgitating fact-knowledge; it recognizes that rote learning is insufficient; and such teaching aims to have students learn because of the teaching and not in spite of it.

Because the perception, attitudes, and convictions of teachers toward their duties largely determine the efficacy of their work, it is necessary for the individual teacher to realize that she is the mediator between the student and the curriculum; that she is the one responsible for the transformation in the students—or lack of it; that she is the key to the enrichment of their language arts experiences; that she is the one who can do most to save them from the world and from their lesser selves. She can immunize them against anti-intellectualism and materialism and infect them with desires for genuine scholarship and for moral and intellectual integrity. She must train today's youth who must carry us through into the twenty-first century. She must be more interested in depth than in breadth and detail. She must treat her students not as though they were cameras, parrots, or tape recorders but as rational beings; she should aid them to guard against jumping to conclusions and guide them in the process of critical thinking.

Definition of the Term "Critical Thinking"

The term "critical thinking" as used in this study needs an explanation. This need is emphasized by the fact that no completely adequate analysis of the nature of thinking has been achieved nor has any generally accepted terminology with which to discuss the matter been accepted.
To the psychologist, thinking is a process of comparing, deliberating, or weighing possibilities and coming to a conclusion. It does not mean being critical in the negative sense of the term.

At the turn of the century eleven studies were made at the University of Chicago in the area of logical theory. All agreed that judgment is the central function of knowing; that the act of knowing is intimately and indissolubly connected with the like, yet diverse, functions of affection, appreciation, and practice; that there is, as a result, an intimate connection between logical theory and functional psychology. Because knowledge plays an important part in the processes and contents of other functions, its work and aim must be distinctively reconstructive or transformative.10

Bjarne Ullasvik reviews for the reader that section of The Fifteenth Yearbook of the National Council of Teachers of Mathematics which provides a characterization of what a person does who thinks critically. Such a person possesses the following abilities: recognition and formulation of assumptions underlying an argument; recognition of terms that require precise definition; organization of statements in a coherent logical sequence; recognition of the proposition under discussion and realization when a conclusion has been reached; discovering common flaws in reasoning not only in the given area but in areas inviting emotional bias or requiring propaganda analysis; and

10 John Dewey, Studies in Logical Theory (Chicago, 1903).
recognition of logical structure in an extended series of propositions or
related groups of discussions. 11

When Dressel and Mayhew speak of critical thinking in the social sciences,
they refer to four major abilities: the identification of central issues,
the recognition of underlying assumptions, evaluation of evidence or autho-

rity, and the drawing of warranted conclusions. The third skill listed is
subdivided into: recognition of stereotypes and cliches, recognition of bias
and emotional factors in a presentation, distinguishing between relevant and
irrelevant data, distinguishing between essential and incidental information,
recognition of the adequacy of data, determining whether facts support a
generalization, and checking consistency. 12

Dale describes critical thinking as thinking that has been systematically
criticized not only in regard to the means used to reach goals but the goals
themselves. It is the kind of thinking that is needed when meeting a forked-
road situation for which no neat, exact road map already exists. 13

11 Bjarne Ullsvik, "An Attempt to Measure Critical Judgment," School
Science and Mathematics, 49 (June 1949), pp. 445-452.

12 Paul L. Dressel and Lewis B. Mayhew, Critical Thinking in Social

13 Edgar Dale, "Teaching Critical Thinking," Our Times, Teacher's Edition
The committee on measurement and evaluation of the American Council on Education explains critical thinking by stating that all thinking involves at least two elements, the content of thought and the process of thought. The process of thinking may be said to be critical when the person consciously strives to arrive at conclusions which can withstand the examination of other minds.\(^\text{14}\)

Johnson defines critical thinking by saying that it is the use of logical reasoning and the avoidance of common fallacies in judgment. He then lists the attempts which have been made by various individuals who devised ways of improving that skill. He summarizes the results of these attempts by saying that training in logic has been found helpful; training in verbal skills improved verbal reasoning; modern methods of education were found to be slightly superior to conventional methods in improving ability to explain and apply facts about social affairs; and techniques of propaganda can be taught.\(^\text{15}\)

Gerald Maxwell believes that teaching to think is an attitude, an approach, a matter of applying principles known by most teachers. It is a way of teaching which can be learned and must be learned to the point that such instruction becomes a natural habit; it is the application of methods and techniques of teaching which are directed toward the inducement of as much mental activity on the part of the students as possible; it uses subject


matter as the basis for stimulating that mental activity. He lists fourteen specific basic techniques which include such factors as: student participation, the value of thought-provoking questions, the manner of arriving at principles or conclusions, the importance of challenging the students, the use of controversial issues, and the advantages of the scientific method in assignments that require thinking. He reminds teachers of the conditions necessary for the teaching of thinking: interest in the subject, a rapport between teacher and students, extensive knowledge of the subject, and an open attitude toward new and conflicting ideas.  

Gathany gives a challenging list of the marks of the critical thinker:

abundance of knowledge in general, mastery of some special subject, power to analyze facts, ability to apply acquired information where and when needed, competence in organizing what has been read or heard, capacity to draw reasonable inferences and conclusions, patience in solving problems, the habit of asking questions which manifest considerable reflection, power to interpret correctly what has been noticed or done.  

As though this list were not inclusive enough, he adds,

ability to decipher new ways and methods of doing things, eagerness to do hard mental work, capacity to exercise good judgment in the affairs of daily living and human association, fervent earnestness to evict discordant thoughts, an avid desire to effect mental orientation and mental reorientation, skill in critical thinking, possession of a generous modern vocabulary, and an ability to find required information quickly when wanted.  

17 J. Madison Gathany, "Teaching Pupils to Think for Themselves," Social Studies, 42 (February 1951), p. 79.  
18 Ibid., pp. 79-80.
If this list is appalling to the teacher, probably his specific directives about becoming a genuine thinker may be less frightening. The individual must want to think and have confidence that he can improve as time goes on; he must be convinced in his own mind that it pays to think; he must cast aside superficial and inattentive ways of reading and listening; he must not be a blind follower; he must form the habit of questioning his own judgments and conclusions as well as those of others; he must develop the practice of asking more and more thought-provoking and problem-solving questions which utilize facts; he must train himself to give several reasons why he believes; he must be willing to change his own opinions and beliefs when new-found facts and good reasoning dictate or reveal that what he believes was founded on insufficient data; he must always keep in mind that his thinking determines his actions, his behavior, and his value to himself and to society. 19

Furst describes critical thinking in terms of its positive relationship with intelligence. Tests in both areas have a number of features in common: they present tasks relatively novel to the student so that mere recall is minimized; they attempt to present tasks which require the student to determine new relationships in a set of ideas or other data. But there are important differences, too. Critical thinking is usually based upon material drawn from a particular subject field which is rather specialized in character. Tests of intelligence usually do not contain material of such a specialized character. Critical thinking appears to be somewhat independent of what is commonly measured as "general intelligence."

19 Ibid., p. 80.
Considerable learning underlies the cultivation of critical thinking in any subject field; intelligence plays a major part in critical thinking. The cultivation of thinking abilities seems to be facilitated by instruction which encourages the learner to perceive relations among ideas, to apply facts previously learned, to recognize implicit assumptions, and to identify elements crucial to the solutions of problems. Even though superior scholastic aptitude may enable students to accomplish various intellectual exercises without too much formal instruction in a given field, it is unlikely that they will reach the higher levels of performance in a subject field without the acquisition of certain specialized knowledge and instruction aimed at the cultivation of thinking skills.20

With such an understanding of the subject, hope for the average man's capacity for constructive thinking seems more and more thoroughly justified. Although somewhat limited in their mental maturity because of a limited background of experience, average and even below average students can be aided in developing this important skill. Because of their approaching adulthood, less talented students, as well as the more able ones, are interested in their mental development.

The investigator considered it too gigantic a task, and probably a futile one, to aim for the acquisition of all the above-mentioned traits in students. After all, a year of instruction in English has its limitations and teaching

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for critical thinking is a goal to be striven for by all teachers in all subjects, throughout the years of schooling. Critical thinking as understood in this study had to be limited to certain areas. It is defined here as an ability composed of various specific skills enabling the student to perform tasks as specified by the Watson-Glaser Critical Thinking Appraisal and an adaptation of the Dressel-Mayhew Test. These skills include the ability to make deductions, to make interpretations, to evaluate arguments; power to recognize inferences, assumptions, stereotypes, bias and emotional factors; capability to point out the main point in a selection; ability to distinguish between verifiable and unverifiable material, relevant and irrelevant data, adequacy and inadequacy of data, consistency and inconsistency of arguments; power to identify literature in regard to the forms of discourse (narrative, descriptive, argumentative, expository) and in regard to the types of discourse (demonstrative, dialectical, rhetorical, poetic); capacity to identify abstract and concrete, descriptive and ascriptive terms; and some facility in recognizing common fallacies and propaganda techniques. This list might appear to the reader as a forbidding one, but when one considers that the experimentation was conducted during a whole year of instruction and that a course in English readily adapts itself to such a program the list of skills seems possible of attainment.

Critical Thinking: An Integrating Principle

The teachers reviewed the multiplicity of objectives in light of varied and onerous contents of an English IV course. Still they were determined to make possible the inclusion of critical thinking into the curriculum; in fact,
they decided, according to the suggestion of Paul Dressel, to make the teaching of that skill an integrating purpose or goal to which all the educational activities in the English course would be related. They examined several other possible integrating principles that might serve as unifying goals. If citizenship is offered as such a goal, it is difficult to arrive at agreements as to what constitutes citizenship, and there is the threat that undesirable indoctrination might take place. The goal of life adjustment is based on the false assumption that it is possible to predict and explicitly prepare for the future needs of the individual and society. The goals of accumulating knowledge cannot be an integrating principle since knowledge which has no apparent or continuing significance is soon forgotten. Applying this to the special realm of English, the teachers agreed that knowledge is an inadequate goal even though English instruction makes much use of knowledge. Agreement on values seems to be a fine goal, but it is hard to arrive at a definition of such an abstract term, and a level of generality provides little help as a basis for instruction.

Pragmatism does not offer a satisfactory solution to the problem of seeking a simple pervasive principle as a guide to education and human behavior in spite of the fact that it offers many psychologically sound pedagogical techniques. John Dewey tried to apply pragmatic principles to education. His efforts in a quest for certainty resulted in a theory which encourages an exploitation of the tools of scientific inquiry to help man make decisions in his conflicts in an intelligent manner and not as mere disputation. He

emphasized the usefulness of overt activity, basing his thesis primarily on the findings of the physical sciences and recognizing the development of thinking as the primary function of the school, but he failed to give a criterion by which to judge that usefulness. He insisted that good habits of thinking must be developed and that these ideas must undergo the test of action. He gave some vague description of his philosophy of morality, but man needs more certain, more stable, and more reliable bases for the things which should be most important to him.

The steps in reflective thinking as defined and explained by Dewey stimulated interest in problem-solving as a technique applicable to unit teaching. This seemed to offer educators the most challenging opportunity of offering an educational environment where the only restriction resides in the needs of the pupils. Such an educational atmosphere was expected to provide occupations that prepare youth for adult life through the development of habits of thought and reflection during their present pursuits, to stimulate experiences that develop habits conducive to continuous inquiry, and to overcome restrictions of thought in adult life. Pragmatists believe that training in youth develops curiosity, suggestion, and the habits of exploring and testing. It increases sensitivity to questions and encourages a love of inquiry into the puzzling and the unknown. This, they claim, provides the best assurance against arrested development of reflection in adult life.22

The result of such convictions was that the situational context became the watchword of the pragmatists; the situation presented an opportunity for thought and for the development of a method to cope with the empirical situation and the reconciliation of the end result within the ideational framework. Educators questioned the reliability of such a method. Haubrich claims it is a non-intellectual approach, a method which is too reliant upon the unreflective nature of man and which results in a pooling of ignorance. There is danger of confusing the particular with the general. Dewey's five steps of problem-solving represent only a particular way but not the only way of solving life's varied problems.

Adler criticizes Dewey's *How We Think* as an incomplete analysis of thinking because it fails to treat the sort of thinking which occurs in reading or learning by instruction in addition to the sort which occurs in investigation and discovery. Another criticism in regard to activity is frequently hurled at Dewey by educators. That children learn to do by doing is surely not debatable, but that activity must dominate the curriculum is open to question.

Michael Demiashkevich states that Dewey has insufficiently helped us to discover the purpose of thinking. It is not enough, as a system of education, to describe experimental sides of a question; one must answer clearly the question of ultimate goals that will direct people to where they are going.

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He boldly states that pragmatism would not only excuse the school but would actually prevent it from treating metaphysical issues and permanent moral values in a planned manner as worthy educational objectives. The present study aims at critical thinking within the framework of strong cultural and moral values. In light of such an aim pragmatism fails as a guiding principle.

Dissatisfied, then, with the alternatives of critical thinking as an integrating principle of the English course, namely: citizenship, life adjustment goals, book knowledge, values as such, and pragmatic interpretation of personal growth, the teachers of this study accepted critical thinking as the integrating principle of the language arts program.

This needs further explanation, for it might seem contradictory to what the reader may know of the Catholic philosophy of education. Actually there is no contradiction, for critical thinking demands standards, and these standards are based upon reason. Religious beliefs are not always understood but they are never contrary to reason. Philosophy in a Catholic school is not something left to chance. It is the basis of the educational practice of every teaching nun and every Catholic. Christian education is directed toward the goal of true character formation, and the Catholic teacher cannot overlook the role of the will in moral control and in the development of personality. Since moral virtues give facility and ease to the ability of both the rational powers and the sentient appetite to observe the dictates of right reason, the teacher must strive for an actualization and perfection of virtues by means of repeated acts for which the exercise of the will is necessary. Basing its

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reasoning upon convictions that stem from the solid foundation of truth, justice, and wisdom, the school can use these philosophical and religious convictions by precept and example to guide students toward intellectual and moral integrity.

Criticisms of the Status Quo of Education

Albert Einstein said, "It is nothing short of a miracle that modern methods of instruction have not entirely strangled the holy curiosity of inquiry."26

Robert Hutchins has been realistically critical of the products of our schools. He believes that if we are to have standards of social criticism and social action and if they are to be anything but emotional standards, they must result from philosophical and historical study and from the habit of straight thinking. He has an intense concern for the state of confusion in American education, that confusion which begins in the high school and continues to the levels of the university. He maintains that our university graduates of today have more information but less understanding than did the student graduates of the colonial period of our history. It is not necessary to teach them twenty thousand new things. What we must teach are simply reading, writing, and thinking. One of the reasons for the confusion in the high school is that it cannot make up its mind whether to educate for college or for life. He believes that general education should have a deep and wide utility, that of

cultivating the intellectual virtues. On another occasion, after congratulating present and former educators for their accomplishments in public education in this country, he complained, "Sheep look up and are not fed." William S. Gray responded to that complaint by explaining that the greater emphasis on reasoning, orderly thinking, generalizations, the mastery of concepts, the drawing of inferences, and the making of applications represents a distinct revolt against routine learning and memorization and a clear recognition of the broader values inherent in learning.

The report of the President's Commission on Higher Education stressed the fact that our present college programs are not contributing adequately to the quality of the students' adult lives. Such an indictment should induce secondary and elementary schools to question whether their students are learning the right things and in a way that will be beneficial to them in continued intellectual growth.

Arthur Bestor criticizes existing educational practices for fitting a static rather than a changing world. He believes that the test of every educational program is the extent to which it trains a man to think for himself and to think painstakingly. He realizes that "intellectual training" seems like a formidable phrase, but it means nothing more than deliberate cultivation.

of the ability to think. It implies

no unnatural distinction between the mind and the emotions, for men can think about emotional and aesthetic problems and can be taught to think more clearly about them. It implies no opposition between the intellectual and the moral realm, for ethics is applicable to the thinking process itself, and rationality is a constituent of every valid ethical system. Morality enters the classroom and the study, as it enters all the chambers of life. It assumes special form as intellectual honesty as that species of reflectiveness which converts a mere taboo into an ethical imperative.30

Leslie Cushman reminds us that, in spite of the fact that man's truly
great heritage is his brain, he can shut his mind to new truth. This applies not only to persons with little schooling, but also to many who are supposed to be well-educated. In fact, there is no evidence to show that increased years of school attendance for youth will of itself provide a more thoughtful citizenry nor will increased emphasis upon particular subjects of study give an answer. The expedient of making school work more difficult seems to develop a dislike for intellectual activity. The abilities which are today essential to competent citizenship must relate directly to the stated objectives of teachers in various subject-matter fields. Throughout the school program students must develop the ability to think; all subject-matter can contribute in attaining this objective.

Beginning with the assumption that learning to think should be a conscious objective in all school work, he suggests that educators provide that sort of classroom and school climate that will facilitate thinking, ascertain who makes the decisions and how these decisions are made, and pay attention to the steps

involved in good critical thinking and build values. If educators would abide by these suggestions, they would not have to be the targets of such indictments as the one made by Mr. Folsom, that the Russians seem to be putting more emphasis on their education for their purposes than Americans are putting on our education for our purposes.

Louise Hock and Thomas Hill begin their interpretations of general education with the disappointing note of recognizing the vast chasm that lies between what is supposedly taught and what is actually learned. They partially attribute the lack of skills of critical and independent thinking to the failure of teaching young people to make wise choices and of providing opportunities to use a problem-solving approach to realistic situations. Recognition must be given, they believe, to the existence of concomitant learnings and an awareness that more than one thing is learned at a time. For example, while facts are being taught, attitudes are being formed. Individual differences can be provided for by drawing on the strengths of everyone in a truly interactive way through students' living and working together. These authors remind us that, while there is no evidence to support the position that the youths of today are any less capable of making intelligent decisions than were their counterparts of previous generations, it is evident that we can no longer afford the luxury of a citizenry which does not act from carefully thought-out premises and positions. He criticizes secondary education for failing to teach young people to make wise decisions and to think critically and independently.32


The controversial report of the Harvard Committee entitled *General Education in a Free Society* emphasizes the fact that education should focus its attention upon giving students a mastery of fundamentals and skills in using them and in helping them solve their professional problems along with the motivation to continue learning through independent study. This should help them become competent not only in their fields of endeavor but also in dealing effectively with social problems within their domains as capable good citizens.

B. J. Wood and F. S. Beers facetiously remind the reader that it is an old and very plausible oratorical trick to demand that teachers shall make over all their pupils into thinkers and responsible philosophers and it is an older and even more plausible trick to suggest ways and means of achieving this miracle. They bemoan the wasteful teaching and the disjointed curriculum that characterize American schools. Information is taught which is neither meaningful nor appropriate to the needs of the students. Such evidence, however, does not impugn the value of knowledge. Thinking without adequate facts can result in confusing teaching with propaganda. But facts are not enough. There must be capacity and motivation and aggressive respect for facts before fruitful thinking is possible. Real contribution in the realm of thinking will come not from "the will to believe, but with the wish to find out" which, as Bertrand Russell points out, is the exact opposite.

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Thomas Molnar's book discusses some old questions: education can never be separated and considered apart from society, which formulates its goals and methods for youth; but education should not be entirely focused on the ideal of promoting the goals of society, for then we attain indoctrination and propaganda rather than education. The purpose of teaching is to enable the student to use the intellectual and critical tools that will enable him to become and intelligent adult. The purpose of education is a concentration not on the interests of the child, but on the mature human being he is expected to become when all his faculties are fully developed.

He discusses Dr. Hutchins' statement concerning the education of all citizens as being compatible with the spirit and goals of our Western tradition. Leadership today, Dr. Molnar warns, means the imposition of mediocre standards, and "intelligent citizenship" means the acceptance of these standards. Since in both instances personality traits as well as intellectual habits are affected, the school cannot afford to avoid intellectual excellence because of a fear of outstanding individuality or of a fear of strong critical aptitude and genuine self-commitment, all sworn enemies of mediocrity.

He questions Professor Theodore Brameld's demands that the goal of mankind should be determined by social consensus and Progressive Education's "adjustment to the group." According to such criteria the "educated man will watch his neighbors' faces, read their reactions, and applaud or protest according to the general mood." He criticizes the goals of "life-adjustment" education, which, he says, can only be attained through indoctrinations.35

These criticisms of the status quo of education gave the teachers attending the summer workshop additional impetus to participate in this experimental study.

The Need of Teaching Students to Think Critically

Probably the most emphatic and least flattering statement in regard to the need of training in critical thinking is Victor Noll's statement that, "There are few, if any, of us from the most exalted to the most lowly who are not daily guilty of prejudices, unscientific thinking and action." He makes a serious indictment that our students are taught in our school so that they might be able to pass examinations with the result that not many of them form habits of thinking that will be of value later. No systematic attempt is being made anywhere in our secondary schools to develop scientific habits of thought. He is convinced that scientific thinking is better thinking and that unless students can be taught to think better, education has little justification for existence. The ability to think rationally, to express thoughts clearly, and to read and listen with understanding are skills listed as one of the imperative needs of youth. Teachers must endeavor to take care of that need. They can do so by having critical thinking pervade all areas of knowledge. They have many opportunities for doing so in the classroom especially with much emphasis on its need in today's new era of space explorations. They can aid in relieving people of the mental bondage of bias. They can help

instill a respect for exact information and concern about the adequacy of
skills needed in communication, in literature, and in the arts. This unifying
ideal of thinking critically can form a kinship between the various fields of
study and be instrumental in diminishing the difference.

In 1947 a Report of the President's Commission on Higher Education
stressed this fact:

Ability to think and to reason, within the limits set by one's
mental capacity, should be the distinguishing mark of an educated
person. . . . More to the purpose and of much more lasting effect
would be emphasis on the student's acquiring familiarity with the
processes of inquiry and discovery. Insofar as education is not
indoctrination, it is discovery, and discovery is the product of
inquiry. Arousing and stimulating intellectual curiosity, chan-
neling this curiosity into active and comprehensive investigation
are the marks of free man and the sinews of a free society.37

Many of our young people have been habituated by daily practice to the
use of systematic reflective thought and have found by experience how sound
ideas originate and how they are verified. Palmer believes that they are
probably better prepared as citizens by such experience than by any other kind
of training they might receive. They are able to do constructive thinking
that is independent of the propagandist. They will probably be able to stand
on their own and they will be willing to cooperate with others in adult life
just as they have done through their school life.38

The Open-mindedness Study of the Philadelphia Public Schools emphasized
the obligation of all schools to help children find ways of dealing with

37 Report of the President's Commission on Higher Education, Vol. I:
"Establishing the Goals," Higher Education for American Democracy (Washington,

increasingly complex problems in a rapidly changing type of society. This study suggests a direct approach to the problem by having children think critically about the many problems which confront them.\textsuperscript{39}

If children lack the skills of thinking judiciously, deciding wisely, and acting on principle and thought, it is time for schools to re-examine and revise current ways of teaching. Such an examination should lead to a greater consistency between actual practices and education's professed goals of developing citizens for democratic living. Generalities are no longer needed. There is a desperate need today to know how to select learning activities suitable for developing critical thinking abilities and to arrange these in a continuous sequence which broadens and deepens the behavioral demands of students. The goal of critical thinking by the great mass of our people can be realized.

The Teacher's Role

A democracy must strive to improve the collective intelligence of its people; education must have respect for the individual within a society. The individual teacher must be convinced that it is her inescapable responsibility to educate her students for citizenship in a democracy. She must have in mind the type of individual the school hopes to produce and the method by which that goal can be reached. In a democracy where the greatest good of all is best subserved by the highest development of each, where truth is our best weapon in the fight for freedom, where truth, wisdom, civic responsibility and the

good life must be considered important if the democracy is to survive, education must be related in a positive manner to these priorities. Intelligence must become a guide for behavior.

Because of her heavy responsibility to herself, to her students, to her subjects and to the truth, she should not be discouraged. She must proceed to stimulate and guide her students to think honestly, persistently, and effectively about the important problems of life.

Hilda Taba believes that once a teacher becomes convinced that there is nothing more worthwhile for her to do than to teach children to think, the next thing she must realize is the unique role she can play in attaining that objective. She must possess in actuality what the student has potentially and she must have the capacity to stimulate the student to self-activity. If learning in general is an immanent activity, certainly critical thinking is particularly so.

The difficulty seems to lie with the training of teachers. Having been brought up on the fare of the uninteresting and often meaningless process of mastering lectures, texts, and other sources, it is not surprising that such a teacher finds it difficult to teach by a process by which she was not taught; such processes may seem to her as "stumblingly experimental rather than sure-footed." She must be a scholar who is interested in real life problems, not as one removed from them. She must be fired with enthusiasm and use that enthusiasm to actualize the potentialities of her students. She must be willing to use a number of techniques and skills without being overly conscious of them. To do this she must have a good command of content in all its relationships and a thorough understanding of the nature of her students. Because
opinions, emotions, and attitudes can readily have bearing upon her efforts to stimulate critical thinking, she must be a fine example of intellectual openness and generosity. If she habitually resorts to critical thinking in the classroom, the effect will not be lost on her students.\(^40\)

The teacher, who is not satisfied with a haphazard trial and error type of teaching but is interested in well-planned activities that demand abstract reasoning, such as, analysis, comparisons, contrasts, synthesis, and creative constructive performances, must realize that there are prerequisites for such thinking. These are an attitude of inquiry and open-mindedness and a certain amount of mental maturity.

Content is necessary, too, for thinking is impossible in the absence of information. Training limited to conceptual aspects alone seems not to produce capability of critical thinking about social and human problems. Although facts are important, they do not demand intellectual enslavement to content. They are only a means of arriving at the higher mental processes. This arrival is gradual and developmental and the teacher must be willing to provide a continuity of experiences for persistent practice in these mental processes through a variety of contexts.

Thus, the teachers involved in this study were assured by the above considerations that the kind of teaching for which they were making plans was thought through and endorsed by various authorities in the field of education,

by lay as well as professional persons and groups. The experimental action, as described in chapters four and five, demanded a thorough understanding on the part of the teachers of the above-mentioned phases of critical thinking. An application of these principles required some psychological considerations relative to the topics of the difficulties to be expected, the need for a proper classroom atmosphere, the possibilities of transfer of training, and a study of bias, prejudice, and propaganda. Such considerations are given in the following chapter.
CHAPTER II

SOME PSYCHOLOGICAL CONSIDERATIONS

Obstacles to Critical Thinking

Learning how to think is a difficult process and it is difficult for teachers to guide students in the rigorous use of the higher mental processes. Neither is it easy to continue to engage them in such activity. Emotional attitudes sway man's behavior more powerfully than rational considerations do; people tend to believe only those things they want to believe; prejudice, stupidity, impatience, timidity, and excessive caution cause errors in thinking. Teachers realize that the lack of interest in the improvement of critical thought on the part of many Americans points to the seriousness of the problem. The fact that Americans are articulate in readily expressing their judgments can be frightening when one considers that there is a low level of information in America in spite of the fact that the majority of Americans read a paper and own a radio or a television set. The unnaturalness of the school situation with its restraints and requests and the limited types of materials and activities add to the difficulty of training students to think critically. Such conditions help to make students' activities stereotyped rather than thought provoking.

The difficulty of teaching students to think critically oftentimes stems from teachers' lack of understanding of the nature of reasoning and of their
failure to use the possibilities that a classroom situation presents. Teachers often consider other objectives more important. Their emphasis upon an accumulation of factual information results in complaints about an already overcrowded curriculum and in the accompanying fears about the underemphasis of certain areas. Some teachers still labor under the misconception that thinking proceeds automatically out of knowledge.

The excuse of an already overcrowded curriculum is no justification for refusing to consider skills of critical thinking. The "Report of the San Francisco Curriculum Survey Committee" states that the obligations of the English curriculum are threefold, namely, reading, writing, and oral presentation of ideas and that everything else is irrelevant to the English curriculum. The author is convinced that critical thinking skills are not irrelevant. If the student is "to read perceptively, rapidly, and at a constant higher level of difficulty" and "to compose logically and effectively in the expository forms, including literary analysis and criticism,"¹ then the skills of critical thinking must be taken into consideration. It is also true that today's overcrowded classrooms present the usual additional challenge of meeting students of a wide range of abilities. Fortunately even slow learners can improve in their ability to think critically. In fact it is the slow learners that achieve more significantly in the tests.

Children, as well as adults, can find many alternatives to critical thinking. Hahn lists six such undesirable procedures: they can resort to a lazy optimism, to acting without thinking, to daydreaming and wishful thinking, to relying upon authority or simply to imitating others without having legitimate reasons for doing so. They can use irrelevant facts and reasons that do not offer acceptable solutions for problems, or they can disregard all but certain favored facts through which they can jump at conclusions, or they can use untrustworthy bases for solving difficulties.  

Another obstacle, and a very serious one, is that curriculum content is usually organized for purposes other than facilitation of critical thinking. If the approach is a factual one, there is less attention given to critical thinking than in a problematic approach. Other obstacles can come in the form of unsympathetic superiors and in the fallacy of attaching importance to the mental processes involved in arriving at answers according to a set pattern involving specific steps carried out in an invariable order. Teachers can never hope to give children all the answers they will ever need in life; this kaleidoscopic world requires constant re-adaptation to new and different problems.

Forearmed with years of experience in the classroom and reminded about these obstacles and alternatives of critical thinking, the teachers working with the experimental group seemed to be in a position to do some critical thinking about this aspect of an educational program. But they needed to be forearmed in a constructive manner. They had to be convinced that thinking is just about

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the most interesting and useful thing that human beings can do. The powers of
the world's best thinkers were not developed instinctively; they depended upon
the cultivation and refinement of natural endowment. It is true that the
abilities of critical thinking are greatly conditioned by natural endowment;
but most individuals need rigorous and effective training in that process which
must be accompanied by much intelligent active experience. When taken up sing-
ly, the skills can be mastered to a considerable extent by most persons. The
greatest satisfaction comes to the teacher from the progress made by the aver-
age or below average student who has the greatest chances of making advance-
ment in mastering the skills.

Teachers need to be warned about the fallacy that reasoning powers develop
late and rather suddenly with the necessary consequence that problem-solving
and critical thinking must await such "time-binding" development. "Reasoning"
McConnell suggests, "is not so mysterious and esoteric as one might think."\(^3\)

The very existence of the Intercollege Committee on Critical Thinking of
the American Council on Education testifies to the fact that critical thinking
is important and worthy of consideration. Among objectives in education, the
ability to think is one of the most frequently stated ones not only in the area
of the language arts but also in mathematics, science, and the social sciences.
This fact proves that teachers recognize its importance. The increasing and
urgent need for critical ability in today's complex world demands that more
attention be given to developing that ability. The fact that much criticism

\(^3\) T. R. McConnell, "Learning by Thinking," School and Society, 49
(March 18, 1939), p. 345.
is leveled at education for not emphasizing critical thinking, as is evidenced by the thoughtless behavior of its students, shows that not only American educators but interested and concerned laymen take for granted that it is the duty of schools to provide such training.

Edwin L. Clarke in *The Art of Straight Thinking* applies to straight thinking the laws of learning; namely, transfer, uniformity, similarity, intensity, frequency, and readiness. The most dangerous general sources of specific prejudice, according to Clarke, are bias and habits of self-interest, conservatism, radicalism, self-confidence, self-esteem, and conventionality. Ignorance of important relevant data leads to uncritical habits of thought. This explains why, in the absence of some reason to the contrary, the easiest response which most men can make to the stimulus of a new idea is to accept it as true. He lists five reasons why men do not get rid of their prejudices: ignorance, a lack of conviction about the usefulness of doing so, the discomfort such an attempt might cause, unfavorable environments, and false pride in defending our first choices and rationalizing our first position at the risk of self-deception.

He suggests five means of curing and preventing prejudice. These have a close relationship with teaching students to think critically. He encourages the reading of scientific and polemic literature, biographies, novels and dramas, which present, sympathetically or scientifically, information about the group or individuals in the group against whom prejudice is felt. He also encourages getting acquainted with intelligent and personally likable opponents and attending serious meetings where different views are presented on a high plane. He warns that this may require considerable time. He then synthesizes
his work by applying the laws of learning to the prevention of prejudice. 4

M. L. Story is convinced that our best hope lies in an aggressive employment of intelligence and that the bellicosity of human nature is always our supreme philosophic challenge. Education can thus be conceived as a deliberate transfer or shift from physical to mental force. 5

Bernard Mehl warns teachers of the difficulties of motivating students to think critically. Many students were never made to do so; the few who dare to do so don’t always seem to fit comfortably in the group. It is dangerous to criticize in a wholesome manner, mass media do the thinking that ought to be left to the individual, and pressure groups take advantage of the whole situation. Mehl encourages the development of a flexible critical posture. This can be achieved when motivation for critical thinking is a part of teaching rather than a pep rally theory. Patience must be exercised especially with those students who do not show critical attitudes; criticizing such students merely increases their rigidity. 6

Atmosphere, Set, and Critical Thinking

The intangible factor of psychological "climate" has great significance in intellectual work. The teacher must realize that "the problem of method

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in forming habits of reflective thought is the problem of establishing conditions which will arouse and guide curiosity, of setting up the connections in things experienced that will on later occasions promote the flow of suggestions and creative problems, and of providing purposes that will favor consecutiveness in the succession of ideas.  

She must avoid situations which might make students tense, anxious, hostile or overly serious; she must avoid deadly, dull, and drab classes; she must realize that a cold, impersonal type of behavior on the part of the teacher will not establish effective educational procedures. She must guard against wearing the psychological blinders of emotional bias. She must be conscious of the fact that her own personality and her own mental adjustment, her friendly, permissive, and understanding approach are psychological determiners of mental activity of the students and of their freedom in expressing themselves in a constructive manner.

It becomes obvious that these procedures and qualifications make more stringent demands upon the teacher than simple text-book reading or rote learning. Such an approach is characterized by a less obvious directive role but a more challenging and more exacting one in encouraging the students to think for themselves. Emphasis must be placed on encouraging the students to do constructive but critical thinking rather than on blind obedience in a teacher-dominated situation.

Richard Gross informs us that the problem of "set" in problem-solving has been one of the more fruitful areas of investigation. It is common

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7John Dewey, How We Think, (Boston, 1933), p. 56.
knowledge among teachers that flexibility of set interferes with problem-solving. Research suggests that set varies with the complexity of the task and that there is some tendency for set to persist the more complex the task. He lists recommendations for curriculum organization and further recommendations for classroom presentation. These are practical means of developing the skills of critical thinking which are much better learned in the pursuit of meaningful problems than in the emphasis upon abstract exercises. Of special interest to the present study is his emphasis on factual information serving as reason for rules of action to be taught.\(^8\)

Transfer of Training and Critical Thinking

Modern experimental psychologists suggest that all of the transfer effects possible should be striven for by calling attention to similarities and emphasizing generalization. The more closely an education can resemble the situations in which the consequences of the education will be used, the more productive that education will be. For example, the best recommendation about learning for problem-solving is to learn those facts and principles that will be used later; the best recommendation about techniques of learning is to make the learning similar to problem-solving. Consequently, it is natural to seek some technique of improvement that the thinker can transfer to all kinds of problems.

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The results of the work of Marjorie Hill in 1936 are not encouraging. Training in logical material improves the ability to deal with such material just as training in another area improves the ability in that area; the improvement obtained by training in logic is not so great as is the case with other materials. The latter is probably due to the fact that children were required to depend more entirely on their native intelligence. Training in logic had a general pronouncedly negative effect on arithmetic. A possible explanation for this is the development of a more cautious and hesitant attitude, a tendency to examine problems more closely. Additional training might have had the effect of making the students more sure; improvement in other tests would be the consequence. The implication for teaching is that it seems useless to depend on one subject to improve another, for improvement can be obtained only by specific training except where a method of attack or attitude can be found common to two or more subjects.\footnote{Marjorie Hill, \textit{Training to Reason} (Melbourne, Australia, 1936), p. 26.}

There is disagreement in regard to the influence of the study of logic in critical thinking. Dressel concludes that it is questionable whether general education course experience in college results in any greater development of critical thinking in students than experience in other courses. Consistently the largest gains are recorded in the freshman year.\footnote{Paul Dressel and Lewis Mayhew, \textit{General Education: Explorations in Evaluation} (Washington, D.C., 1954), p. 206.} He reports the results of pre- and post-testing done by Dr. Charles F. Virtue of the University of Maine in a course in logic. There was no marked improvement in a
test of critical thinking. Dr. Virtue remarked that the objectives of such a course probably did not coincide with those of the test. According to his analysis, logic aims at developing a critical appraisal of thinking but not necessarily at developing better thinkers.

Barlow's findings have implications for the present study. He found brighter students making larger transfer gains than the poorer students. However, when working with adults, he found that the lower half of that group made greater gains. He explains that transfer is a result of similarities between test material and the training material in terms of increasing complexity of the learning activities. Transfer from the viewpoint of generalizations may be thought of as integrated activities in which the way of doing the interpolated performances is applied to the performance of the tests. In other words, learning is a unitary experience which grows more complex with practice. His conclusion is that it would seem reasonable to suppose that progress is much the same in generalized as in specialized learning, that is, according to the negatively accelerated learning curve. 11

Johnson recommends that teachers should not expect very much in the way of transfer. If the teacher knows what specific problems the students will have to solve, she can train them to solve problems of that kind, usually with good success. If the teacher does not know into what kind of problems their lives will lead them, she should train them for a variety of problems, that is, for

thinking in general. Training for thinking in general will transfer to all kinds of problems, though the amount of improvement in any one may be small.\textsuperscript{12}

Edward Glaser, through his well known experiment in critical thinking, found that, of all the aspects of thinking he tried to train, an attitude in thoughtfulness was the most susceptible to improvement.\textsuperscript{13}

Scores of investigations concur in the conclusion that no subject can be depended upon in itself, as ordinarily taught, to improve the thinking of pupils. On the other hand, almost any subject or project can be so taught as to put pupils on guard against hasty generalizations, bias, and the uncritical acceptance of authority.

Rachel Salisbury in her study of the transfer effect of training in logical organization reports that training with the conscious use of outlining as a method of study, when taught through practice with general materials, will transfer to specific study situations and tend to improve mastery of content subjects. The mental skills involved in outlining and summarizing tend to transfer to produce improvement in general thinking or reasoning ability. Training in logical organization produces marked improvement in reading ability, slowing down somewhat the speed of reading of typical study materials and greatly increasing comprehension.\textsuperscript{14} The present study incorporated outlining as an integral part of the experimental factor.


\textsuperscript{13}Edward Glaser, \textit{An Experiment in the Development of Critical Thinking} (New York, 1941).

Logic is interested in validity rather than truth. As such it enables a person to go wrong systematically. It is not flexible enough for the kind of thinking that daily living demands. Harold Lasswell expressed this in the following manner:

The ultimate paradox of logical thinking is that it is self-destroying when it is too sedulously cultivated. It asserts its own prerogatives by clamping down certain restrictive frames of reference on the activity of the mind and presently ends in impoverishing the activity which it purports to guide into creative channels. It becomes intolerant of the immediate, unanalyzed, primitive abundance of the mind, and by so doing destroys its own source.15

Davis concludes in her study that there is considerable research to indicate that the ability to use thinking skills does not transfer readily from one learning situation to another unless there is conscious effort to teach for such transfer.16

Curran offers good reasons for providing youth with stimulating experiences such as curiosity, suggestion, testing, and habits of exploring that develop habits conducive to continuous inquiry; for, although the thought process is the same for youth as for adults, children do not have the external pressures under which adults operate. The lack of these limitations on youth makes the problem of selecting activities that terminate in thoughtful behavior extremely complex.17


Guilford offers an encouraging explanation to the problem of learning and transfer. In his analysis of the principles in regard to the structure of the intellect, he states that there are basically five kinds of operations as indicated by five kinds of factors, four kinds of content and six kinds of products. This theory may have implications for the teaching of critical thinking. It places emphasis on the individual as an agent for dealing with information, on varieties of information, and on the sources and the kinds of products that the individual makes of it. In the light of such information aptitude testing can become more analytical in the evaluation of judgment, thus making it possible to place the "training of the mind" along its highest objectives.18

Russell summarizes the finding of psychologists in a similar manner by telling us that, although the aspects of mental life have only begun to be explored, there is considerable agreement by psychologists, even though the materials of thinking are multitudinous, that the processes of thinking are probably very few. Hundreds of thousands of percepts, memories and conceptions can be used in only four or five different ways: associative thinking; convergent thinking; problem-solving with its interchangeable steps of identification, data gathering, hypothesizing; and testing. Problem-solving comes close to the related activity of critical thinking. A production of new and fresh objects and ideas is referred to as creative thinking.

Russell thinks that this is of enormous importance to teachers. Thinking activities must be varied in the typical classroom, but this variation exists

largely in the materials—in the wide range of ideas or the content of the modern curriculum.\(^{19}\)

The investigator and the associated teachers tried to profit by the above research on transfer in planning their work. Since learning is similar to thinking, they considered it reasonable to prepare the students for thinking by presenting such learning that was most similar to thinking. They were skeptical about the positive transfer of the study of logic upon critical thinking. They expected the bright students to make larger transfer gains than the poor students and the poor student to make great gains in scores in tests of critical thinking.

They were concerned with preparing sequentially developed materials which would not be difficult as to frustrate the students. These materials had to be consonant with the objectives of the course which coincided with those of the test. They considered English an important area for improving students' ability to think critically, even though that subject could not be expected to carry the full burden. If the class is conducted in a challenging manner it can increase students' sensitiveness and their love of inquiry, as well as provide some assurance against arrested development of reflection in adult life. They realized that having their students simply study the rules of thinking or scrutinize the process by which they have arrived at conclusions will not result in the flexibility necessary for critical thinking, but they also realized that simple beginnings can be made in any classroom and that the English class with its language arts is no exception.

Since reading is one of the most important factors in a language arts program, it behooved the teachers to examine its relationship to critical thinking. Albert Emmett Betts investigated this problem and concluded with this inference: "the ability to think in reading situations merits consideration as a primary goal of instruction in a democracy." He believes that more studies, especially experimental studies, of reading as a thinking process are needed.

In an earlier article he stressed the fact that to insure adequate concept development, as well as critical thinking ability, large areas of experience must be selected carefully and developed intensively. For that reason the development of critical reading ability appears to require a larger curriculum setting than that provided by selection in only one basal textbook. Educators would do well, also, to heed the linguists' discussion of language in terms of its structure, purposes and uses since critical thinking is based, in part, on understandings regarding the uses and limitations of language.

A class in English offers many opportunities for studying the intimate relationships between critical reading and effective writing and for aiding each student to arrive at the apex of his or her own realized potential.

Charles Hubbard Judd explains the difference between association, or integration, of items in the higher mental processes and the mere sequential association which appears in memorization. In carrying on the processes of comparisons, inference, and the like, the active mind uses language to achieve the integration of the elements of experience. But language must be viewed as

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posterior to the act of thinking itself; it is the product and correlative of
thought. Yet verbal material is the vehicle by which the mind thinks. Conse-
quently words must constitute a large part of what the human being has to
learn. But these words must be understood. Language, then, is not so much
a tool as it is a skill; it becomes a part of experience and changes the cha-
acter of mental life.21

Bias, Prejudice, Propaganda

Since a large percentage of our students will read newspapers and listen
to radio and television programs, it is prudent to prepare them for using such
mass media critically. A small percentage of the seniors get training of this
type through a course in journalism, but that does not solve the problem for
the majority of the students. Americans need faith in their democracy, but
that faith should come as a result of being able to have truth as their weapon
in the fight for freedom. The responsibility of education in this regard is
great.

Theodore Greene expresses this in these words:

I do not see how a free society like ours can permit an academic ins-
titution to continue if it is demonstrably suppressing or distorting
such truth as is available to men, that is, if it has abandoned the
tasks of education, and scholarly research and has become merely a
vehicle for propaganda.

He becomes more specific when he states:

The student should also be taught that controversy is not an
end in itself but only the essential means to free individual de-
cision and commitment. He should be helped, at an early age, to

21 Charles Hubbard Judd, Education as Cultivation of the Higher Mental
distinguish clearly between the proper official neutrality of the school, as an institution, on controversial issues and the impropriety of attempting, as an individual, to be neutral in any of these areas. He should learn that man cannot live without taking sides, without decision and action, and that he cannot live well unless his decisions are enlightened, deeply felt, and carefully reflected on. Hence, the supreme importance of having teachers on every faculty who exemplify, both in precept and practice, what it means to have entered deeply into this or that type of human experience with sympathetic insight and what it means to have emerged from such experience and reflection with deepening convictions. Above all, the student should be helped in every possible way to learn how to believe something with all his heart and still be tolerant of the equally firm beliefs of others who disagree with him. In short, he should acquire, as early and firmly as possible, the difficult art of genuinely reflective commitment in every field of major human endeavor and belief. Without the capacity for such commitment he is doomed to sterility and frustration; without reflection and humility he cannot hope to escape bigotry and dogmatism. Wholehearted commitment and reflection are essential, from the liberal perspective, for the good life of responsible freedom.22

Against various kinds of propaganda students can be armed by studying language manipulations that are used in the interests of attempted control of publics. They might be taught, for example, what measures are used to arouse emotions and to thwart reflection. A knowledge of bias terms is one of the leading principles of semantics, which is a systematic study and use of accumulated information about emotionally tinged words. This awareness can aid the reader or listener to discriminate "who says what to whom with what effect."

Prejudice, perhaps more than any other factor, stands between man and truth

and is often responsible for swaying man's behavior more powerfully than rational consideration. A journalist may have biases, but he cannot maintain them for he is immediately accused of them. Mass entertainment and advertising, however, can present information in such a manner that unsuspecting masses are victimized by catch phrases, slogans, and shibboleths. It is the very essence of prejudice that we are not fully aware of it while it is in operation. A person can be highly susceptible to propaganda influences in spite of a high degree of knowledge and intelligence.

Propaganda and mass entertainment persuade men to surrender judgment; true education and true leadership enable men to exercise it. One of the best defenses against propaganda and crooked thinking is the development of the students' ability to think for themselves and to learn to make independent investigations. The best protection is a complete recognition of propaganda for what it is.

It is difficult to judge the amount of propaganda in a given document objectively without the influence of value judgments. Education should be interested in presenting as truthfully as is humanly possible all sides of an issue, in aiding the students to evaluate materials, and in allowing freedom of choice where such freedom of choice is permissible.

The success of Communist propaganda is due to a lack of any secure philosophy of life by man. A substitution of a philosophy by sentimentalism, humanitarianism, or an idealism without intellectual or moral or spiritual foundations is devastating to a democracy. Relying upon the integrity of people doing the communicating or upon protesting critics of mass media of communication is not always an adequate measure to protect the masses. Since
everyone in America has the privilege of attending school, it seems possible to train students to learn to arrive at an intelligent understanding of issues through critical inquiry. Under the direction of competent teachers, students can be trained to sharpen their skill in logical reasoning, in determining wrong inferences, in examining opinions for bias, and in identifying tabloid and stereotypic ways of awaying opinion. This demands long-term practice.

Many educators agree that the school is the only place where the pupil can get an unbiased view from all angles of controversial issues and that the teacher is the only person who has the time and the training to work and interpret the facts with tolerance and open-mindedness.

Mason Jennings gave some helpful suggestions in regard to indoctrination and to the treatment of controversial issues. Even though no one can discuss problems of democracy completely free from the taint of indoctrination, the opinions of teachers should be subject to the same critical scrutiny that is applied to all other sources. Because the teacher is in a position to say the last word, she must be continually on guard to keep her views from being unduly persuasive and must insist upon their being critically evaluated along with other opinions.23

The seven reasons listed by Arno Jewett for the importance of intelligent people in a democracy being able to detect and analyze propaganda ought to convince teachers of their responsibility in this regard. The nine aims set

up by the Institute of Propaganda Analysis give the teachers general ways of
carrying out that responsibility.24

The study of propaganda, bias, and prejudice has an official place in a
social studies class, but the implications for an English class are great, too.
Wilson expressed it in this way,

... insofar as our education is intended to help children and adults
to know the truth on matters of moral, political and religious impor-
tance, it must use the study of language as one of its most important
methods, if it is to be of any value at all.25

It is not surprising then that educators are concluding that the teaching
of scientific views about language ought to find a larger place in secondary
school and college curricula. No one interested in the American Way of Life
would question that such skills as interpreting data accurately, using logical
arguments, drawing sound generalizations, recognizing fallacies and sophistries
in the arguments of others, and applying acceptable principles to new situa-
tions are not valid aims within the curriculum of an English IV program. These
can be incorporated into the various areas within the program through a direct
analysis of the thinking process, a study of the by-products, a recognition of
the existence of the concomitant learnings, a study of verbal reasonings, and
an attention to critical thinking in oral and written communication. The


school must plan means of getting information from the world of reality into the world of thought to be used again in the world of reality after critical considerations. After all, as the school teaches, so the students will mature. This teaching need not be vague and uncertain; for, realizing the importance of critical thinking in training for citizenship in a democracy, various experimental studies have been conducted by educators, especially within recent years. An analysis of these was made and is reported in the following chapter.
CHAPTER III
A REVIEW OF EXPERIMENTAL RESEARCH

The usual conclusion about action research in the area of critical thinking is that there is a disturbing paucity of experimental studies. However, the investigator found a sufficiently large number of reports describing efforts by which conclusions were reached for guiding the present undertaking. In fact, an examination of the bibliography of this study reveals that the subject of critical thinking has received much attention especially within the last thirty years.

This subject is not a novel one. The reader is asked to go back historically to the works of Aristotle, the dialogue of Plato, and the maieutic process of Socratic questioning. He might even go back as far as the incident of failing to think critically in the Garden of Eden on the occasion when Adam and Eve were given, among others, a test of critical thinking.

Johnson reviews some of the historic schools that led to some principles basic to this experiment. Various groups, such as the British associationists, the schools of Wundt and Titchener, throw some light on the question of knowing what to look for and what to ignore. Training in introspection called for practice in identifying sensations, images, and feelings.

About the year 1900, Oswald Kulpe, one of Wundt's students, began a concerted attack on the problems relative to thinking. He and his followers, known as the Wurzburg School, invented a method known as "systematic experimental introspection." They found that the work of thinking seemed to be done in
the first or preparatory period; when the thinker is well prepared, the remainder of the sequence runs off automatically, with little conscious effort.\(^1\)

He also gives a summary of research done in the area of critical thinking which is of help to interested readers. He groups research according to the following topics: the influence of training of logic, training in verbal skills and using debating methods and techniques of propaganda.

During the 1930's and early 1940's a considerable number of studies were carried on in the problems approach. Outstanding among these for their development of classroom methods and materials for improving problem-solving ability were the Cornell Project on Critical Thinking and the Eight-Year Study. These experiments yielded encouraging results in the eyes of students and teachers. Improvement in thinking power can be effected when the development of that power is taken as a definite objective and is striven for intelligently. The ability to use thinking power does not transfer readily from one learning situation to another unless there is a conscious effort to teach for such transfer.

As a result of the great interest in critical thinking, the National Council for the Social Studies devoted its thirteenth yearbook to the topic of teaching critical thinking in the Social Studies.\(^2\) However, it approaches


the question essentially from the point of view of problem-solving through pertinent materials. It contains many suggestions and descriptions of practice, but it offers little objective evidence in regard to the efficacy of the procedures described.

In 1932 William W. Biddle reported the results of his study of propaganda and education. Gullibility of students was measured before and after teaching them in nine lessons. The significant improvement of the experimental group over the control group showed that it is possible to produce skepticism. Biddle concluded that this is not a sufficiently desirable goal since it is a negative one. Positive creative thought is needed for intelligent social thinking. This study is a valuable one for producing teaching material that can be used by an alert educator in producing independent, discriminative minds.3

Among the first sources that this author examined was Problem Solving, the Citizenship Education Study sponsored by the Detroit Public Schools and Wayne University.4 It sought to find ways of increasing the understanding, interest, competence, and participation of boys and girls in the activities of good citizens. Teachers analyzed the various school problems and saw that they might help their pupils. The members of this study were convinced that teachers need to be concerned with the real problems of young people. This necessitates the use of techniques for identifying problems and the development of skills in working toward their solution.

4Detroit Public Schools, Problem Solving (Detroit, 1948).
Even though the present study is not primarily interested in problem-solving, it hopes to be of partial service in developing that skill by using the content of the English class in helping students solve some of their present and future problems.

Roma Gans made a study of critical thinking in the form of reading comprehension in the intermediate grades. She considered authenticity of material of special importance as a social tool in a democracy where intelligent constructive choice is assumed to be a substitute for censorship. She found that pupils at the intermediate level are not competent critical readers when meeting fanciful or remotely irrelevant content. She suggested the desirability of a conscious effort at increasing the ability to detect relevancy, authenticity, and the author's purpose and to keep to the motive for reading. This has implications for reading materials, for methods of relation to materials, and for quantity and variety of reading materials.5

After World War II a short course consisting of three lectures was given to twenty-seven unemployed men attending a college in Denmark. The main principles of logical positivism and the imperfection of the human senses were the topics of these lectures. These proved to have a significant immediate effect on superstitions, prejudices, and misconceptions. A lasting effect,

however, was shown in only a few cases and the evidence points to a longer and more thorough course if more than a few are to profit from such an immunization against prejudice and subversive propaganda. 6

The most thorough attempt to improve critical thinking was Glaser's study in which high-school students were taught some of the essentials of logic and the psychology of thinking with practice in the recognition of errors and critical evaluation of newspaper articles. After two weeks the four experimental classes were significantly superior to the control classes according to the results of the Watson-Glaser Test of Critical Thinking. Critical thinking scores and intelligence scores correlated .46, but the training did not produce significant gains in the latter. 7

William Howell's University of Wisconsin thesis, entitled "The Effects of High School Debating on Critical Thinking Ability," agrees with modern speech education which insists that it is concerned with what is said, not only with how it is said. If taught concretely with abundant use of contemporary examples, "reasoned discourse can shake off the dust of academic antiquity and become helpful handles for grasping immediate and pressing problems." When properly directed, that is, when more attention is given to reasoned discourse than to psychological warfare, a debate program devotes a greater percentage of time to the specific improvement of critical thinking than almost any other kind of speech course or activity. He found that high-school


debators in twenty-four Wisconsin high schools outgained non-debators in scores on tests of critical thinking ability. Other advantages of this all-purpose speech activity are that it can be a unique tool for training future citizens in group problem-solving and an excellent method for improving personality for drawing out the introvert, and for smoothing personal relations. His emphasis is on discussion, which trains the investigator, rather than on debate, which trains the advocate. He warns against pseudo-objectivity which is antithetical to efficient problem-solving.

Among the doctoral dissertations that this author had been able to examine at Northwestern University was Alma Johnson's study in which she developed an instrument for mastering ability to do reflective thinking. This dissertation dealt with a great variety of problems regarding intentional reasoning: valid as opposed to invalid reasoning; and conclusions and reasons for conclusions as related to constructive reasoning and scientific discovery. She considered the tests available at that time, including the Watson-Glaser Critical Thinking Appraisal, as inadequate for diagnosis and measurement of the process of reflective thinking.

Jack Erskine Douglas aimed to determine by scores of paper tests and observations of judgment whether verbal problem-solving behavior of college

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students could be significantly improved by a course of training in problem-solving methods. Curricula were constructed from a review of literature in the field. After teaching courses in instruction of twenty-four hours or longer, the verbal problem-solving ability of college upperclassmen was significantly increased. According to the results of the Johnson Test of Reflective Thinking, the improvement was directly related to the nature of the instruction. Results varied with changes in instruction and with variations in the student samples. As might be expected, the lowest scorer, who had more possibility to show improvement, made the greatest gains. The achievement of the higher scorer was more constant with smaller gains. Experiments such as this one bring home forcibly to the investigator that learning is not "general" but instead is a specific and definable change in some specific behavior.

A third doctoral dissertation from Northwestern University which proved helpful to this investigator is the one by William V. Haney entitled "Measurement of the Ability to Discriminate between Inferential and Descriptive Statements." The purpose of his study was the investigation of the concept of uncritical inference behavior and the measurement of one of its manifestations. One form of uncritical inference and behavior is the unconscious identification of inference and statements of descriptions. He constructed a test consisting of brief narratives and statements about the narratives. A description statement was defined, in terms of the test, as a statement which was

either definitely verified or definitely contradicted by the data contained in the narrative. When verifiable data were lacking, the statement was to be labeled as an "inference." The experimental groups showed differences in means which were significant well beyond the one per cent level. Dr. Haney has been most helpful with suggestions for furthering his work and with permission to use his test for instructional purposes in the present study.

Miller describes an experiment with 197 high school students presenting an introductory method of having students analyze an individual's good or bad thinking described in a five-minute paragraph. An interesting observation of the responses is the pronoun count. Good thinking was identified with such persons as father or brother five times as often as bad thinking. This showed that subconsciously the students identified themselves with good thinking. Miller believes that such an introductory method leads to a very stimulating experience for the teacher who is willing "to venture into the torturous maze of youthful rationalizations."  

Similar results about the role of emotions affecting thinking was found by Lefford. Most subjects solve neutrally toned syllogisms more correctly than emotionally toned ones; there is little relationship between the ability to reason accurately in non-emotional and emotional situations. Attitudes,

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12 Elmer H. Miller, "A First Step in Teaching Students to Think," The Clearing House, 28 (December 1953), pp. 202-204.
beliefs, and feelings influenced reasoning in the direction of these convictions as also did previous knowledge of the truth or falsity of the conclusions.

Theoretically the mechanism of inference involved in the solution of the syllogisms is considered to depend on three factors: the objective structure of the field in which the problem is being solved; the knowledge and nature of the goals; and the internal factors (knowledge, attitude, complexes) of the responding organism. The results are considered to be due to stereotyped reactions to the conceptual subject of the syllogism.\(^\text{13}\)

The implication for the present investigation is the need of studying the indication of bias in one's own work and the work of others.

Helen Crossen's study also dealt with the problem of emotions and their effect upon thinking. She concluded her article by stating that evidence is available from other sources which indicates that the effect of propaganda contrary to the attitude of the reader leads to a mental state of confusion and irritation rather than to a change of attitude. According to the data secured in her study, however, the reading performances of pupils favorable to a topic was not significantly different from that of pupils indifferent to the topic.\(^\text{14}\)


Roosevelt College in Chicago published a report of an experiment in the teaching of communication. The purpose of the study was to provide criteria for making distinctions between essentials and details, facts and opinions, and information and persuasion in the hope that such techniques will advance understanding in discussion and further agreement between people holding differing opinions. 15

The investigator was able to examine two dissertations at the University of Chicago that helped explain some aspects of critical thinking. The first was Emeliza Swain's Conscious Thought Process Used in the Interpretation of Reading Materials. Her study indicates that failure to understand reading materials is due, in part, to the inability to use certain language elements as a means to comprehension. The following conclusion was incorporated in the planning of composition work in the present study:

Our records substantiate the findings of previous research that complex structure of sentences, unusual order of words, figures of speech, etc. are obstacles to comprehension. Yet these very structural elements of language are the means whereby a writer may clarify and specify the meanings and give the effects he desires. This style indicates that an analysis of language must quite generally be followed by attention to the broader meanings before comprehension is complete. It seems likely that the structure of language could best be learned in a context where the elements of language contribute to some meanings important to the student. The common practice of teaching grammar, syntax, and rhetoric almost solely in relation to composition, and with disconnected sentences as exercises, may not contribute much to the use of the knowledge as gained in receiving meaning from written

15 Sondel, Experiment in the Teaching of Communication to the Students of the Labor Education Division (Chicago, 1953).
materials. Study of language structure as a means of achieving meaning through reading would seem a way of placing such study in its most functional setting.16

The other doctoral dissertation at the University of Chicago was written by Hymen Chausow. His encouraging results with the teaching of general science help to indicate that training in critical thinking is not limited to English or mathematics.17

At Wells High School, Chicago, the development of a pilot course devoted entirely to the field of building habits of critical thinking was conducted with thirty sophomores who showed leadership potential. The first part of the course consisted of answering such questions as: "How do I know what I know; how do I find the facts; how do I form opinions and get the other side to an opinion?" The second part of the course was devoted to the pitfalls of reasoning. The third part consisted of a positive approach to critical thinking and logical thought and its practical applications. Plans were made to schedule the course as a third and fourth year elective in the Spring of 1958 and to integrate a "Critical Thinking Unit" into other study fields.18

In spite of the fact that research studies have been made and conducted and that the evidence shows that critical thinking responds well to teaching,

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individual teaching of critical thinking is still the general practice. This is probably due to the fact that the results of the research have not yet been made available in a form for systematic teaching.

Goodland complains that curriculum theorizing to date is abstract speculation, that curriculum research is "dust-bowl" empiricism, and that curriculum practice is a matter of guesswork. He makes an appeal for an increasing interest in curriculum as a field separating logical from empirical questions, and pointing to appropriate sources of data; for theoretical constructs leading to meaningful, cumulative empirical research; for curricular practices which stem from answering appropriate questions with tested data selected from pertinent sources. He suggests that studies are needed to determine what types of subject matter are best taught simultaneously as contrasted with those best taught consecutively; other studies are badly needed to show with rigor and precision how best to arrange material in a field for effective learning.\(^{19}\) The present study attempted to fulfill some of these requirements.

Gross also stresses the fact that research to date on problem-solving and on the problems approach indicates primarily the need for much more carefully planned and integrated research in this area which is indigenous to, and very important in, American education.\(^{20}\)


On the other hand, the article devoted to "Teaching" in the 1960 Review of Educational Research ended by saying that too few of the studies referred to in the article move from empirical data to an evaluation of the concepts used to organize these data. The present study should, in a limited manner, answer the above challenge, for although it is primarily empirical in nature, it is accompanied by philosophical, curricular and psychological and statistical evaluations.

A comparison of the two latest editions of the Encyclopedia of Educational Research makes an interesting study. The 1952 edition contains a short treatise on critical thinking under the topic of social studies. The principal references are the Thirteenth Yearbook of the National Council for the Social Studies and the works of Glaser, Morse, and McCune. The article "Higher Mental Processes" by Wilhelm Reitz is a rather extensive treatise covering the topic from several angles. The article has been a guide to this experimenter throughout the study.

David H. Russell in the 1960 edition makes the comment that the breadth of the topic, the variety of recent investigations, and the limitations of space indicate the growing importance of the problem and the attention it is receiving by educational research. Current interest in the topic is also reflected by the larger number of recent publications.


In spite of the above, Russell begins his discussion of critical thinking by stating that the volume of research in critical thinking is not commensurate with the frequency of use of the term in statements of educational objectives and other curriculum materials. He defines critical thinking as a process of evaluation or categorization in terms of some previously accepted standards. An example of such a process is a logical examination of data which avoids fallacies and judgments on an emotional basis only.23

According to research done and reported by Russell, critical thinking in most curricular areas can be taught through suitable classroom practices. In a culture where there is some stress on conformity, critical thinking may be one of the most important abilities taught in school. Children can learn to be critical of what they read or hear and be stimulated to various creative endeavors if a competent teacher has such definite objectives in mind and works with the group toward attaining them not only in some special lessons but during many parts of the day's work.

Needless to say, the above review of experimental work was a guide in the planning of the present study. The reader will recognize many of the principles and techniques cited here applied in the experimental action of the present study which is described in the following two chapters. The indictments that were made because of the inadequacy of current methods, the lack of published teaching materials, and the dearth of action research had a stimulating effect upon the investigator.

CHAPTER IV

PROCEDURE OF THE EXPERIMENT—PART I

After the investigator became familiar with much of the literature in the field of teaching critical thinking, she conducted a pilot study with students in a freshman English Class. She used some of the selections in the anthology Joy in Reading,¹ which contains selections according to types. The devised exercises which aimed to develop the skills tested in the Watson-Glaser Critical Thinking Appraisal, namely: ability to make inferences, to recognize assumptions, to reason logically by deduction and by interpretation, and to evaluate the strength and relevance of arguments.

During the summer of 1959 a workshop was conducted with seven teachers of English, predominantly freshman English teachers, to help plan the curriculum of an English program through which skills necessary for critical thinking might be taught. The group of teachers was exposed to the objectives of the study, the philosophy and the psychology underlying the plans, and the curricular implications. Since most of the teachers had much experience with the teaching of English in the secondary school, they were able to give valuable and practical suggestions.

¹Roy J. Deferrari, Sister Mary Theresa Brentano, and Brother Edward Sheekey, Joy in Reading (Chicago, 1951).

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One of these was that, under the conditions which obtained in the schools at that time, the experiment ought to be conducted with seniors instead of with freshmen as was originally planned. They made that decision for several reasons. At the senior level students are greatly interested in their own development and in their relationships with other people, and they have a keen social interest in what goes on in the world. Although they do not have an abundance of life's experiences, their maturity makes it possible for them to make a more conscious use of the steps needed in critical thinking than can younger students. The fact that the senior year is the last year of formal education for many of the students added urgency for providing them with drill in such skills.

The teachers questioned the desirability of having the same instructors teach by two different methods during the same year. In addition to the fact that method is thoroughly individual, they were wary about the objectivity of handling both the control and the experimental group at the same time. The limited number of classes in the schools chosen for the experiment also presented a problem. Because of these difficulties, and principally because the teachers felt that they were not sufficiently prepared to conduct the experiment at that time, plans were made and approved for testing the control group taught by the traditional method, whatever that happened to be in the schools, during the scholastic year of 1959-1960 and for postponing the work with the experimental group until the following year. All seniors in all four schools during both years became the subjects in the experiment.

The schools chosen for the experiment were not alike. Two of them are private schools for girls, one having an enrollment of approximately 500
girls; the second one doubles that number. The other two are parish high
schools of which one is a small school attended by approximately 300 girls.
The other is a co-educational school having an enrollment of about 500 students.
One of the private schools is in Stevens Point, Wisconsin; the other three are
in Chicago, Illinois. All four schools are conducted by the religious order to
which the writer belongs.

During one of the sessions of the workshop the design of the experiment
was explained to the administrative body in charge of the high schools con-
cerned. The presentation was favorably received and a spirit of cooperation
was evident. This spirit, which continued throughout the two years of experi-
menting, helped to make this not only an educationally profitable project but
an enjoyable one as well.

The problem of evaluation was a serious one. The investigator was happy
to find out that during the time that Watson and Glaser were studying the
topic of critical thinking and its application in the field of English, Hilda
Taba at Chicago University was studying the topic of evaluating critical think-
ing. She explained that good teaching of critical thinking depends upon how
clearly teachers understand what is involved in carrying on critical thinking
and how it manifests itself. It also depends upon the teacher's knowledge of
each student's strength and weaknesses. Evaluation should improve the job of
teaching it. She gave three characteristics of successful evaluation. It
should have an integral relation to what is taught, covering as comprehensive
a range of aspects of thinking as are emphasized in school. To be meaningful
to teachers, it should be diagnostic in order to locate specific strengths and
weaknesses of students. It must have the capacity to measure what it has set
out to measure. This is determined by the description that accompanies the instrument, by the degree to which each school thinks through its evaluation problems and adapts the procedures to its curriculum, and by the degree to which all teachers concerned with critical thinking participate in developing the program. Good evaluating instruments should clarify the objectives of the process by removing vague general notions and removing misunderstandings and faulty assumptions regarding what critical thinking is.\(^2\)

According to these criteria the following data were gathered during the scholastic year of 1959-1960 from all the English IV students enrolled in the four schools: intelligent quotient scores of the Otis Self Administering Test; forms Am and Bm of the Watson-Glaser Critical Thinking Appraisal, taken in September and May respectively; forms Y and Z of the Cooperative English Test of Reading Comprehension (Lower Level), also taken in September and May, respectively; and an adaptation of the Dressel-Mayhew Test, administered in May.

During the scholastic year of 1959-1960 while the control group was being taught by whatever conventional method obtained in each of the four schools, (15 classes), the investigator continued her study and search for the best possible methods of teaching students to think critically. Her rather voluminous correspondence with various individuals and institutions brought much desirable help especially in the form of instructional materials. Outstanding among these were aids sent by Paul L. Dressel, Kenneth B. Henderson, William V. Hany, Don Costello, and Msgr. H.B. Buchanan (See "Preface"). All these

materials were presented for examination by the members of the second workshop which began at the end of June in 1960. It consisted of seven members, that is, the four teachers, including the investigator, who were to teach the experimental group and three elementary school teachers who acted as assistants in doing clerical and art work connected with the various materials to be used in the study.

The same teachers were asked to teach the experimental group as taught the control group. This was done to help control the teacher variable. In the one school, which had only two classes of students in senior English, it was necessary to assign a different teacher. The one who taught the control group was awarded a valuable scholarship which could hardly be refused without great loss to the school. The new teacher resembled the teacher of the control group essentially, i.e. in academic preparation and in the experience of teaching English, so that this change in personnel did not affect the validity of the study. Two of the other schools were similarly affected, but to a lesser degree, by teacher transfer beyond the control of the investigator. However, this factor was remedied to a great extent by the experimental design of choosing classes according to the teacher variable.

The facilities of the workshop were adequate and conducive toward successful operation. Materials were readily available either through purchase or, in the case of some books, through library loans.

The group met in session daily from 9:00 A.M. to 12:00 five days a week for six weeks. The assistants usually attended the classes because they were eager to learn about this subject for their own benefit and for a better understanding in preparing the materials. The afternoons and evenings were spent
in independent study, in group work, or in preparing materials. The investigator began the workshop by trying to create a spiritual climate for the work of the summer, just as the teachers would try to do during the school year with their students. This was based on the principle that if a teacher wishes to enkindle others, she must "glow."

The dignity and the loftiness of true scholarship as given by Sertillanges were studied. Throughout the six weeks, selections from this book were read and discussed, as would be done with students. Placards were made for each school (See page 75).

Cardinal Newman's Idea of a University was used to help discuss and evaluate education in regard to acquiring information, serving vocational ends, enlarging the mind, and evaluating facts.

The possibility of teaching critical thinking was questioned. This conclusion was reached: since learning is an immanent activity only the individual can think for himself, but the teacher and the teaching situation can "set the stage," provide various helps that can aid the process, give practice, and establish a mental set for doing so.

The philosophies of pragmatism, essentialism, and scholasticism were compared and contrasted in relation to the study of critical thinking. Saint Xavier College Self Study: the Liberal Education of the Christian Person as

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4Sisters of Mercy Faculty, The Saint Xavier College Self Study: The Liberal Education of the Christian Person (Chicago, 1953).
The Intellectual:
Does not stand alone
Has a Sacred Call
Belongs to his time

Truth serves only its slaves.

Tell me what you love - I will tell you what you are.

Intellectual life begins with:
A zone of silence
A habit of recollection
A will to renunciation and detachment

Intellectual life:
the DEVELOPMENT and DEEPENING of the MIND

FIGURE 1
SAMPLE OF SOME OF THE CHARTS ENCOURAGING THE DEVELOPMENT OF INTELLECTUAL LIFE
well as the "Foreword to Teachers" in Benedict Ashley's book were available sources that proved to be very enlightening.

The teachers became familiar with the results of the previous summer's workshop, with the general outline of the plan of the experiment, with the skills involved, and with the possibilities of developing them in an English IV program.

Special attention was given to the study of semantics and its role in an English classroom; the works of Korzybski, Walpole, Ogden and Richards were used to study the relationships between author-speaker and reader-listener in the use of words and their referents. With the help of the assistants of the workshop, charts which diagrammed that relationship were made for each of the four schools.

The basic principles of Alfred Korzybski's non-aristotelian postulates of non-identity, non-alienness, and self-reflectiveness were studied with the help of the works of Hayakawa, who explains in an interesting manner the functions of language and thought and gives helpful explanations in understanding the role of semantics in critical thinking. The same author edited Language, Meaning and Maturity which contains the best articles published in the first

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5 Benedict M. Ashley, The Arts of Learning and Communication (Dubuque, 1958), pp. vii-ix.


ten volumes of ETC.: A Review of General Semantics, the official organ of the International Society for General Semantics.

The investigator tried to present and clarify for the cooperating teachers the educational psychology basic to the procedures planned for the conducting of the experiment. To do this she made use of several excellent articles and books. One of these is Establishing Beliefs and Critical Thinking, a resource unit prepared at the Garrett County High School Workshop in June, 1950. It contains eighteen resource units for the core program in grades 7-12 listing learning activities, teaching materials, and aids with symbols for evaluating them.

Henderson's study helped to give the teachers a right perspective. His extensive study, the "Project for the Improvement of Thinking and a Project for the Teaching of Critical Thinking," was undertaken by the University of Illinois as a part of the Illinois Curriculum Development Program. Its purpose was to determine whether teaching logic, semantics and the scientific method in conjunction with subject matter improves students' ability to think. The experiment involved thirty-six teachers and approximately 1500 students in classes in English, geometry, science, and social studies, grades nine through twelve. The difference of performance for the experimental group was significant at the five per cent level.

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8Board of Education of the Garrett County, Establishing Beliefs and Critical Thinking, A Resource Unit prepared at the Garrett County High School Workshop (Maryland, 1950).

Of special help to the teachers during the workshop was Richard D. Atlick's *Preface to Critical Reading* which is designed to help students become more critical readers of newspapers, books, and magazines and more intelligent and responsible citizens. The editorial comment accompanying this publication seems to have a double purpose for the present study. It describes the contents of the book; it also outlines the planned effect of the present experiment upon the students:

About half way through the book you should be worried because you no longer believe anything you read. Wherever you turn, you should be seeing cliches, "glittering generalities," fallacious reasoning, cunning manipulation of sentence rhythms; and you should be bothered. . . . This is only half the process of becoming an intelligent reader. The other half, the constructive half, requires the establishment of positive critical standards by which you may detect what is good and credible and sincere in what men write.10

Though the book of R. L. Lyman is old, it is not out of date. The teachers found excellent guidance in his exercises intended to stimulate students' thinking.11 Another good source was the work of Frances Hunter Ferrell. After warning the reader of the dangers of the tyranny of ideas uncritically accepted, she gives the requirements of good thinking and various patterns of evaluating reading sources, techniques, and devices including the *Watson-Glaser Critical Thinking Appraisal*.12

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Herbert F. A. Smith presents twelve conclusions pertinent to this study. His work is based on the hypotheses that to teach a concept or generalization means to teach through a complete thought process and that students in high school can be taught the skill involved in the process. This skill is itself a pattern of lesser skills that are separable and measurable. Research supports the feasibility of teaching the lesser skills. It points to the fact that it is the proper function of the high school to teach the pattern of skills involved in reflective thinking, a function which is not being performed at the present time. 13

A review of logic books provided a basic orientation for trying to teach for critical thinking. The works of the following authors were helpful to teachers and to the brighter students: R. W. Jepson; R. E. Emmet; Max Black; Robert H. Thouless; A. E. Mander; Monroe C. Beardsley; Huppe and Kaminsky; W. H. Werkmeister; Little, Wilson, and Moore (See bibliography). J. N. Hook's chapter entitled "Teaching Straight Thinking" gives fine suggestions for a study of this kind. 14

Everlyn Moore states that besides factual knowledge there are other facts which determine the acceptance or rejection of current beliefs with regard to natural phenomena: public opinion, varied impressions of childhood, certain fixed aversions and phobias planted by ignorance, and the tendency to avoid mental effort when a ready-made solution is not at hand. The findings of her


study seem to justify that: a knowledge of scientific facts and principles is related to daily living but one's ability to apply knowledge is not in direct proportion to one's knowledge of facts; sex differences have little evident effect on the amount of factual knowledge or the ability to apply it. Even though no person is able to apply all the facts he knows, the fewest errors are made in the situation in which a person has had the most experience. The implication for teaching is that instruction should present facts and principles in relation to as many of the important situations in daily life as possible. 15

Robert Forest suggests using a tape recorder for informal arguments and panel discussions held in class. These can later be played back for evaluation. Such an activity gives students an opportunity to put into practice some of the ideas which might have been established during instruction. 16

John B. Carroll's The Study of Language presents to teachers a discussion of some of the phases of an English instructional program of education in and through the pupil's own language, such as reading, semantics, arts, and advanced languages. 17

Reflective Thinking would have been a fine book to recommend to the teachers for reading had it been published a year or two earlier. It reminds the teacher that by the very nature of the teaching act, she is in a position


to introduce a reflective quality into her relationship with students. It reminds the teacher that a "right answer" has no greater educative value than a wrong one since it depends upon what the teacher does after getting an answer. It discusses the importance of meaning in learning and thinking and the value of rewards of learning. It warns the reader that no obstruction is as great as a teacher's failure to grasp what is involved in the reflective act. Teachers may believe that the greatest obstacle is the failure of students to be skilled in the reflective process. The student's lack of skill is directly related to the presence or absence of skill on the part of teachers.

Had Education for Effective Thinking been published several years sooner than it was and had the author of this dissertation been able to read it at that time, she would not have the task, nor the benefits, of locating, organizing, and synthesizing the research-pertinent to her study. She found it amazing that there should be such a very close resemblance between the two studies, with the exception that the book is theoretical in nature and this dissertation is, among other things, an account of action research. She considers this book an excellent guide for anyone teaching such a course to prospective teachers or conducting an in-service training course.

Several copies of the work of Paul L. Dressel and Walker H. Hill, Critical Thinking, A Guide to Instruction and Evaluation were obtained. This source

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proved to be a valuable aid for the purpose of the study because it gave a rather comprehensive account of the nature and importance of critical thinking, as well as helpful suggestions for approaches to instruction and evaluation.

Their final report of the Cooperative Study of Evaluation in Central Education of the American Council on Education, which guided the author in the choice of tests, presented the problem solving aspects of critical thinking, and the relationships of critical thinking to instruction and courses. This background was needed to help the teachers to understand the reasons for the choice of tests which were already used with the control group the previous year and which would be used with the experimental group the following year. The investigator also explained to the teachers the procedures that were taken prior to the launching of the experiment to find a test that would test validly and reliably the skills of critical thinking.

The type of test to be used was considered important because students tend to learn the things that the teacher thinks are important enough to be tested. Because students "learn the teacher," the type of tests that the teacher gives will help determine the relative importance of critical thinking among other objectives of an English course; the type of examination expected by the students determines the kind of preparation made by them. Also, teachers usually do not test for what they do not intentionally teach.

So the search was on—to find an effective and valid means of measuring those abilities which today are very essential to competent citizenship. To

be valid this test had to limit itself to material that was the proper con-
tent of an English language arts program.

A Test of Critical Thinking prepared by M. T. Macy and Hugh Wood was
examined. 21 Not all sections of this test were relevant to this study nor did they adequately cover the entire area. The same conclusion was reached after examining the following tests:

1. Logical Reasoning Test, which was developed during the Progressive
   Association's Eight-Year study and which is now out of print.

2. The California Analogies and Reasoning Test, intended by the Californi-
   nia Test Bureau to be a valuable contribution to the field of sec-
   ondary school guidance.

3. The A.C.E. Test, A Test of Critical Thinking, Form G, which the
   American Council on Education developed in its cooperative study of evaluation in general education. This test deals too much with problem-solving in general to be valid in an English class.

4. A Moorburg Letter, which is a test developed in a project for the
   improvement of thinking at the University of Illinois under the
   direction of Dr. Kenneth B. Henderson, Professor of Education. It was used to get a measure of the student's ability to reason when he is given a less structured situation than one finds in the typical multiple-choice type test. Built into the letter were instances of the application of both sound and unsound principles of reasoning.

21 Consult the bibliography for further information on this and the following tests.
5. A **Test of Principles of Critical Thinking** (Form FI. 5), which was administered to all students, those in English and those in mathematics, social studies, and science, in the above-mentioned project of the Illinois Curriculum Program.


7. The test devised by Dr. William V. Haney of Northwestern University in his study *Measurement of the Ability to Discriminate between Inferential and Descriptive Statements*.

Another thorough examination was made of the **Watson-Glaser Critical Thinking Appraisal**, a test which is designed to provide problems and situations which require the application of some of the important abilities involved in critical thinking. The manual carries this description of the test:

> Its items are mostly of a realistic type, involving problems, statements, arguments, and interpretations of data similar to those which a citizen in a democracy might encounter in his daily life as he works, reads the newspaper, hears speeches, participates in discussions on various issues, et cetera.\(^2^2\)

Robert H. Ennis made an evaluation of this test from a logical point of view.\(^2^3\) On the positive side he listed the following qualities: this test is one of those that advanced the frontier in the measurement of critical thinking.

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skills; the test can be a useful instrument; the efforts of several revisions have been rewarding; the items consistently require students to examine evidence and to think.

On the negative side he listed the following characteristics: some items can be expected to discriminate in the wrong direction; other items depend on principles or rules that are irrelevant to a test of this nature. In reference to particular sections of the test he makes the following observations: the first gives too high a score to the chronic or pathological doubter; the second section tests for assumptions satisfactorily; the third and fourth are overloaded with items that do not follow; the fifth is structured so that a person answers according to his value system.

Arthur Burton and Joel Walter note that more extensive norms on all levels are needed and that this test's validity in the selection of professional and administrative personnel should be investigated. 24

Velma I. Rust made a study of the Watson-Glaser Critical Thinking Appraisal (Form Bm), A Test of Critical Thinking (Form G), and A Test on Principles of Critical Thinking (Form FI 5) and found low intercorrelations between the total scores on any two of these tests. She made the inference that there is little relationship between the knowledge of principles of critical thinking and the ability to use these principles. In spite of this she felt that the evidence is inconclusive since the critical thinking process involves a large

number of unique abilities and items of knowledge. She takes the position that the Watson-Glaser Critical Thinking Appraisal could be improved.  

Joseph C. Bledsoe found that the repeat-test reliability, after six weeks, of the two forms of the Watson-Glaser Critical Thinking Appraisal was .604, which is considerably lower than the coefficients reported in the manual (.79-.95). In spite of the above warnings, this test was chosen as the chief criterion measure. The World Book Company advised the author about the plans for another type, a revision of the test, but time did not permit a delay.

Dr. Kenneth B. Henderson, as well as several other individuals, encouraged the author to build an original test. It would be a matter of designing an instrument that would give data which would allow the teacher to make an inference concerning the extent to which students have acquired the cognitive knowledge and skills that were taught them. Such a test would have more "face validity" than a test prepared by someone else. The author considered these to be good but not feasible suggestions since she was more interested in the curricular aspect than in the testing aspect of the study. A plan was designed to use the above-mentioned appraisal but to supplement it with another instrument (See Appendices I and II).

An examination of A Short Answer Form for Evaluation of Critical Thinking in Social Science revealed that many of the items lay within the province


of instruction in English, such as, recognition of stereotypes, bias, verifiable data, relevancy, inconsistency, and the ability to identify the main point in a selection. With the deletion of several of the questions and addition of a few others, based on abstract and concrete terms and on the types and forms of logic and discourse, the teachers decided that this test validly measured some of the objectives of the proposed curriculum. Permission was readily given by Dr. Paul L. Dressel for adapting and duplicating his test. Even though it is not a standardized one, it was chosen in the hope that it might give a more complete and more valid picture of the situation.

The question of curricular validity presented another problem. It is possible for teachers to become so engrossed in pursuing specific objectives that they neglect other areas of the content. In such a case, the teachers might aim at developing ability to think critically to the neglect of giving the students something to think about, i.e. failing to cover the contents of an English IV curriculum. The purpose of this study is to ascertain whether it is possible to teach students to think critically within the usual context of the course.

Reading is certainly one of the basic requirements of a course in English. The experimenter wanted to find out whether an emphasis on critical thinking would have a positive or a negative effect upon reading. She, therefore, set out to find a reading test that best suited this situation. The Reading Comprehension Test (Lower Level) of the Cooperative English Test\(^{27}\) was chosen

\(^{27}\text{Cooperative English Test, Test CI: Reading Comprehension, Lower Level, Forms Y and Z, Cooperative Test Division, Educational Testing Service (Princeton, 1953).}\)
because the investigator considered it the most valid for the purpose of this investigation.

To familiarize the teachers as thoroughly as possible with the problem of teaching students to think critically, the investigator was concerned with discussing all possible phases of the study. In the workshop sessions the teachers studied the criticism of American youth for their failure to make wise choices. They discussed the possibility of schools using a problem-solving approach to the situation of life and reevaluating the school's role to help students to think critically and independently. They realized that such skills could not be taught as abstract exercises. Accordingly, they devised lesson plans based upon the usual content of an English class, as it was customarily taught in the respective schools. They tried to provide practice in the needed abilities by having these transcend meaningfully as much of the material as possible. Working with these hypotheses in mind that critical thinking is dependent upon varied and specialized knowledge and involves many components which are amenable to instruction, the teachers were convinced that a well-planned habitual approach to problems, skills in reading, analysis, outlining and other procedures as described in this study should aid in desirable intellectual development. They had confidence that a combination of the best types of challenge to mental activities within an all-round development should result in making students alert to new ideas, ready to attack hard problems, sensitive to fallacious reasoning, and eager to continue to learn. They realized that effective thinking is not repetition of something learned but a variation, an adaptation, an invention. They concluded that excessive faculty supervision or domination was undesirable for stimulating and guiding
students to think honestly, persistently, and effectively. They recognized the danger of the possibility of laying out plans for developing critical thinking for competent citizenship in a democracy by using undemocratic, authoritative, and totalitarian methods.

Three articles written by Victor H. Noll helped increase the teachers' knowledge of the scientific method as applied to general education. In one of these articles he stresses the fact that as long as schools teach for knowledge of facts and principles and not for methods of thinking, students will not learn to think. The teachers used his two articles that pertained to the six fundamental habits of thinking to make a chart that grouped the seven fallacies delineated by the Institute of Propaganda Analysis as these violated the habits of the Scientific attitude (See Appendix III).

The teachers of the experimental group were familiar, at least to some extent, with Sister Mary Rosenda's *The Christian Impact in English*. After reviewing this source, they found it had great possibilities for the present study. Sister explains that literature should be used as an approach to truth through the beautiful. She believes that literature can provide a deeper motivation to nourish students with materials to arrive at truth and to inculcate in them the necessary convictions not only to think correctly but to live in accord with those convictions.

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The teachers' attention has been called to the importance of the art of questioning and its implications for helping to teach students to think critically. Excellent explanations are given by Watts and Payne.

It was imperative that the teachers have the right perspective in regard to the possibility of teaching critical thinking. In answer to the question of whether a teacher can teach her students to think or merely to think about thinking and reasoning, General Maxwell explains that teaching to think is a way of teaching which can be learned and must be learned to the point that it becomes a natural habit. Teaching to think is an attitude—it is an approach. It is a matter of applying principles known by most teachers.

The experiment took time during the workshop to discuss the Socratic method of skillful questioning, which though not difficult, is still the best method of stimulating thought and guiding discussions. By skillfully devised questions a teacher can do much to direct students' attention to ideas that otherwise might escape them.

A study was made of Robert H. Ennis' article which presents several techniques used successfully in the teaching of critical thinking among which are the creative discovery method, the "double-dare-you" method, the question


method, the pointed question method, and the students' challenge method. He warns the teacher to be careful to limit his care to that which is probably within the range of ability of the students lest they become frightened or resentful. It is difficult to become a challenger, adept at asking the right question at the right time particularly in a crowded classroom where many other things are occurring. It is also difficult to keep the exchange from becoming one that escapes most of the class. A small class that is somewhat homogeneous presents fewer problems. He complains of the dearth of materials which might be used in conjunction with any of the courses ordinarily taught in the schools, that is, materials to motivate, teach, and test critical thinking.  

Another profitable source which enumerates and explains types of questions used both for stimulating and directing the mental activity of the learner and for measuring the results of teaching reflection is Monroe and Carter's small book, *The Use of Different Types of Thought Questions in Secondary Schools and Their Relative Difficulty for Students*. These authors are convinced that different subjects require different mental processes and that it is altogether likely that the study objectives of students are influenced more by the kind of questions asked than by direct statements of aims in the course.  

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A most valuable treatise of critical thinking helpful in this study is a thirty-two page booklet of the Junior Town Meeting League. It discusses the developmental levels and the skills of critical thinking, classroom techniques and the evaluation of critical thinking. It warns teachers that knowledge about critical thinking is not the same as critical thinking nor does such knowledge guarantee the ability to think critically. Experience in critical thinking is indispensable for having students believe in the importance of it, for having them become able to think critically, and for having them develop habits of critical thinking. No amount of learning about critical thinking will, in itself, make critical thinkers of students; however, an understanding of the processes is helpful just as a knowledge of grammar can be used by one who is trying to write or speak well.\(^{35}\)

The National Council of the Teachers of English emphasizes the necessity of the student's learning to respond with critical intelligence not only to normal human speech and to the pages of books, but also to what he hears and sees through the motion picture, the radio, and television. Living in a society where such mass media inevitably command his attention, the student must learn to appreciate what is good and to reject what is mediocre and bad. Through the stimulation of many interests, the deepening of significant ones, and freedom to pursue these interests under the guidance of the teacher, students should find in the language arts an opportunity to explore cultural interests, to pursue matters of personal moment to them, and to extend horizons

\(^{35}\text{The Junior Town Meeting League, Critical Thinking in Current Affairs Discussion (Middletown, Connecticut, 1956).}\)
from the merely personal and local to matters of national and international importance. 36

The teachers of the workshop had a fine opportunity for thinking about the above-mentioned injunction while attending a workshop that was being carried on simultaneously at Loyola University. This was a joint project of the Adult Education Center of Chicago and the Chicago Public Library which encouraged the study of entertaining films. The author had previously attended similar sessions at Mundelein College which were held to encourage education in motion pictures with the conviction that both, audience and the motion pictures, will gain in stature if the audience develops some artistic judgments. Ranting against mediocrity on the screen is of little avail if the audience is not ready to appreciate something of value when it comes along.

Six consecutive Tuesday afternoons were spent studying the philosophy, the psychology and various aspects of the film industry. Mr. Ellis, of Northwestern University, presented the historical, artistic, and technological aspects of films; Mr. Edward Fisher, of Notre Dame, familiarized the members of the workshop with the nature of the medium explaining some of the technical terms relative to the industry. Dr. Don Costello, former critic of films for Today magazine, and presently an instructor at Notre Dame University, devoted his talks to the aesthetic qualities of films. He prepared the audience for a viewing of three films which were followed by discussions. Sister St. Irene of Mundelein College discussed the possibilities of using foreign films; Miss

Ruth Parkington explained and encouraged the use of the facilities of the visual aids department of the Chicago Public Library. Dr. Costello distributed outlines for guiding discussions based on films. He granted permission for the use and duplication of these as instructional material in the present study.

On one of the Saturdays during the workshop the four teachers of the experimental group went to Notre Dame University in Indiana to attend a meeting of the English department; they found this excursion to be a very profitable one. The session devoted to outlining had special merits for the present study. The teachers discussed the contents of the lectures and applied that knowledge to their efforts in teaching critical thinking.

During the time that the teachers were conducting the workshop at Lourdes High School, a group of incoming freshmen of that school was attending a remedial reading class. The experimenter took advantage of this situation and conducted five lessons demonstrating the procedures that could be used, with adaptations, on a senior level. The experimenter distributed copies of the lesson plans daily so that the teachers might have reference to them in preparing for their own classes.

The establishment of a spiritual climate for learning was the first aim. A discussion of the dignity of man's intellect and reading of excerpts of Sertillanges' book provided a common background. These freshmen were introduced to some of the essentials of the experimental factor of the experiment,

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namely: to the diagram analyzing the aspects of oral and written language; to
the square of opposition, insofar as it applied to the fallacy of composition
and to common everyday experiences; to a simplified form of Venn diagrams; to
the skill of critical listening and to some of the fallacies of thinking. John
Godfrey Sane's poem, "The Blind Man and the Elephant" was used as a motivation-
al device for the study of critical thinking. Copies of A Guide to Logical
Thinking, one of the booklets of Science Research Associates Guidance Series,
were distributed to them for independent as well as class study.

After seeing this work done by freshmen in a remedial class, the teachers
were convinced that it could benefit even their poorest seniors. They contin-
nued during the remainder of the workshop to devise methods of incorporating
the skills of critical thinking into the language arts program, of determin-
ing the best sources and materials of instruction to be used, and of deciding
upon reading lists on an instructional and leisure level.

At the termination of the workshop they felt that they had learned much
about critical thinking, had profited greatly from one another, and had shown
eagerness to complement this learning by teaching it to their students.

During the month of August the materials that were prepared during the
workshop were duplicated and distributed to the four schools. Additional
material was sent to the schools during the year. Some seventy five pages of
materials for the individual use of the students were prepared specifically for
this study.

The annual intercommunity meeting of the teachers of the religious com-
munity, to which all the teachers involved in this experiment belong, was an
excellent occasion for the teachers to discuss the progress, problems, and
plans in regard to the continuation of the study. The author conducted a special session for the English department, which consisted of about forty members. The meeting began with one of the teachers giving a resume of Cynthia A. Schuster's article, "Can We Teach the High School Student to Think?" which discusses fallacies, definitions, and the scientific method, giving special emphasis to the epistemological question, "How do you Know?" The experimenter gave an overview of the study in progress, distributing specimens of the material prepared for the students. A group of seniors from the experimental group then presented a demonstration, exemplifying work typical of the study. The teachers present at this gathering showed great interest in the project with the result that plans were made to report the results of the study at the next annual meeting.

During the Christmas holidays the four teachers met in the Wisconsin school to discuss problems that arose, to share materials, and to gauge progress made. To help insure uniformity, individual teachers were asked to tabulate the steps already taken. This also gave the experimenter an opportunity to investigate to what extent methods designed during the summer workshop were being carried out. Plans were made for the further sharing of materials, for devising new methods, and for continuing the work. The teachers were enthusiastic but wary about completing the amount of work that was planned.

38 Cynthia A. Schuster, "Can We Teach the High School Student to Think," Education Research Bulletin, 37 (April 1958), pp. 91-100.
After the experimenter devised a drill lesson based on miscellaneous skills that were measured in the test, she visited the schools in April demonstrating the use of the exercise to all the classes. At this time the investigator was able to evaluate the students' work by observing the students' class responses and examining their written work.

In May the teachers administered the second form of the tests under conditions that paralleled those of the preceding year. The test papers were submitted to the experimenter. These were corrected and recorded by two assistants, elementary school teachers, who, during the previous summer, corrected the papers of the control group. The experimenter spent the summer in studying the data, analyzing it statistically, and describing the experiment. The following chapter is devoted to an explanation of the classroom procedures.
CHAPTER V

PROCEDURE OF THE EXPERIMENT--PART II

The four teachers of the experimental group spent six weeks studying the philosophical and psychological aspects of building a curriculum which was to use critical thinking as an integrating principle. They cooperated in choosing and formulating the methods and materials to be used for a conscious effort to teach for critical thinking. When school began in September they were ready to teach the course.

The first step was to give the students a definite understanding of the objectives of the course. They were made aware from the beginning of the year that the class was organized for the purpose of preparing them to think critically. In September they were presented with an over-all pattern of the year's work which came to them in the form of a letter that explained the course and listed the skills for which they were to strive (See Appendix IV).

Provision was made for each student to tabulate, at the end of each quarter of the year, whether and to what degree the various skills were individually achieved. This helped the students to get a better perspective of the year's work and gave them some satisfaction when progress was observed. It also helped the teacher to evaluate and gauge her work.

The students were told that in class they would be helped to attain the objectives, but the responsibility of learning to think was theirs. By means of this letter and with further explanation given them by the teacher, the
students became aware of the fact that the plans for conducting the class were carefully formulated for the course as a whole and for each particular problem. With the students' understanding of clearly defined purposes, the attempt to teach them to think critically through the usual work of an English IV program of language arts was begun.

As was described in the preceding chapters, the success of teaching for critical thinking depends upon fine details, that is, various specific skills that can be developed through many types of procedures. The subsequent methods, materials, and procedures are typical of the work done in the four schools. Various steps were taken to insure uniformity. However, because such detail is difficult to describe in relation to the four schools, the following description will limit itself to one school, that of the investigator. The reader is asked to keep in mind that essentially the same situations existed in each of the three other schools.

The study of the difference between fact and inference was an enjoyable one. The probable reason for this is the kind of teaching material that was available (See Appendix V), through the work of Dr. William V. Haney, who composed several stories and followed these by statements of inference or fact. With his permission these stories were duplicated for the students and were used to introduce the study of inferences. Answering the questions based upon these stories was a way of convincing the students of the danger of confusing fact with inference.¹

Another source that students found enjoyable was a book containing intriguing riddles which the teachers used occasionally.\textsuperscript{2}

The teaching of two other phases, the study of assumptions and the study of concrete and abstract items, was facilitated by materials worked out in a study conducted by Dr. Kenneth B. Henderson of the University of Illinois (See Appendices VI and VII). He generously shared much material and permitted the duplication of whatever might aid in this study. Students found the study of assumptions somewhat difficult. Concrete and abstract terms took on new meaning when explained according to Dr. Henderson’s exercises and applied to the study of semantics.

It may be true, as the progressive educationalists maintain, that the study of formal deductive reasoning does little to improve the reasoning powers of the student. However, it can be valuable in making him more keenly aware of the kinds of fallacious reasoning against which he is to guard himself. It may serve him well, for example, in his exposure to paid propagandists.

An attempt was made to develop the skill of deduction but, because of a lack of time and the nature of an English course, not very much class time was devoted to the formal teaching of this skill. The study of the skill of deduction was essentially limited to the study of diagrams representing "some" and "all" (See Appendix VIII) and to learning the square of opposition as it applied to unwarranted generalizations, known as the fallacy of composition.\textsuperscript{3}

\textsuperscript{2}Agnes Rogers, \textit{How Come} (New York, 1953).

\textsuperscript{3}Benedict Ashley, \textit{The Arts of Learning and Communication} (Dubuque, Iowa, 1958), pp. 1339-140.
Charts were made for each of the experimental classes to help students understand these concepts (See Figure 2, page 102). Very simple exercises were presented to the students; these were later followed by more difficult ones for them to work out at their leisure. Some drill was given in the skill of reasoning about grammar and in valid and invalid reasoning. Application was made to simple syllogisms. (See Appendix IX).

One of the most profitable tools in the hands of the teachers and students was Benedict Ashley's Book, the *Arts of Learning and Communication*, a handbook of the liberal arts. To help them think better, it was considered important that students be able to distinguish between different kinds of writings which have different purposes. For that reason the two general classifications of literature were explained to them. Ashley uses the term "literature" in the broad sense of the term. Imaginative poetic literature rests and delights the soul by lifting our minds and emotions above the cares of everyday life and gives us a greater understanding of life by giving us a wider and clearer vision encouraging and inspiring us to live more fully and perfectly. Rhetorical literature, such as propaganda, advertising, selling, the political speech, and the sermon, seeks to persuade us to do something.

The Introduction, Part One, and Part Four of Ashley's book are especially suited to the study of critical thinking within the context of an English class. The Introduction presents the story of the liberal arts, the kinds of logic, and types of signs. Chapter I is devoted to the skill of reading a story and the magic words. Chapter II, "Dialectics and Rhetoric: Arts of

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Every Lourdian is courteous.

No Lourdian is courteous.

Some Lourdian is courteous.

Some Lourdian is not courteous.

UNIVERSAL

PARTICULAR

AFFIRMATIVE

NEGATIVE

FIGURE 2.

SAMPLE OF SQUARE OF OPPOSITION USED TO TEACH FALLACY OF COMPOSITION
Discussion and Persuasion," presents a study of the art of conversation, discussion and debate, the syllogism, salesmanship, mass media, advertising, and the need of good style. References were also made to Chapter III, "Dialectics and Demonstration Logic: Scientific Method." Drill for identifying types of discourse was provided by means of excerpts taken from Part Four of the book devoted to some standard examples of kinds of discourse. During the workshop the teachers decided that Part One of the above-mentioned book gave the students a thorough explanation not only of poetics and rhetoric, but also of the other forms of logic: demonstrative and dialectical logic. Part Four gave excellent examples of selections of these forms. The teachers considered the ability of students to identify these types and forms of discourse basic for a critical evaluation of selections.

The students of the experimental group shared the sixty copies of Ashley's book that were purchased for them with the result that access to the books was limited. Also, the teachers wanted to use this opportunity to teach the students how to take notes on reading materials. For these two reasons they outlined and duplicated the outlines of the Introduction, Chapters One and Two (See Appendices X-XII). The first one was rather complete and lengthy; the next one left more of the work to be done by the students; the third one took for granted that the students could help themselves with much of the work. Drill lessons based on the introduction of Ashley's book were provided (See Appendix XIII). Unfortunately, time did not permit for the use of the Ashley books to maximum benefit. The students, especially the brighter ones were very interested in the studies presented. This was evidenced by the fact that some fifteen girls purchased personal copies—even though only hard-cover books were available.
Outlining was used throughout the year as a method of study. The mental skills of logical organization can produce marked improvement in reading, comprehension, reasoning and understanding of content subject materials. According to the teachers' decision at the workshop, a uniform study of outlining was adhered to with the hope that if the students were given practice in it all year, facility in outlining would be the result.

The students' textbook, *English in Action*, has a chapter entitled "Thinking." Several of these pages are devoted to the study of fallacies. The chart, which the teachers made during the summer workshop, grouped the fallacies according to the intellectual virtues that were violated and gave additional explanations to the seven fallacies explained in the text (See Appendix III). Further work in the study of fallacies was done through the explanation given by Stuart Chase. As an example of showing that "Figures don't lie, but liars can figure," that is, that statistics can tell almost any story that the statistician wants them to tell, the teacher made three graphs depicting the grades of the students received at the end of the first quarter (See page 105). The students were amazed and amused at the different impressions that were given when the axis was elongated or the grades were grouped in different patterns. This short lesson showed students that the misuse of statistics can be a violation of criticalness and intellectual honesty.

Individuals gave reports of the chapters which were related to this topic from Chase's book as well as from Black's *Critical Thinking*. The study

FIGURE 3

CHART USED TO TEACH THE POSSIBILITY OF USING DIFFERENT GRAPHS TO EXPLAIN THE SAME DATA
of fallacies was culminated by studying an enjoyable playlet found in Black's book, "Vegetarianism, or How Not to Argue" (See Appendix XIV). Much more time should have been spent studying fallacies. This was shown by the fact that many students found it difficult to identify some of the fallacies in the playlet.

Reading and Literature

Efforts were made to have the students realize that intelligent living in a democracy demands the ability to read, that reading is a social tool in a democracy where intelligent constructive choice is assumed to be a substitute for censorship.

The English teachers had another valuable tool at their disposal to help train the analytical and critical powers of the students. This was reading, which is a complex of abilities and skills as well as of attitudes. To help students remember that learning to think is as much a part of reading as is learning to read, a chart was displayed above the magazine rack in the classroom which read, "To read well is to think well." (See page 107). They were reminded that evaluation, verification and various other thought processes must go on in order to understand the printed sentence, paragraph, chapter, or book.

At the beginning of the year, the levels of difficulty in reading were discussed: leisure, instructional, frustrational. A number of students used that classification when submitting lists of readings at the end of each quarter.

Since reading is always a process or a technique of interpretation and can never be learned except in connection with some content, various types of
To read well is to think well.

The eye is merely the servant of the alert mind.

Figure 4

Sample of chart reminding students of the necessity of thinking when reading.
reading materials were used and various techniques were applied. The fine explanation and examples given by Ashley were studied and these learnings were then applied to selections in the students' literature anthologies and various library readings which included the reading of magazines. It was considered important for the students to understand that they must use different criteria to criticize fiction, other than the standards of truth and consistency, which properly apply to communications of knowledge.

Besides the usual materials found in the school library, the students were encouraged to use the special shelf reserved for English IV students. Sections of reading materials that specifically applied to the aims of the course were labeled to facilitate guiding the students in the choice of materials.

The librarian, who was familiar with the study because she was one of the English teachers participating in the first workshop, helped to complete the process begun by the teacher by offering assistance but leaving the students to their own devices.

One of the assignments given to all the students was to visit the downtown public library at least once during the course of the year. The outlay of the building including the various floors, the museum, the concert hall, the type of architecture and the system of drawing out books was explained to them. The ultimate purpose of this assignment, of course, was to encourage them to read more books, with the hope that this training would influence their adult lives. Many of the students commented that up till then they confined their visits to a local branch and that they never knew that Chicago possessed such a fine library downtown. Their reading lists gave evidence of much reading.
A bibliography of books was duplicated and distributed to them (See Appendix XV). Any material listed in the bibliography was considered good material. The students were encouraged to look for other sources. This activity was followed up with small group sessions devoted to the discussion of the topics of critical thinking.

Another valuable source of information for the students was the work of Father James Keller, the director of *Christopher Notes*. Forty copies of these were procured and shared with other English classes.

Literature presents excellent examples of the critical thinking of others, for no more interesting case studies of why people think and act as they do can be found than those in the literature of the past. Hence attempts were made to utilize American literature, which these seniors were studying, to help them achieve the goals of critical thinking.

As they studied the first unit, the literature of the Revolutionary War Period, they were asked to consider two questions:

a. Does the separation of church and state in America suggest that this country is irreligious? Refute in the light of early American literature.

b. Does the present troubled condition in Africa suggest that democracy is the best form of government for every country? Was it the best form for early America? Does the literature of the period give any insight into this problem? Explain.

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The best compositions were sent to the Chicago Sunday Tribune. One of the essays entitled "Principles vs. Ignorance" was published in the "Voice of Youth" column (See Appendix XVI). Together with many other students whose articles appeared in the Tribune's column this student and her teacher were invited to a luncheon at McCormick Place in May. The speakers at that affair challenged the young journalists to make use of their talents in a constructive manner.

During the study of the second unit of American literature, the thesis that the students were to develop was:

Whether literature is poetic, dialectical, rhetorical, or demonstrative, it often reveals the author's philosophy of life. Explain this thesis by using the work of one or more of the authors studied in the second unit.

Numerous opportunities presented themselves during the course of the year for the use of simple documentation. Rather early in the year the class was introduced to the study of bibliographies, abstracts, and annotations (See Appendix XVII). The annotations based on the literary selections in the students' anthologies and other materials provided ample practice in the application of the skills involved.

The assignment for the second unit read as follows:

Make abstracts of thirteen selections, one for each of thirteen authors listed. Write or type these on separate cards in the form of an annotated bibliography.

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During the course of the fulfillment of this assignment, samples of these annotations were placed on the blackboard for analysis. The teacher often read good examples of the students' work, especially when done by the average or below-average students. This was done for the sake of motivation. Many students commented on the desirability of such an assignment. The brevity of the composition work was probably the reason. These annotations, in spite of their brevity, encouraged the students to think while reading. The students were asked to read the selection well, to be able to identify the main issues, and then to express themselves in as short an abstract as possible. The teacher found it a pleasure to correct these sentences because they were the result of thinking on the part of the students. Much of the reading of American literature was done on a rather independent basis accompanied by the writing of annotations. The students suggested such a procedure.

The directions for the third thesis read as follows: Study the selections in unit three to determine the end result of the thinking of the author. The concluding statement must in some way involve the title. Examine the end of each selection and determine:

a. The kind of thinking done by the author
b. Whether it in some way involves the author

The teacher guarded against doing, or letting the textbook do, too much of the thinking for the students. She let them collect data and draw inferences and show evidence of critical thinking by writing their annotations and by evaluating the annotations made by classmates.

Reading does not stop with the work of understanding what a book says. Critical and appreciative reading demands some skill in recognizing figures
of speech. With the aid of the charts that were made for each of the experimental classes, a study was made by grouping the figures of speech according to their functions of contrast, similarity, substitution, addressing, emphasis, and sound (See pages 113-118).

Evaluation, judgment, or analysis should be made for the sake of weighing and considering. The annotations that the students were asked to write gave them opportunities to tell what the author was trying to do, what questions he was trying to answer, what his important concepts were, the reasons for his conclusions, the special qualities and even the defects of his treatment of the subject. These annotations gave them a chance to wonder about meanings of passages and to give them added insight which they did not already possess.

Unlike the other three experimental groups, this school was using an anthology of American literature. Since this literature is much simpler than English literature, these students could profit from independent study. However, much time was given to the direct teaching of literature or preparation for it. Examples of such procedures are: vocabulary drill, study of the themes of selections, introduction or presentation of material, and the reading or recitation of selections by the teacher or the students. Some selections, such as Poe's "The Raven" and Emerson's "Gifts" were studied in a comprehensive manner. Fred Waring's album of "The Song of America" was played for the sake of appreciation. At the end of the year the students were encouraged to read Adler's How To Read A Book.¹⁰

After the students had some knowledge of the five skills of making inferences, deductions and interpretations, of recognizing assumptions, and of

¹⁰ Mortimer J. Adler, How To Read A Book (New York, 1940).
ANTITHESIS (opposites, parallels)

Antithesis is a figure of speech in which opposed ideas are balanced and placed next to each other or in parallel positions.

Ex. Worth makes the man; the want of it, the fellow. Deeds show what we are; words, what we should be.

EPIGRAM (concise, often contradictory)

Epigram is a concise striking statement of a truth. Often there is apparent contradiction between what is said and what is meant.

Ex. A little learning is a dangerous thing.
Language is the art of concealing thought.
The youth of America is its oldest tradition.

PARADOX (seeming contradiction)

Paradox is a figure of speech in which, to jolt the reader into new realization, the writer states a seeming contradiction that will later be explained or that will yield sense on second thought.

Ex. He who loses his life for My sake will save it. (St. Francis' prayer for peace has a number of them)

IRONY (opposite is meant)

Irony is a figure of speech in which one thing is said while obviously the opposite is meant.

Ex. Yes, my dear, you are always an angel.
How kind it is of you to remind me of my mistakes.

LITOTES (denying the opposite, understatement)

Litotes consists in making a statement by denying the opposite. It is a kind of understatement.

Ex. Mother was not a little worried. (She was considerably worried.)

FIGURE 5A

SAMPLE OF CHART USED IN TEACHING THE FIGURES OF SPEECH RELATIVE TO CONTRAST
1. **SIMILE** is a comparison between things that are in general unlike, a comparison made with the use of *like*, *as* or other comparative words. More briefly, a simile is an expressed comparison between unlike things.

   Ex. His conscience twinged like a drilled tooth.  
   Her voice is as shrill as the whistle of a peanut-roaster.  
   He was as timid as a rabbit during the hunting season.

   A simile may be long or short.

   A simile may be negative.

**METAPHOR**

2. **METAPHOR** is a comparison between things in general unlike, a comparison made without the use of *as*, *like*, or other comparative words. It is an implied comparison between unlike things.

   Ex. All the world is a stage.

   Nearty and hale was he, an oak that is covered with snowflakes.

   Life is an *isthmus* between two eternities.

**PERSONIFICATION** *(live, inanimate)*

3. **PERSONIFICATION** is a figure of speech that gives the qualities or actions of persons to abstractions and other things that are not persons.

   Ex. Actions speak louder than words.  
   A gentle breeze *caressed* her cheek.  
   Freedom *blushed* for shame; justice *lamented* the dead.

**FIGURE 5B**

SAMPLE OF CHART USED IN TEACHING THE FIGURES OF SPEECH RELATIVE TO SIMILARITY
METONYMY (suggests another)

Metonymy is a figure of speech in which a word is used for another which it suggests or which is closely associated with it.

A. The Maker is used for the thing made.

Ex. I enjoy reading Dickens. (that is, his works)
You should respect gray hairs. (that is, old age)

B. The thing made is used for the maker.

Capital has learned to sit down and talk with Labor.

(Capital, the thing, is substitution for the people who possess it. Labor, the thing, is substituted for the people who perform it.)

C. The sign is used for the thing signified.

I'm afraid we will have to punish these sullen looks.

SYNECDOCHE (part for a whole or vice versa)

A. The container is used for the thing contained.

who steals my purse steals trash.

B. A part is used for the whole.

Give us this day our daily bread.

Our neighbors have a new motor. (automobile)
We counted thirty-five sails. (boats)

C. The whole is used for a part.

The nation went to the polls that day to vote for life or death.

FIGURE 5C

SAMPLE OF CHART USED IN TEACHING THE FIGURES OF SPEECH
RELATIVE TO SUBSTITUTION
APOSTROPHE (absent, dead, inanimate)

Apostrophe consists in addressing the absent as if they were present; the dead as if they were living, and inanimate objects and abstract ideas as if they were human beings.

Ex. Ambition, you have been a cruel mistress to me. Wondrous, Shakespeare, what genius was thine.

EXCLAMATION (emotion)

Exclamation, used frequently in poetry, is used to signify intense emotion.

Ex. O eloquent, just, and mighty Death!

INTERROGATION (rhetorical question)

Interrogation is a question the answer to which is usually self-evident.

Ex. Who among us is without sin?

Who is not proud to be an American citizen?

FIGURE 5D

SAMPLE OF CHART USED IN TEACHING THE FIGURES OF SPEECH RELATIVE TO ADDRESSING
HYPERBOLE (exaggeration)

Hyperbole is a figure of speech in which the writer exaggerates, not in order to deceive, but to emphasize a point, create humor, or achieve some similar effect.

Ex. Curiosity consumed her.

A million wrinkles carved his skin.

CLIMAX (ascending order)

Climax is a figure of speech in which thoughts are arranged in ascending order of importance, interest, or effectiveness for a particular audience.

Ex. I came; I saw; I conquered.

ANTICLIMAX (reversed order)

Anticlimax is a figure of speech in which, for purposes of humor or scorn, climax is observed up to the end of a series of thoughts which appear to be building to something important and then some unimportant idea is mentioned in the last, most important position.

Ex. Here thou, great Anna, whom three important realms obey,...

Doat sometimes counsel take - and sometimes tea.

FIGURE 5E
SAMPLE OF CHART USED IN TEACHING THE FIGURES OF SPEECH RELATIVE TO EMPHASIS
Onomatopoeia (sense)

Onomatopoeia is a figure of speech in which words are used whose sound suggests their sense.

Ex. There broke on our ears the clang of cymbals and the strident brassy blasts of haughty trumpets.

Words: buzz, bump, hiss, crackle

Alliteration (consonants)

Alliteration is a figure of speech in which the same sound is repeated noticeably at the beginning of words placed close together.

Ex. Full fathom five, there father lies.

Assonance (vowels)

Assonance is the repetition of identical or related vowel sounds, especially in stressed syllables.

Ex. In Xanadu did Kubla Khan,

A stately pleasure dome decreed.

FIGURE 5F

Sample of chart used in teaching the figures of speech relative to sound.
evaluating arguments, they were given directions to compose exercises based on some reading material, especially the selections found in their literature book. Directions which approximated those found in the Watson-Glaser Critical Thinking Appraisal were duplicated for them. Since the course was based on the principle of striving to isolate specific skills of critical thinking for mastery, it was considered legitimate to study the skills as explained in those directions (See Appendix XVIII). Charts were made for each of the experimental classes that showed the five possible ways of identifying statements questioning the use of inference (See page 120).

When the work was submitted, the students of the commercial classes typed the exercises on durable paper (9" X 12"). Several class periods were devoted to those exercises which were used on an individual basis. As soon as the student completed a unit of work, she checked her answers with those on the answer card found on the teacher's desk. If the student disagreed with the answer and found reason for disagreement after examining the work, she attached an explanation to the answer card. The person using that card was encouraged to evaluate both answers. This seemed a realistic way of teaching the students that as far as critical thinking is concerned there is really no "correct" answer to many questions or that it is not always easy to arrive at answers. Many students commented that they were learning to read more intelligently as a result of this practice.

The teachers realized that a program that relied solely on basic reading materials gave students limited opportunities to develop skills. According to the decision made by these teachers during the summer workshop, various reading sources were made available for the students. The use of paper-backs
FIGURE 6
POSSIBLE WAYS OF IDENTIFYING STATEMENTS OF INERENCE

1. Definitely True
2. Probably True
3. Insufficient Data
4. Probably False
5. Definitely False
was incorporated into this study. Copies were procured by each of the schools and shared with one another. In this way cost was kept at a minimum. Class copies of the following titles were circulated: *The Seven Story Mountain* by Merton, *Jane Eyre* by Bronte, *The Song at the Scaffold* by Von Le Fort, *The Story of the Trapp Family Singers* by Trapp, *Masters of Deceit* by Hoover, *Hidden Persuaders* by Packard, and *Thomas Aquinas* by Chesterton.

Study sheets based on these books and containing exercises designed to give practice in acquiring the skills of making correct inferences, deductions, and interpretations, of recognizing assumptions, and of evaluating arguments were distributed to the students (See Appendices XIX and XX). Having all the students of a class read the same book encouraged them to read the book and participate in the discussions that followed.

The students were frequently encouraged to extend their readings. The usual written book reports were not demanded. Instead, the students were asked to keep a list of the various readings they did and to submit that list at the end of each quarter. To prevent dishonesty, they were sometimes asked to answer a few questions in regard to specific items designated by the teacher. Another method of discouraging dishonesty was the holding of small group discussions based on the readings.

Of special interest were monthly discussions based on the reading of the *Today* magazine. This periodical approaches the instructional level, and sometimes the frustrational level of reading for high school students. It presents an intellectual challenge for many of the students. They were encouraged to read the entire issue. The teacher usually took time to give the class a mental set for that type of reading by presenting the topic, the
difficult vocabulary, basic concepts, and some thought-provoking question. Oftentimes these were duplicated for the students (See Appendix XXI). The contents of an issue were then divided into six or seven parts and the students were given liberty to sign up for a small group discussion based on that section. Students were free to volunteer as discussion leaders. This gave an opportunity for leadership to some thirty students each month in conducting a discussion. An aid which is furnished by Today entitled Inside Today proved to be a real help to the teacher in presenting the material as well as to the student teachers in conducting group discussions.

Other small group sessions were devoted to such material as critical thinking, propaganda, logical thinking, and semantics. These discussions began by having individuals give reports of the books they read. Since the majority of the students read The Hidden Persuaders and Masters of Deceit, these became two favorite topics of discussion.

To encourage participation by every student in the buzz sessions, the students were given little cards on which they were to tabulate and evaluate their contributions, grading themselves "excellent," "good," "fair," or "poor" each time they spoke. This might have been cumbersome, but it provoked discussion on the part of all students (and the teacher hoped that it provoked critical thinking). The girls asked to have more of such group discussions. They seemed to realize the advantages of stimulating everyone's participation, of drawing out the introverts, of clarifying points, and of having opportunities to make and express judgments. Since the time element limited the number of such procedures, the teacher encouraged the students to continue their discussions outside of their English class; the students gave assurance that
this was happening. The big problem was instilling a desire for reading. This the teacher tried to do by generous presentation of various reading materials, just enough to get them interested. Many of the students' comments in the anonymous questionnaire given at the end of the year revealed that students appreciated that step. Other means taken to increase readiness, i.e. in those students who heretofore had not developed a love of reading, were group discussions on readings and occasional reports, usually by volunteers; frequent commendations on the attempts of any of the students, especially the slow; and encouraging the students to make wise selections of reading materials within their levels.

A list of stereotypes and cliches was given to the students. Some of them were amused to find out that such expressions were undesirable. They would have considered themselves fortunate to have the ability to use what appeared at first glance to be choice vocabulary (See Appendix XXIII).

The four types of composition (discourse) were explained (See page 124). Selections in literature were often classified according to narration, argumentation, description, and exposition. Students were informed that this ability is basic for critical reading especially for the detection of propaganda. So that students would not confuse these with the four forms of discourse, as defined by Ashley, explanations of the latter were also duplicated (See Appendix XXIII). Simple charts that outlined the function of the types and forms of discourse were made for each of the experimental classes (See pages 124 and 125).

During the second semester, after the students were exposed to some extent to the various skills previously described, they were given drill
Types of Discourse

Poetic

Rhetorical

Dialectical

Demonstrative

FIGURE 7

SAMPLE OF CHART EXPLAINING TYPES OF DISCOURSE
FORMS OF DISCOURSE

NARRATION
Relating a story

DESCRIPTION
Presenting a picture

ARGUMENTATION
Trying to convince

EXPOSITION
Explaining

FIGURE 8
SAMPLE OF CHART EXPLAINING THE FORMS OF DISCOURSE
exercises based upon clippings found in the daily newspapers. These were duplicated and distributed to them (See Appendix XXIII). After studying a few of these exercises, they were challenged to look through timely mass media of communication and choose clippings for individual study. Copies of questions similar to the ones found in the drill exercises that were used in class were distributed to them. Four different sets of questions were made. These were similar to the ones found in Appendix XXIII. This was done to vary the questions and to avoid monotony and stereotype. Each student was expected to submit one clipping accompanied by a copy of questions correctly answered. They were encouraged to assist one another in order to insure perfection in answering the questions. Motivation was supplied by telling the students that their work would be used as drill material by the members of the class. Contrary to the teacher's expectation, the students repeatedly made comments as to the desirability of such an activity. They realized, the teacher observed through these comments, that they were becoming more interested in current events and that as they were reading about these events they were becoming more critical and analytical.

The clippings and questions that were submitted by each student were pasted to pieces of cardboard by a committee of students. The answers which were furnished by the individual students were pasted on separate pieces of cardboard. Then followed several periods of drill based on these clippings. These were distributed at random to the class. After the individual student completed reading the selection and answering the questions, she found the answers, numerically arranged, on the teacher's desk. She compared her answers with those found on the card. If she disagreed and found reason for doing so, she
wrote out an explanation for the difference in her answer and attached her explanation to the card. The next student using that card was able to benefit by the additional thinking. When many such explanations were accumulated, the teacher appointed a committee to find the reason for such divergence of opinion. This was done to help students realize that reasoning and understanding were the purpose of the exercises.

As students left the class at the end of the period, they were asked to make comments in regard to the progress they were making in mastering the skills involved in these exercises. Many of the students believed that they were making slow but constant advances. The seriousness with which they worked at these drills and the satisfaction they showed, even with a limited degree of success, convinced the teacher that learning was taking place.

"Another look" was taken at various skills of critical thinking through the reading of Shanner's booklet, A Guide to Logical Thinking. Copies of these were purchased for the use of all the students. Objectives, exercises, and guide questions for group discussions were prepared (See Appendix XXIV).

The experimenter was fascinated by a method of evaluation involving ratings, reasons, and rules—a device described by Mary Jane Aschner. This technique was explained early in the year, was frequently referred to, and was found to be beneficial in helping the students to think critically in evaluating


various kinds of materials. According to this device, students were asked to express and record statements of opinions (ratings); to record statements expressing reasons for these opinions (reasons); and to list statements made in support of the reasons (rules). A placard was posted in the classroom for a long time to act as a reminder and a guide in the use of this device (See page 129). Another such placard was:

\[ \text{STANDARDS are always involved when thinking critically.} \]

The Sunday book-review sections of the newspaper were found to be especially conducive to the use of this technique. The students learned to use these three steps in evaluating various newspaper and magazine articles, selections in their anthologies, and class activities, including the semester examination. Some of the students used this method for evaluating literary selections by means of annotation. Many students made favorable comments about this type of evaluation.

Drill Methods and Materials

The teachers believed in the necessity of drill work; drill for acquisition and drill for maintenance. Once the material was grasped clearly (a requisite for critical thinking) various methods were used to reinforce that learning. One such method was devised while the writer taught the sixth grade and, surprisingly, proved popular with seniors. When much drill material accumulated, lists of these facts were placed on the blackboard, on charts, or on the bulletin board. Especially such material was used that could be arranged in two columns, e.g. words and their definitions, figures of speech, types of
RATINGS

-- OPINIONS

REASONS

-- FOR RATINGS

RULES

-- TO SUPPORT REASONS

FIGURE 9

SAMPLE OF CHART REMINDING STUDENTS THAT STATEMENTS OF OPINION
SHOULD BE SUPPORTED BY REASONS AND RULES
composition, types of discourse, etc. Students were asked to go to these sections in groups of two to study and to recite quietly to each other, one acting as a teacher, the other as a student. They studied the material until a signal was given to proceed to the next "station." Simultaneously each section was studied by a team. Thus, as many as ten students were able to recite to ten "teachers" at one time. This they did quietly enough to allow students at their seats to continue independent study. Because the material was already explained to them and because they knew that they would be held responsible for it, learning was meaningful. There was no need to tell the classes to copy and to study it. They learned that it was profitable for them to do so.

Since verbal intelligence is highly related to general reading ability, as well as literal reading ability and critical reading ability, the teachers deemed it wise to provide much drill in the study of vocabulary. The most outstanding device was the simple method of placing words on the blackboard. Drill was varied as much as possible. Students were expected to cooperate by copying the words and definitions from the board, working out drills on duplicated sheets (See Appendix XXV), and cooperating by whatever means were feasible. Placards with diacritical markings were displayed above the chalk boards to facilitate correct pronunciation of words.

A favorite device was choosing a current topic in the daily news and selecting a few expressions necessary for the understanding of the articles written. For example, during the time of the New Orleans segregation problem, the following words were studied: litigants, legal mumbo-jumbo, bludgeon, repudiated, litigate.
Much effort was exerted to increase student's vocabulary especially as unfamiliar words occurred in the context of their literature studies. The attention of the students was called to the fact that words and expressions can be classified into various categories. A list of some of these categories was given them (See Appendix XXVI). Many of the students commented that they appreciated this attempt to help increase their vocabulary. At that age, students realize the desirability of an increased vocabulary to communicate intelligently through the spoken or printed word.

This school has its share of poor readers and the teacher expected the poor students to have much trouble not only in improving their critical reading but reading in general. Acting under the assumptions that there is a substantial relationship between the ability of literal reading and the skill of critical reading and that abilities to think in reading situations can be improved by means of appropriate educational opportunity, the teacher provided much drill for literal reading.

During the workshop one of the teachers suggested the use of a booklet published by the Keystone Education Press entitled Unit Drills for Reading Comprehension. These drills contain a high degree of specificity in the types of thinking required in different reading situations. To save time for more important things and to systematize these drill exercises, answer sheets for the drills were duplicated for all the students (See Appendix XXVII). Answer sheets for other drill materials were also supplied for all the students (See Appendix XXVIII). This was done to facilitate the handling of the answers for many of the work sheets, as well as to give students a better perspective of the work. The teachers were free to use these as they saw fit.
Learning to listen is an essential correlative of critical thinking. The theory of this skill was presented to the students in a chapter in their textbook, *English in Action* and in a unit previously published in the magazine, *Practical English*, of which the class had sixty copies. Immediate practice was initially given with the help of an article presented in The Clearing House in which Vivian Zinkin used a lecture on a topic that was rather unfamiliar to most students, "John Dryden as a Journalist." After some of the difficult words were explained to the class, the long "lecture" was read. This was followed by three questions that tested students' knowledge of the central idea of the talk and specific facts learned about the man. The students were then asked to evaluate this method of learning. Regular classroom procedures afforded many opportunities for such drill for attentive and critical thinking.

**The Function of Language**

The subject matter of language includes much more than composition, grammar, reading, and speech. Accordingly, some study was made of the media of mass communication: motion pictures, film strips, radio, and television. An attempt was made to include an elementary theory of symbols, a topic which is typically considered proper subject matter of certain branches of philosophy, such as logic and semantics.

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The list of the kinds of words and expressions, explained above, helped the students to understand the interrelationship of speaker-author, listener-reader, words-symbols, and their references. A colorful chart, which was conspicuously displayed in each of the experimental classrooms, explained that relationship to the students (See page 134). Further study of this topic of semantics was aided by the presentation of the main ideas presented by Philbrick and condensed (with the permission of the publishers) on sheets for the students (See Appendix XXIX).

Part Two of Black's book, Critical Thinking, was considered valuable for helping students understand the role of language in communication. The publishers gave permission for the duplication of outlines (See Appendix XXX) on the "Uses of Language," "Ambiguity," and "Definition." Volunteer students explained the materials to the classes. Students who were planning to enter the teaching profession were especially encouraged to act as student teachers.

The students found the study of "goobledygoock," as explained by Stuart Chase in The Power of Words,15 interesting and informative as well as amusing.

In order to have students realize that tricks of oratory are forms of deceit, a section devoted to eloquence of H. R. Huse's book, The Illiteracy of the Literate16 was read to them.

One of the first aspects in the study of critical thinking was that of bias. Philbrick's Understanding English was used as a basic source.

FIGURE 10

SAMPLE OF CHART EXPLAINING THE RELATIONSHIP OF AUTHOR-SPEAKER TO READER-LISTENER THROUGH THE USE OF WORDS AND THEIR REFERENTS
Macmillan Publishing Company was asked for permission for the duplication of two pages of work based on Philbrick's explanation of the indication of bias. This work proved very helpful. A list of the methods of indicating bias was kept on the class bulletin for several months, and it was frequently consulted. Practice in detecting bias, according to the methods studied, was given through the study of the court scene in *The Merchant of Venice* and in Mark Anthony's speech in *Julius Caesar* (See Appendix XXXI).

The teachers were convinced that the school can perform an important social service by teaching the students how to read the newspaper and other forms of mass media of communication, since these are the most impressive molders of public opinions, attitudes, and values. Most readers are fairly naive, with the result that certain newspapers constitute a real menace to intelligent citizenship. It is important too, the teachers felt, for the students to become accustomed to a variety of sources in informing themselves on current affairs for that is the most efficient way to secure all shades of opinion on controversial issues.

As suggested by *Public Opinion*, an Encyclopedia Britannica film, which the students viewed, a communication analysis was assigned (See Appendix XXXII). The students were directed to choose one topic for particular study. Special emphasis was placed upon finding biased and unbiased statements contained in editorials or news articles, upon the arrangement of the selections, and upon the amount of space given to topics. The timely topic of presidential elections made this study interesting and meaningful. Some students chose the topic of the Cuban situation. In one column they entered the source and date of information and in another they checked whether this material was neutral,
favorable, or unfavorable. Originality was encouraged. The results were gra-
tifying. If one can judge by student comments, this was one of the most pre-
fitable activities of the year.

These various exercises conducted for the study of language and its impli-
cation in communication prepared the students to attend a symposium for high
school students of Chicagoland sponsored by Loyola University on April 27, 1961.
The Symposium was entitled "Goals and Ideals in Mass Communications Careers."
Its purpose was to encourage an ethical outlook in the minds of students who
are interested in entering mass communications careers such as radio-television,
public relations, and journalism.

Some of the students from the journalism class attended the annual meeting
in journalism in Milwaukee. They shared with the rest of their classmates some
of the things they learned. They received copies of Ten Rules for More Profit-
able Reading of Newspapers and Magazines which were distributed to them through
the courtesy of the Ave Maria Press. These were discussed and a copy of the
rules was placed on the bulletin board for individual study.

The study of language was extended to include the topic of advertising.
Sister Marie Emmanuel's article "Adventures in Adland" in the November, 1960,
issue of Today magazine presented a challenge for recognizing advertising for
what it is. The students were given a chance to compare Sister's article with
Vance Packard's book, The Hidden Persuaders. They were encouraged to study
these two sources in light of Benedict Ashley's treatment of the subject in
his book The Art of Learning and Communication.

Another such comparison was presented to the students with the following
Hoover, *Masters of Deceit*; Pius XI, "Divini Redemptoris" (Encyclical on Atheistic Communism).

Maria Augusta Trapp's *The Story of the Trapp Family Singers* provided another excellent opportunity for productive thinking. The students were asked to apply the principles listed in Thomas Neil's "Formation in the Family" from the December, 1960 issue of the *Today* magazine to the lives of the Trapp family members.

Because the students were expected not only to read the selection but to compare or contrast the ideas presented in the various sources, they were motivated to read thoughtfully and to learn in the sense of discovery and not in the sense of storing away. Such an assignment called for a meaningful analysis, a critical evaluation, and a new presentation of the material. This process was novel on the part of each student despite the fact that many students came to the same or similar conclusions. Most of the students fulfilled the above assignment by stating principles as given in one selection and applying these principles to facts or incidents in another selection. Productive thinking was possible, and an examination of the students' work proved that it was actual, on the part of even the poorer students.

Another means of encouraging thinking, as well as giving proof for it, is the writing of compositions when these are done in a meaningful manner. The seniors in these experimental classes were typical students. They did not relish an assignment that called for the writing of a composition. This is not surprising since effort and concentration are necessary. Composition by its very nature is a means of developing the power and habit of thinking. Words and ideas are closely involved; the psychology of the thinking process
is the psychology of composition. Through composition students can learn to handle ideas and combine and reorganize them in endless, new combinations.

Great care was taken to have composition work become meaningful to the students by sufficiently explaining and discussing the topic, by presenting thought-provoking questions, and by assigning functional work. The latter was achieved by such work as working out a problem connected with literature; writing evaluative letters to classmates and teachers; and writing letters of a rhetorical nature to congressmen.

The teacher took for granted that by the time the students became seniors in high school, they were exposed to the study of letter writing. However, the students had an opportunity to review the qualities of a good letter by studying that subject independently in their text-books. A practical application was given to them by asking for evaluations of the contents of the course. This gave them an opportunity to evaluate their work, to offer suggestions for continuing or improving the classes, and to express themselves through empathic writing. The teacher, in turn evaluated the student's letter and briefly answered them individually. Having received the student's consent, the teacher read one of the letters for the purpose of studying its objectivity and subjectivity, stressing the fact that even subjective evaluation should have enough objective facts upon which opinion is to be based.

To help students help themselves to write good compositions, a check-list was presented to them at the beginning of the year (See Appendix XXXIII). Another measure was taken to aid in stimulating thought and to help overcome the usual carelessness found in students' themes. Errors had to be corrected. These corrections had to be accompanied by the rules that were violated. By
means of such a procedure students used their grammar books in a functional manner in the interest of correcting their own errors. Attention was given to proper mechanics of writing, but care was taken to avoid slavish submission to mechanical perfection. This was done by emphasizing the content, that is, by showing an appreciation for ideas and by recognizing originality in presenting ideas.

For a greater possibility of mastering skills of good composition work, students were allowed to read their compositions to one another in small groups. At other times they read one another's work and wrote comments to the respective student-authors about the work. Realizing that their work might be evaluated not only by the teacher but also by their peers, students were challenged to do good work.

In spite of recent expressions in regard to the undesirability of essay contests, the experimenter is a firm believer that students can profitably participate in such competitive activities without exposing themselves and their school to undesirable effects. She believes that contests can be entered without being a forced competition growing from an unnatural situation, without tending to over-emphasize one form of expression, without interrupting the carefully planned program of the school, without inviting plagiarism, without encouraging the public to judge the quality of the school by the number of contest winners, and without throwing most of the operational burden upon teachers.  

According to these convictions, the experimenter prepared to have the more able students enter a contest sponsored by the Chicago Junior Association of Commerce and Industry. The students were asked to express their own ideas about our form of government in 200 or 300 words giving their interpretation of any particular phase or presenting in general terms an over-all aspect of our government, connecting the present with the past. Free expression and originality were encouraged. The papers were judged on the basis of originality of ideas, content of theme, and composition (organization, grammar, neatness). The students who were to participate in this essay contest were chosen by the teacher on the basis of ability, achievement, and interest. Several students who were not selected but who desired to join the group were allowed to do so. Some class time was given them to consult references placed on the reserve shelf by the librarian. During this time the slower students were given help in some areas in which they needed practice. One tangible effect of this activity was a picture in a Chicago newspaper accompanied by the following caption, "Lourdes High School students took first and second place in essay contest on 'Our Democratic Heritage'... Contest, open to all Chicago students, which drew close to 4,000 entries."

The viewing of films gives the teacher another excellent opportunity for establishing critical standards. A film that was shown to the teachers during the summer workshop and to the students during the experiment was Pressure Groups. This activity encouraged discussions about such topics as the difference between political and pressure groups; the desirability of pressure groups; reasons and conditions that make pressure groups common in modern democratic systems of government; basic assumptions for pressure groups to exist;
and the kind of education that is desirable in a democracy. The students were
given practice in making constructive use of their knowledge of pressure groups
by writing letters to congressmen concerning several issues that called for ex-
pression, such as the federal aid to education bill.

The film Public Opinion, another Encyclopedia Britannica film, was used to
convince the students of the necessity of an enlightened public and of the desi-
rability of developing facility in communication for intelligent action in the
face of tensions.

A study of discussion techniques was a natural consequent to the film
Discussion Techniques, also an Encyclopedia Britannica film, which presented
several types of discussion techniques as used by the United States Army. This
film provided a common understanding for all students; they were able to use
this information to help them in their various discussions during the year.

Probably the film that was most beneficial for the study of critical think-
ing was Propaganda Techniques, a Coronet Film. The six techniques (glittering
generalities, transfer, name calling, card-stacking, plain folks, and band
wagon) were explained very clearly in the film. The work in the students' text-
book became much more meaningful, and the campaigning prior to the presidential
elections gave the students many opportunities to study the presence or ab-
sence of these devices.

Films were used in another way. They were studied as entertaining features.
While attending the summer workshop, at Loyola, the teachers of the experimental
class received outlines for evaluating films. Dr. Donald Costello permitted the
use and duplication of these outlines (See Appendix XXXIV). Before the stu-
dents were shown the film, The Search, they were prepared for it by discussing
several of the points contained in these outlines distributed to them previously. Many students expressed gratitude for this "new" insight into viewing movies.

Good television programs were encouraged. Among these were several classic plays and Bishop Sheen's Sunday afternoon programs. To encourage intelligent viewing and listening, special credit was offered to these students who could supplement the program by answering some questions. An example of such an exercise is found in Appendix XXXV.

A fine opportunity presented itself for reviewing some of the aspects of the medium of films in studying filmstrips on guidance and in writing short essays on the subject "How the Contest Filmstrip Helped Me to Learn the Lesson." This type of composition work called for the use of critical evaluations of the medium and of the content.

Summary Project

In keeping with the assumption basic to this study, namely, that best results in critical thinking are attained when students are aware of the aims of the course, the students in the experimental classes were periodically given a chance to make a critical study of their achievements. In April, for example, they were invited to make a retrospection by a special summary assignment. A letter (See Appendix XXXVI) which explained the assignment was distributed to them. The brighter students were challenged to write a term paper. About one-fifth of the students took the challenge. This they did in lieu of the summary project.

Semantica, a recent addition to the Houghton Mifflin Research Series was a valuable tool in the hands of these novices. The aim of the small book is to
"pack into these pages enough central documentary material to give useful practice in choosing a limited topic within a broader area, scanning a large body of material, and hence in learning to reject that which is not immediately relevant and to select that which is."\textsuperscript{18} Ten copies were made available for the use of the students.

The projects submitted gave evidence of the fact that the students gained much from the experiment. After consulting with the other teachers involved in the experiment, the experimenter proposed the possibility of compiling some of the materials of this summary project into a scrapbook to be sent to Freedom Foundation of Valley Forge, Pennsylvania, a non-political, non-sectarian, non-profit organization established for the purpose of constructively promoting the American way of life. The teachers agreed that teaching students to think critically is an essential requisite for the American way of life. A committee of students volunteered to work on the scrapbook during the summer months. They completed the project with ample time to meet the deadline, November 1.

Conclusion

The reader has by now most likely come to the conclusion that there was nothing spectacular about the procedures described in this chapter. Teaching to think is not something spectacular. As understood in this study it is composed of numerous, diverse, but specific and specialized activities so integrated within the context of the subject matter to provide ample opportunity for critical thinking. Evaluation of this study was made through several media. The following chapter is devoted to a description of these processes.

\textsuperscript{18} Kelly Thurman, ed., Semantics (Boston, 1960).
CHAPTER VI

EVALUATION OF THE RESULTS OF THE EXPERIMENT

The Design of the Experiment

The central problem of this study was three-fold: to ascertain whether, to what extent and by what instructional method critical thinking can be taught to high school seniors within the context of the usual language arts program. The hypotheses upon which this study was based and which guided the research were these: critical thinking consists of varied, specific skills which can be acquired; these skills are separable and measurable; it is possible to train students in some of the skills needed for critical thinking in an English IV language arts program in high school by using the usual content of the course; students as well as teachers need to realize the need of the skills of critical thinking and to strive consciously for the attainment of said skills which are made to permeate the entire language arts program.

The fundamental purpose of the statistical phase of the experimental research was to discover the effects of specific variations in training students to think critically. The precision of this experiment depended upon the degree to which the observed differences in results of the groups were due only to differences which have been deliberately introduced into the treatments. In planning the experiments, therefore, care was taken to avoid any irrelevant characteristics of procedure, other than the deliberate variations in the experimental variable that would systematically affect the differences between treatments.
Another factor which determined the precision of the experiment was the extent to which the criterion measures really measured the things which they were intended to measure. The Watson-Glaser Critical Thinking Appraisal (Forms A and B) and the Dressel-Mayhew Test of critical thinking were chosen as the criterion measures. These were considered the most valid testing instruments available at the present time.

Since the items in the Dressel-Mayhew Test more closely tested the content of an English class, the test was more valid from the standpoint of curricular validity than was the Watson-Glaser Critical Thinking Appraisal. The latter has a very legitimate, but a somewhat less immediate and less direct, relationship to an English language arts program. The five skills tested by means of this appraisal are highly abstract.

Considering that a conscious effort was made on the part of students as well as teachers to develop skills of critical thinking for methods described in this study, it would seem that some improvement in these skills should have been made. Results that would be far from significant might suggest that the evaluating instruments were invalid or inconsistent, that improper methods of instruction were chosen, or that the task is impossible of achievement. The Cooperative Reading Test (Forms Y and Z) was administered to evaluate the extent to which the students were meeting other important objectives of the course.

The factors which may conceivably affect the results of experimental research are ordinarily too numerous and complex to permit the identification of all of them and no presumption was made that absolute precision was obtained. Nevertheless, a serious attempt was made to design the experiment in such a way that it would provide for an objective and dependable estimate of error. Two
major sources of error of experimenting had to be considered. The first one was the possibility that the control and the experimental groups might have been unlike each other in their ability to profit by instruction in critical thinking that the observed differences in results might have been due entirely to differences in the groups themselves, rather than in the method of instruction. An examination of the descriptive statistics which follow reveals that the possibility of this estimate of error was negligible.

The second possible source of error was that, in spite of precautions taken, other factors than those involved in the treatments might have been permitted to vary from one group to the other during the course of the experiment and that these uncontrolled variations alone or in part accounted for the differences observed. The experiment was designed in such a manner as to eliminate such a possibility by controlling the variables through the following measures.

The effect of the individual instructor was eliminated to a great extent in the experimental design. As far as possible the same teachers taught both the control and the experimental groups within the same school. In five out of the sixteen classes upon which the statistical analysis is based the same teacher did not teach both groups, the control and the experimental, for reasons beyond the control of the investigator. The teacher of the control group in School B was offered a scholarship for advanced study; the scholarship could hardly have been refused without a loss to the school. This accounted for four classes. The fifth class was one of those in School D. The teacher who taught one of the classes in the control group was unable to attend the summer workshop because of advanced studies. In both instances the teacher who taught the experimental group had similar experience and academic background so that
the teacher variable was not seriously, if at all, affected. It can be assumed that each instructor taught both experimental and control groups to the best of her ability. Any differences in motivation would seem to be canceled by her undoubtedly greater skill and experience in teaching the control group, that is, the one taught by the traditional method. If a transfer of a teacher took place which was beyond the control of the experimenter, a teacher with equivalent qualifications was chosen. It seems logical that a teacher having a similar background of training and experience and using similar methods and materials would achieve similar results. The uniformity of time schedules, of testing conditions, and of course content also aided in attaining objectivity. The summer workshop, the duplication of materials, the sharing of materials, and other administrative procedures, as previously described, helped to attain uniformity and to establish systematically the independent variable.

In order to be able to say with some degree of finality that teaching high school students varied, specific, separable, and measurable skills of critical thinking is possible within the context of the usual subject matter of the course of English IV, it was necessary to set up experimental conditions which would yield reliable data. The dependability and meaningfulness of any conclusions drawn from such research must, of course, depend upon the dependability and meaningfulness of the original data upon which the conclusions are based.

All the seniors attending the four high schools of the Wisconsin and Chicago provinces of the Sisters of Saint Joseph of the Third Order of Saint Francis participated in the experiment. The students of the scholastic year of 1959-60 constituted the control group; those of 1960-61 year constituted the experimental group. A whole year of instruction was considered long enough for
detecting appreciable differences. The "treatment" of the control group was simple procedure. It consisted of administering two tests in September and three in May. The purpose of these was to measure gains that occurred under the usual traditional method of teaching.

To insure a smooth running program and to secure the professional interest and cooperation of the teachers of the experimental group, a six-week workshop was held during the summer of 1960. The primary purpose of this workshop was three-fold: (1) to acquaint the participants with the nature of the experiment, (2) to study the philosophy and psychology basic to this study, and (3) to devise curricular methods and materials to be used. The instruction of the experimental group during 1960-61 proceeded according to the curricular plans determined at the summer workshop.

When the instruction and the final testing of the experimental group were completed, the results were studied and are hereby reported in two sections: descriptive statistics, involving the results of the tests of the entire student population in both the control and experimental groups; sampling statistics, which were obtained through a process of random sampling and used in an analysis of variance technique. The latter is a statistical method of segregating from comparable groups of data the variance in the dependent variable traceable to specified classes of groups.

Both the descriptive and sampling statistics are presented by means of tables accompanied by verbal explanations. Tables I-V present the statistical data descriptive of all the students participating in the experiment; tables VI-XI present sampling statistics that were used to determine the level of significance of the difference between the means of the control and experimental groups.
Descriptive Statistics

An examination of Table I on this page points out that 546 seniors in fifteen classes composed the control group; 531 seniors in fourteen classes composed the experimental group.

TABLE I

NUMBER OF CLASSES AND NUMBER OF STUDENTS BY SCHOOL AND CONTROL AND EXPERIMENTAL GROUPS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Number of Classes</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3 4</td>
<td>87 107</td>
</tr>
<tr>
<td>B</td>
<td>2 2</td>
<td>91 63</td>
</tr>
<tr>
<td>C</td>
<td>6 5</td>
<td>228 189</td>
</tr>
<tr>
<td>D</td>
<td>4 3</td>
<td>140 99</td>
</tr>
<tr>
<td>Totals</td>
<td>15 14</td>
<td>546 531</td>
</tr>
</tbody>
</table>
Intelligence Quotients

The group means of intelligence quotients were similar, as Table II points out, with a difference of 2.3 points favoring the experimental group.

TABLE II
MEANS OF OTIS INTELLIGENCE QUOTIENTS OF ALL STUDENTS IN CONTROL AND EXPERIMENTAL GROUPS WITHIN SCHOOLS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>107.3</td>
<td>110.0</td>
</tr>
<tr>
<td>B</td>
<td>102.4</td>
<td>107.0</td>
</tr>
<tr>
<td>C</td>
<td>103.4</td>
<td>107.0</td>
</tr>
<tr>
<td>D</td>
<td>100.3</td>
<td>105.0</td>
</tr>
<tr>
<td>Group Means</td>
<td>104.4</td>
<td>106.7</td>
</tr>
</tbody>
</table>
Reading Test Data

Table III reveals that the control group made a gain of .6 score points in the Cooperative reading test; the experimental group's gain was 3.7 score points. The difference in means between the control and the experimental group was 4.8 points.

TABLE III

MEANS OF INITIAL AND FINAL SCORES ON COOPERATIVE READING TEST OF ALL STUDENTS IN CONTROL AND EXPERIMENTAL GROUPS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Initial</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Experimental</td>
</tr>
<tr>
<td>A</td>
<td>50.0</td>
<td>53.5</td>
</tr>
<tr>
<td>B</td>
<td>48.4</td>
<td>48.4</td>
</tr>
<tr>
<td>C</td>
<td>49.9</td>
<td>51.0</td>
</tr>
<tr>
<td>D</td>
<td>47.8</td>
<td>49.9</td>
</tr>
<tr>
<td>Group Means</td>
<td>49.0</td>
<td>50.7</td>
</tr>
</tbody>
</table>
It may surprise the reader to see, according to Table IV, that the mean of the final test scores as compared to the initial test scores for the control group in the Watson-Glaser Critical Thinking Appraisal was lower by 1.5 points. It did not surprise the investigator, however, since a similar situation obtained in a logic class which she taught during the fall of 1960 to a class of thirteen freshmen college students. This suggests questioning the reliability of the two forms of the test. It probably would have been better to use the same form twice; the length of time between testing would have dismissed fear of practice effect. The experimental group made a gain of 2.7 score points. The difference between final means for the two groups was 3.6 points in favor of the experimental group.

**TABLE IV**

**MEANS OF INITIAL AND FINAL SCORES ON WATSON-GLASER CRITICAL THINKING APPRAISAL FOR ALL STUDENTS IN CONTROL AND EXPERIMENTAL GROUPS**

<table>
<thead>
<tr>
<th>Schools</th>
<th>Initial</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Experimental</td>
</tr>
<tr>
<td>A</td>
<td>56.2</td>
<td>59.0</td>
</tr>
<tr>
<td>B</td>
<td>59.8</td>
<td>57.0</td>
</tr>
<tr>
<td>C</td>
<td>58.9</td>
<td>58.0</td>
</tr>
<tr>
<td>D</td>
<td>56.0</td>
<td>54.5</td>
</tr>
<tr>
<td>Group Means</td>
<td>57.7</td>
<td>57.1</td>
</tr>
</tbody>
</table>
Dressel-Mayhow Critical Thinking Test Data

In Table V an unusually great difference can be detected by comparing the means of the Dressel-Mayhow Test; the mean of the experimental group was 10.8 score points higher than that of the control group.

TABLE V

MEANS OF DRESSEL-MAYHOW TEST (MAY TESTING) OF CONTROL AND EXPERIMENTAL GROUPS OF THE FOUR SCHOOLS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>31.8</td>
<td>43.2</td>
</tr>
<tr>
<td>B</td>
<td>30.0</td>
<td>41.6</td>
</tr>
<tr>
<td>C</td>
<td>34.8</td>
<td>36.2</td>
</tr>
<tr>
<td>D</td>
<td>30.2</td>
<td>38.9</td>
</tr>
<tr>
<td>Group Means</td>
<td>31.7</td>
<td>42.3</td>
</tr>
</tbody>
</table>

Sampling Statistics

Matching of the experimental and control groups in each school could not be accomplished deliberately and directly by manipulating student placement. Rather, the experimental and control groups were defined as students in two consecutive academic years. Thus, the degree to which groups were matched was left to circumstances and had to be tested on a "post hoc" basis.

Sampling statistics were resorted to for the purpose of testing main effects and interaction by means of an analysis of variance technique.
Representativeness of the sample was of major concern since the derivations of
the formulas and statistical techniques to be used involve the assumption of
random selection. This was done in the following manner. From the twenty-nine
classes of the total population, sixteen were chosen for the purposes of sta-
tistical computation (two classes from each of the four schools, from the con-
trol and experimental group). The classes were first chosen on the basis of
controlling the teacher variable. In the case of School C and School D, where
two different teachers taught the control group and only one teacher taught the
experimental group in each of the schools, the classes taught by the latter
were chosen. In the case of School A where the choice of classes was possible
(because the same teacher taught both the control and the experimental group)
classes were selected on the basis of the time variable, i.e. according to the
period of the day.

From among the 1077 students participating in the experiment, 240 were
chosen for the purposes of determining the level of significance of the differ-
ence between the means of the control and the experimental groups. There were
120 students in each of the control and experimental groups. Thirty students
of each were chosen by the method of random sampling from the students of each
of the two classes. This was done in the following manner. All the students
in each of the two classes of the control and experimental groups were assigned
numbers arbitrarily according to the total number of students of those two
classes. Then with the aid of Lindquist's table of random numbers1 thirty

1E. F. Lindquist, Design and Analysis of Experiments in Psychology and
Education (Boston, 1953), pp. 385-387.
students were chosen from each school to constitute a control group and thirty an experimental group.

Thus, as a result of randomizing students, the number of experimental subjects had been reduced from 1077 to 240, that is, 120 in the control and 120 in the experimental groups with 30 students in each of the eight groups, four control and four experimental. No teacher, however, was aware that only thirty students were to be considered in each set in this analysis nor was any teacher informed about the particular design used. Every student in every class of the four schools of both years was exposed to the assigned method for the year and to the initial and final testing programs. Table VI gives a schema representing the selection of the sample.

**TABLE VI**

**SCHEMA REPRESENTING THE SELECTION OF THE SAMPLE FROM THIRTY CLASSES WITHIN THE FOUR SCHOOLS**

<table>
<thead>
<tr>
<th>Total Population</th>
<th>Random Sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>School</td>
</tr>
<tr>
<td></td>
<td>(A)</td>
</tr>
<tr>
<td></td>
<td>(B)</td>
</tr>
<tr>
<td>Control Group</td>
<td>(C)</td>
</tr>
<tr>
<td></td>
<td>(D)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1077 Students</td>
<td>(A)</td>
</tr>
<tr>
<td></td>
<td>(B)</td>
</tr>
<tr>
<td>Experimental</td>
<td>(C)</td>
</tr>
<tr>
<td>Group</td>
<td>(D)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The comparability of the experimental and control groups was tested on three variables. These were IQ, Reading Comprehension, and Watson-Glaser Critical Thinking. In reporting the results of these pretests the term "methods" will refer to the experimental and control groups, while "schools" refer to the four schools in the study.

A two-way factorial design was employed with "methods" and "schools" as the main effects. The methods by schools interaction was tested in each case. Where the interaction effect proved to be non-significant, the interaction sum of squares was pooled with the within cells to yield a refined error term for the denominator of the F ratio for testing main effects. Where the interaction effect proved to be significant, the results were interpreted in accordance with the obtained probability level of the F for interaction and with the F's for each of the main effects. It is important to note that in this particular study, since the methods and schools were not chosen at random from a large population, a significant mean square for interaction could not be used as the error term to test main effects. A case parallel to the one in the present study is described by Barr, Davis, and Johnson.²

Intelligence Quotients

Table VII presents the means and the standard deviations of the intelligence quotients of the randomly selected students of the control and the experimental groups of the four schools. The means of intelligent quotients differed by only one point. The standard deviations, as measures of dispersion, point out similarities of the groups in that regard also.

**TABLE VII**
MEANS AND STANDARD DEVIATIONS OF OTIS INTELLIGENCE QUOTIENTS OF THE CONTROL AND EXPERIMENTAL GROUPS EACH CONSISTING OF THIRTY STUDENTS CHOSEN BY RANDOM SAMPLING WITHIN THE FOUR SCHOOLS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Control Group</th>
<th>Experimental Group</th>
<th>School Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>106.90</td>
<td>8.25</td>
<td>110.67</td>
</tr>
<tr>
<td>A</td>
<td>103.77</td>
<td>8.83</td>
<td>103.73</td>
</tr>
<tr>
<td>B</td>
<td>103.57</td>
<td>12.24</td>
<td>104.17</td>
</tr>
<tr>
<td>C</td>
<td>100.67</td>
<td>10.05</td>
<td>100.40</td>
</tr>
<tr>
<td>D</td>
<td>103.73</td>
<td>9.79</td>
<td>104.74</td>
</tr>
<tr>
<td>Group Means</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tests of significance for the IQ data of Table VII showed no difference between methods groups. Schools showed significant difference at the .01 level. The interaction was non-significant. Therefore, we conclude that the methods groups were well matched on I.Q.
By studying Table VIII we can conclude that the difference between the initial and final means of the control group for the Cooperative reading test was 1.4 score points; for the experimental group it was 2.6. The difference in gains in the final testing for the two groups was 2.7, favoring the experimental group.

**TABLE VIII**

MEANS OF INITIAL AND FINAL TEST SCORES OF COOPERATIVE READING TEST OF THIRTY STUDENTS CHOSEN BY RANDOM SAMPLING WITHIN CONTROL AND EXPERIMENTAL GROUPS WITHIN EACH OF THE FOUR SCHOOLS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Initial</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Experimental</td>
</tr>
<tr>
<td>A</td>
<td>47.8</td>
<td>53.4</td>
</tr>
<tr>
<td>B</td>
<td>47.8</td>
<td>47.6</td>
</tr>
<tr>
<td>C</td>
<td>50.6</td>
<td>50.5</td>
</tr>
<tr>
<td>D</td>
<td>48.5</td>
<td>49.6</td>
</tr>
<tr>
<td>Group Means</td>
<td>48.7</td>
<td>50.2</td>
</tr>
</tbody>
</table>

The initial reading data of Table VIII showed no significant differences of any kind. Therefore, we conclude that methods groups were well matched on reading comprehension.
Watson-Glaser Critical Thinking Test Data

An examination of the means as presented in Table IX points out that the experimental group made a gain of 2.4 points as compared to -2.8 points made by the control group. The difference of the means of the two groups in the final testing was 2.9 points in favor of the experimental group.

TABLE IX

MEANS OF INITIAL AND FINAL TEST SCORES OF WATSON-GLASER CRITICAL THINKING APPRAISAL OF THIRTY STUDENTS CHOSEN BY RANDOM SAMPLING WITHIN CONTROL AND EXPERIMENTAL GROUPS OF EACH OF THE FOUR SCHOOLS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Initial</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Experimental</td>
</tr>
<tr>
<td>A</td>
<td>55.8</td>
<td>58.1</td>
</tr>
<tr>
<td>B</td>
<td>60.0</td>
<td>58.8</td>
</tr>
<tr>
<td>C</td>
<td>60.8</td>
<td>56.8</td>
</tr>
<tr>
<td>D</td>
<td>58.5</td>
<td>52.2</td>
</tr>
<tr>
<td>Group Means</td>
<td>58.8</td>
<td>56.5</td>
</tr>
</tbody>
</table>

The initial Watson-Glaser data of Table IX showed small differences, significant at the .05 level, between methods. The schools and interaction effects were non-significant. Therefore, we conclude that groups were slightly mismatched on Watson-Glaser.
In summary, with regard to matching on the three variables, matching was found to be very adequate on IQ and Reading. Matching on Critical Thinking, although not perfect, would not seem to be a serious flaw when one considers (1) the low probability level at which F was rejected (i.e. the .05 level) and (2) the fact that the Watson-Glasser is a relatively unreliable test.

Dressel-Mayhew Critical Thinking Test Data

The difference between the means of the control and the experimental groups in the Dressel-Mayhew Test taken in May was 9.6 points in favor of the experimental group.

TABLE X

MEANS OF DRESSEL-MAYHEW TEST SCORES (MAY TESTING) OF THIRTY STUDENTS CHOSEN BY RANDOM SAMPLING WITHIN CONTROL AND EXPERIMENTAL GROUPS OF EACH OF THE FOUR SCHOOLS

<table>
<thead>
<tr>
<th>Schools</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>27.5</td>
<td>42.0</td>
</tr>
<tr>
<td>B</td>
<td>27.1</td>
<td>38.8</td>
</tr>
<tr>
<td>C</td>
<td>39.6</td>
<td>45.5</td>
</tr>
<tr>
<td>D</td>
<td>30.3</td>
<td>38.5</td>
</tr>
<tr>
<td>Group Means</td>
<td>31.1</td>
<td>40.7</td>
</tr>
</tbody>
</table>
The outcomes of the experiment are shown by differences among subgroups in reading and in critical thinking on two criterion variables, the final Watson-Glaser and the Dressel-Mayhew Test. The means for subgroups in the cells classified by methods and schools are shown for the three tests in Table VIII, Table IX, and Table X, respectively.

Analysis of the data for final reading in Table VIII showed patterns of control mean versus experimental mean similar in kind to the comparable patterns for the initial reading data. To wit, the means for control and experimental subgroups by schools separately in the initial reading data showed relatively smaller differences for schools B and C but relatively larger differences in favor of the experimental groups in schools A and D. It will be remembered that none of these initial differences was significant. In the final reading data the differences between control and experimental subgroup means were relatively smaller in schools B and C, favoring the control group. For schools A and D the differences again favored the experimental as in the initial data but were much more pronounced. The differences were significant in the final data as shown in Table XIIa.

### TABLE XIIa

**SUMMARY ANALYSIS OF VARIANCE TABLE FOR FINAL READING TEST DATA**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>421.3500</td>
<td>1</td>
<td>421.3500</td>
<td>4.673</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Schools</td>
<td>809.3000</td>
<td>3</td>
<td>269.7667</td>
<td>2.992</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>M x S</td>
<td>1,355.3500</td>
<td>3</td>
<td>451.7833</td>
<td>5.011</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>Within Cells</td>
<td>20,916.9334</td>
<td>232</td>
<td>90.1592</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23,502.9334</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analysis of the final Watson-Glaser data in Table IX showed no differences on either methods or schools, as indicated in Table XIIb.

**TABLE XIIb**

**SUMMARY ANALYSIS OF VARIANCE TABLE FOR FINAL WATSON-GLASER CRITICAL THINKING TEST DATA**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>144.1500</td>
<td>1</td>
<td>144.1500</td>
<td>2.056</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Schools</td>
<td>174.6333</td>
<td>3</td>
<td>58.2111</td>
<td>___</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>M x S</td>
<td>620.0853</td>
<td>3</td>
<td>206.6944</td>
<td>2.949</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Within Cells</td>
<td>16,262.7334</td>
<td>232</td>
<td>70.0980</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17,201.6000</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although the statistical results are clear-cut, the practical implications are not so clear. The Watson-Glaser proved to be an unreliable measure as shown by the lower scores on the final as compared with initial for the control group. It is not clear whether the non-significant difference in final Watson-Glaser scores between experimental and control groups is due to the slight initial differences, due to the unreliability of the test, or due to the insensitivity of the test to real changes in critical thinking.

Analysis of the Dressel-Mayhew data in Table X showed large, significant differences between methods and among schools. The methods by schools interaction was small but significant. The experimental method is favored in every school. The interaction may be explained by the fact that the experimental method was relatively more effective in schools A and B than in schools C and D.
TABLE XIIc
SUMMARY ANALYSIS OF VARIANCE TABLE FOR DRESSEL-MAYHEW CRITICAL THINKING TEST DATA

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>6,667.6042</td>
<td>1</td>
<td>6,667.6042</td>
<td>77.252</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Schools</td>
<td>3,327.7459</td>
<td>3</td>
<td>1,109.2486</td>
<td>12.852</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>MS x S</td>
<td>700.1797</td>
<td>3</td>
<td>233.3932</td>
<td>2.704</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Within Cells</td>
<td>20,023.9661</td>
<td>232</td>
<td>86.3101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30,719.4959</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary of Statistical Data

Descriptive statistics and sampling statistics point out the fact that the experimental group was found superior to the control group in the final testing. It was noted that the greatest gains were made by the experimental group in the Dres dell-Mayhew Test, with a significant difference at the .001 level; next in the Cooperative Reading Test, with a significant difference at the .05 level; and finally in the Watson-Glaser Critical Thinking Appraisal, where the difference favored, though not at a significant level, the experimental group. Thus the hypotheses of this study were verified: a conscious effort to teach and learn the varied, specific, separable, and measurable skills needed for critical thinking by methods as described in this experiment can result in significant gains made according to the criterion measures described here. If non-experimental factors have been adequately controlled—and great efforts were expended to do so—the difference in achievements as measured by the final tests may be ascribed to the difference in methods of instruction, that is, that the experimental method as compared to the traditional one is a better method of teaching for critical thinking. An application of
the principles basic to this study lead to more effective instruction than do the features of the control method. Through the employment of instructional activities guided by the experimental method, students can make substantially greater progress in developing the specified abilities in the area of critical thinking than they do under the usual traditional procedure.

Questionnaires

The experimenter considered the minds of seniors to be sufficiently analytical and mature to be able to evaluate the work of the year objectively enough so that their evaluations might be used as a part of a total evaluation of the experiment. A questionnaire (See Appendix XXXVII) was designed which was intended to present the students' point of view in regard to the amount of good reading done during the year, its comparison with reading done during the three preceding years, the reasons for the change in amount or lack of change, and the influence of the English IV class upon their reading of current events. The evaluation sheet also provided a check list by which students were to compare the amount of work of their senior year with that of the other three years. This comparison was made in regard to the reading of the literature textbook; work connected with the literature book; work in grammar, correct usage, punctuation; composition work, the number of assignments or the amount of work in class; and the extent of interest and challenge aroused. The final part of the questionnaire asked whether the students had any comments to make about the year's English class. Sufficient time was given them to answer these questionnaires during class time. Table XII on the following page summarizes the answers of questions 1, 2, and 4 for each of the four schools.
TABLE XII

RESPONSES OF STUDENTS TO QUESTIONS 1, 2, and 4 OF QUESTIONNAIRE (May, 1961)

1. How much reading of good material (books, magazines, newspaper, etc.) did you do this year?

<table>
<thead>
<tr>
<th>School</th>
<th>Little</th>
<th>Average</th>
<th>Much</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13%</td>
<td>25%</td>
<td>45%</td>
<td>17%</td>
</tr>
<tr>
<td>B</td>
<td>9%</td>
<td>49%</td>
<td>33%</td>
<td>9%</td>
</tr>
<tr>
<td>C</td>
<td>1%</td>
<td>36%</td>
<td>48%</td>
<td>15%</td>
</tr>
<tr>
<td>D</td>
<td>27%</td>
<td>48%</td>
<td>22%</td>
<td>3%</td>
</tr>
<tr>
<td>Means</td>
<td>12%</td>
<td>39%</td>
<td>37%</td>
<td>11%</td>
</tr>
</tbody>
</table>

2. How does this compare with the amount of reading you did in the last three years?

<table>
<thead>
<tr>
<th>School</th>
<th>Less this year than other years</th>
<th>About the same</th>
<th>More this year than other years</th>
<th>Much more this year than other years</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11%</td>
<td>13%</td>
<td>49%</td>
<td>27%</td>
</tr>
<tr>
<td>B</td>
<td>27%</td>
<td>17%</td>
<td>52%</td>
<td>4%</td>
</tr>
<tr>
<td>C</td>
<td>4%</td>
<td>13%</td>
<td>52%</td>
<td>31%</td>
</tr>
<tr>
<td>D</td>
<td>25%</td>
<td>35%</td>
<td>35%</td>
<td>5%</td>
</tr>
<tr>
<td>Means</td>
<td>17%</td>
<td>19%</td>
<td>47%</td>
<td>17%</td>
</tr>
</tbody>
</table>

3. Did the work you did in your English classes this year prompt you to familiarise yourself with the important news of the world by reading newspapers or listening to and viewing good programs?

<table>
<thead>
<tr>
<th>School</th>
<th>No influence</th>
<th>Some influence</th>
<th>Much influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2%</td>
<td>44%</td>
<td>54%</td>
</tr>
<tr>
<td>B</td>
<td>8%</td>
<td>56%</td>
<td>36%</td>
</tr>
<tr>
<td>C</td>
<td>1%</td>
<td>43%</td>
<td>96%</td>
</tr>
<tr>
<td>D</td>
<td>15%</td>
<td>54%</td>
<td>31%</td>
</tr>
<tr>
<td>Means</td>
<td>6%</td>
<td>50%</td>
<td>44%</td>
</tr>
</tbody>
</table>
Almost half of the students claimed that they did much or very much reading of good material during the course of the experimental year; two-fifths of the students did an average amount, and one-eighth did little reading. In comparison with the amount of reading done in the preceding three years, 64% of the students thought they did more or much more during the experimental year; 19% did about the same and 17% did less. When asked whether the English class had any influence on their reading of newspapers or listening to and viewing good programs, 44% answered "much influence," 50% answered "some influence," and 6% answered "no influence."

Table XIII on pages 167 and 168 presents data resulting from question 5. Even a cursory examination of this data suggests that the students judged that they did much more work this year than other years in all the areas except work in grammar, correct usage, and punctuation. Of special interest are their evaluations of the number of assignments; 73% of the students thought that the number of assignments done outside of class was larger during the experimental year than that of other years and 60% thought that the number of assignments or amount of work in class was greater than in previous years. In spite of such an appraisal, 75% of the students found the year's work more interesting and challenging than the work of other years, 19% found it as interesting and challenging, and 6% found it less so.

A summary and analysis of questions three and six as given by the students of the separate schools are presented in the following paragraphs. The number following the identification of schools refers to the total number of students answering the questionnaire within that school.
RESPONSES OF STUDENTS TO QUESTION 5 OF QUESTIONNAIRE (May, 1961)

5. Now we want you to compare the class work of this year with that of the other years of your high school.

<table>
<thead>
<tr>
<th>School</th>
<th>As much this year as other years</th>
<th>Less this year than other years</th>
<th>More this year than other years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading of the Literature Book</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>45%</td>
<td>36%</td>
<td>19%</td>
</tr>
<tr>
<td>B</td>
<td>29%</td>
<td>52%</td>
<td>19%</td>
</tr>
<tr>
<td>C</td>
<td>16%</td>
<td>1%</td>
<td>83%</td>
</tr>
<tr>
<td>D</td>
<td>27%</td>
<td>24%</td>
<td>49%</td>
</tr>
<tr>
<td>Means</td>
<td>29%</td>
<td>29%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>Work Connected with Literature Book</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>25%</td>
<td>51%</td>
<td>24%</td>
</tr>
<tr>
<td>B</td>
<td>35%</td>
<td>33%</td>
<td>32%</td>
</tr>
<tr>
<td>C</td>
<td>13%</td>
<td>3%</td>
<td>84%</td>
</tr>
<tr>
<td>D</td>
<td>31%</td>
<td>23%</td>
<td>46%</td>
</tr>
<tr>
<td>Means</td>
<td>26%</td>
<td>28%</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Work in Grammar, Correct Usage, Punctuation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>11%</td>
<td>76%</td>
<td>11%</td>
</tr>
<tr>
<td>B</td>
<td>24%</td>
<td>57%</td>
<td>19%</td>
</tr>
<tr>
<td>C</td>
<td>39%</td>
<td>32%</td>
<td>29%</td>
</tr>
<tr>
<td>D</td>
<td>36%</td>
<td>53%</td>
<td>11%</td>
</tr>
<tr>
<td>Means</td>
<td>28%</td>
<td>55%</td>
<td>17%</td>
</tr>
<tr>
<td>School</td>
<td>As much this year as other years</td>
<td>Less this year than other years</td>
<td>More this year than other years</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>A</td>
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<td>42%</td>
</tr>
<tr>
<td>B</td>
<td>52%</td>
<td>27%</td>
<td>22%</td>
</tr>
<tr>
<td>C</td>
<td>13%</td>
<td>2%</td>
<td>85%</td>
</tr>
<tr>
<td>D</td>
<td>35%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Means</td>
<td>34%</td>
<td>21%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Number of Assignments Outside of Class

<table>
<thead>
<tr>
<th>School</th>
<th>9%</th>
<th>1%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9%</td>
<td>1%</td>
<td>90%</td>
</tr>
<tr>
<td>B</td>
<td>39%</td>
<td>8%</td>
<td>57%</td>
</tr>
<tr>
<td>C</td>
<td>12%</td>
<td>2%</td>
<td>86%</td>
</tr>
<tr>
<td>D</td>
<td>31%</td>
<td>9%</td>
<td>60%</td>
</tr>
<tr>
<td>Means</td>
<td>22%</td>
<td>5%</td>
<td>73%</td>
</tr>
</tbody>
</table>

Number of Assignments or Amount of Work in Class

<table>
<thead>
<tr>
<th>School</th>
<th>21%</th>
<th>2%</th>
<th>77%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21%</td>
<td>2%</td>
<td>77%</td>
</tr>
<tr>
<td>B</td>
<td>50%</td>
<td>2%</td>
<td>48%</td>
</tr>
<tr>
<td>C</td>
<td>30%</td>
<td>6%</td>
<td>64%</td>
</tr>
<tr>
<td>D</td>
<td>34%</td>
<td>13%</td>
<td>53%</td>
</tr>
<tr>
<td>Means</td>
<td>34%</td>
<td>6%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Interest and Challenge

<table>
<thead>
<tr>
<th>School</th>
<th>13%</th>
<th>2%</th>
<th>86%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13%</td>
<td>2%</td>
<td>86%</td>
</tr>
<tr>
<td>B</td>
<td>24%</td>
<td>4%</td>
<td>72%</td>
</tr>
<tr>
<td>C</td>
<td>7%</td>
<td>1%</td>
<td>92%</td>
</tr>
<tr>
<td>D</td>
<td>34%</td>
<td>15%</td>
<td>51%</td>
</tr>
<tr>
<td>Means</td>
<td>19%</td>
<td>6%</td>
<td>73%</td>
</tr>
</tbody>
</table>

Grand Means | 27.43% | 21.43% | 51.14%
School A
(92 Students)

Question 3. Give reasons for change in amount of reading or lack of change compared to last year.

The most frequently listed reason for doing more reading (70 students) this year than last year was a greater interest in literary reading. The majority of students admitted that the work was challenging and rich in merits. Since they had been exposed and encouraged to do much outside reading, many students did independent reading in various areas. Other reasons listed were demands for reference work, the satisfaction of achievement, and interest in the topics of logic and critical thinking. The students who professed lack of change (22 students) attributed it to the fact that they did not have time for extra reading.

School B
(63 Students)

The 17 students who checked "less" and 11 students who checked "about the same" for question two gave lack of time as the predominant reason. Laziness was listed as a reason by 2 students; one answered by saying that she found it hard to concentrate and another that she had other interests. The 36 students who answered "more" or "much more" to this question gave the following reasons listed in descending order of frequency: interest and enjoyment of classes, materials, content of course; type of assignments; a realization of the need and benefits of the study.
School C
(183 Students)

The most frequently listed reason for the increase of reading, as checked by the 150 students of School C, was the fulfillment of assignments. Closely following in frequency were the following reasons: encouragement and emphasis made in class; interest and desire for, as well as enjoyment and appreciation of, good reading, independent study, and open-mindedness; and the encouragement and enthusiasm of the teacher. The 33 students who admitted that they did not increase their amount of reading attributed this to a lack of time.

School D
(88 Students)

The predominant reasons given to explain the increase in the amount of reading were interest in the material and a general interest in reading. Other reasons were a desire for knowledge, for an increase of vocabulary, for enjoyment, and for the discussion with friends. The reasons given for a lack of change in the amount of reading were a lack of time, hard or uninteresting materials, no appeal, and laziness.
Question 6. Have you any comments to make about this year's English class?

An examination of students' comments as given in answer to question six leaves the reader with the impression that the students were not at all thwarted in expressing their opinions. The complaints were of a nature to be expected of busy teenagers. These, however, were few compared to the favorable and constructive criticism expressed by an overwhelming majority of the students.

Student responses were grouped and are here presented summarily.

School A
(92 Students)

A number of the students admitted that they were confused at the beginning of the course by all the new materials. They soon realized, however, that the course was interesting, beneficial, challenging, and very different. A few students commented that they had enough work in grammar prior to their senior year and that they were happy not to have to do much in that area. The time, they thought, was well spent in learning how to think and to make their own decisions. Several students realized that this course prepared them for college and gave them an insight into reading which would benefit them for the rest of their lives. Some students took this opportunity to express gratitude to their teacher and to encourage her to continue teaching English classes in the same manner the following year.
School B
(63 Students)

Favorable criticism was given by the great majority of students in describing the course by means of the following: interesting, enjoyable classes; the use of material that was new, excellent, and abundant; classes that were different, varied, challenging, instructive, enlightening and useful for future living. Some negative criticism was offered by about one-sixth of the students. Seven students complained of confusion due to the great amount of work; five students would have preferred less work in the areas of critical thinking, three students referred to the work as "boring" and one called it a "drudgery." Seven students would have preferred more study of literature; three preferred less of it.

School C
(183 Students)

Four students in this class, too, complained that they would have liked to have done more work in the area of literature. Other students, on the other hand, observed that this was the first year in which they had managed to read the entire anthology. The remaining comments were positive in nature: the course was interesting, challenging, enjoyable, different, unique; it prepared them for college as well as for life in general. Many of them expressed gratitude for this type of instruction.
School D
(88 Students)

The majority of the comments stressed the fact that the course was different, profitable, instructive, interesting and challenging. A number of students gratefully realized its implication for future life. Several expressed regret for not working harder all year. Unfavorable criticisms were also expressed relative to the difficulty of the course and the great quantity of materials studied. Several students suggested that much of this material should be distributed among the four years of high school English.

Teacher Evaluations

A third means of evaluating the experiments and its results were reactions of the teachers who instructed the experimental group.

The teacher of School A repeatedly expressed her appreciation for being able to participate in the workshop and to teach according to the experimental method. However, she criticized the tempo of the course. She suggested a slower pace for the sake of the poor students. If less material was attempted, more attention could have been given to the formal study of literature. She considered the course to be beneficial to the students, as judged by their reactions. Of special significance to her and the students were the studies of advertising, television, and other media of communication in imparting knowledge and in establishing values. Great interest on the part of students seemed to be established; this was manifested by the comments of the juniors of the school who inquired whether such a course would be offered the following year.
The evaluations of the teacher of School B were almost identical with those of the teacher of School A. These are expressed in the following letter:

I am grateful for having been one of the teachers conducting the experiment in critical thinking. Although some of the students found the content too taxing and were unable to assimilate some of the concepts, it was satisfying to note the progress and enthusiasm of most of the students. The major objection of the group was "too much in too short a time." Since the program was heavy it was necessary to eliminate the study of several periods in English Literature.

The introduction to the various propaganda techniques in the world of advertising served as a springboard to the other aspects of critical thinking. Invariably the students were alerted to the fallacies of thinking.

The *How Come* stories spiced the demands of the experiment with subtle humor.

Indeed, both students and teacher feel that they are better prepared to live the life of a thinking citizen.

The teacher of School D was more specific in her evaluations but essentially she agreed with the other teachers:

The Ashley communications unit was very interesting and profitable to the students, but because of its extent and the limited time that could be devoted to it, they did not acquire as much benefit as they could have otherwise. Since the students did not have their own books and could not refer to them or go over the content more carefully, they missed many essential points which would have aided them in the evaluation of their work. This condition disheartened many and some resented the extra pressure placed on them.

The suggestions, outlines, and helps for the teacher facilitated instruction. However, there was a slight frustration since much of this was superimposed on an already heavy English program and the teachers tried to get in all the planned material.

Moreover, since much was required of the students more was also expected of the teacher and this was not always possible. An increase in the volume of written work made it difficult to check the papers as carefully and minutely as one would wish.
The riddles from *How Come* provoked not only deep thought but also a merry laugh, thus relaxing the tension of serious work from time to time. The Haney stories, which the students enjoyed, provided excellent exercises for the understanding of inferences.

*Jane Eyre*, *The Song at the Scaffold*, *The Trapp Family Singers*, and other literary works stimulated thought. The methods of presentation gave a new insight into the analysis and evaluation of writing, thus affording a greater appreciation of literature.

The Keystone vocabulary drills and paragraph analysis promoted more intelligent understanding of newspaper and magazine reading.

The critical thinking approach stimulated enough thought to evoke comments from students who thought that this could have been brought to them sooner than the senior year. It might have been an excellent stimulus to more serious application on their part to the study of English.

I think much good came from the experiment, but there would have been much more if there had been less to cover but more thoroughly done. The general complaint of the students referred to the shortness of time allotted to the various units of work. They would have preferred a little more emphasis and more detailed study of the assigned work.

If the reader recalls the comments of the students, he will realize that both the students and the teachers came to the same conclusion: the course was beneficial, but too much was attempted within the allotted time. The students as well as the teachers suggested that this could be remedied by distributing some of the phases of this study among the other three years of high school English, thus relieving the load considerably.

All four of the teachers of the experimental group are currently teaching their English classes according to the plans of this experiment making the adaptations suggested above.
CHAPTER VII

CONCLUSION OF THE STUDY

Summary and Implication of the Study

The development of a sound comprehensive theory and, through it, the improvement of educational practice are the primary aims of research in education. The present experimental research study isolated one phase of educational theory and practice and concerned itself with the question of whether, to what extent, and by what instructional method critical thinking can be taught to high school seniors through an English language arts program. A basic assumption of this study is that, although no subject in itself can be depended upon to improve the thinking of students, almost any subject—and that includes English—can and should aid in having students acquire that important ability whose operation is essential to personal and societal security.

An experimental study of developing critical thinking was conducted through two consecutive years, 1959-60 and 1960-61, in four high schools conducted by the religious teaching community to which the writer belongs. Three of these schools are situated in Chicago; one is in Stevens Point, Wisconsin.

All the seniors attending the four schools in which the experiment was conducted were subjects of the study. Those who were seniors during the first year of the study (546 students) formed the control group; those of the second year (531 students) constituted the experimental group. In order to make justifiable comparisons between the groups, the experiment was designed to control,
as nearly as possible, variables other than the experimental ones that might affect the teaching of critical thinking.

Within the limits of the study described here, the experiment was designed to put into practice the theory that critical thinking demands abilities that are varied, specific, separable and measurable. The characteristic feature of the experimental factor was the use of critical thinking as an integrating principle in the various areas of an English program without sacrificing the subject matter content, which was the same in the control and experimental classes of the respective schools. The educative process provided the students in the experimental group with certain opportunities for experiences that were expected to result in desirable developments. This called for a modification of procedures of instruction customarily encountered in a traditional or conventional method.

Plans for such a modification were made through a study of the abundant literature on the subject, through a pilot study, and through two summer workshops in 1959 and 1960 when concrete plans for method and materials were made for the improvement of instruction in the experimental group.

The experimental method was a distinct revolt against mere routine learning, memorization, and regurgitation; it stimulated students to rise above the routine of merely acquiring facts to the level of independent, constructive thinking and an understanding of the broader values and skills inherent in learning and thinking critically. It aimed to provide numerous opportunities to develop the ability to think reflectively in a wide variety of appropriate situations.
Specific procedures evolved from the following convictions. If critical thinking skills are to be developed in an English class, communication must become the heart of the program. Care was taken not to spend too much time in learning about language and communication with too little time left for its actual use. After becoming familiar with the specific skills, toward the attainment of which the entire program of the year was geared, students were challenged to a conscious effort to acquire those skills. Efforts were made to develop skills of communication in relation to the reading of many books which varied widely in maturity and literary value. Expository writing gave students opportunities to develop skills of thinking, but written compositions called for motivation through free oral discussion. Small group discussions were conducted for the sake of providing such stimulation and for encouraging initiative and leadership.

Through the study of definitions, types and forms of discourse, the indication of bias, fallacies, semantics, and other related topics, students were challenged to become proficient in the slow, laborious, and evolutionary process of evaluating judiciously all that they hear and read.

The various learning activities were based on the assumptions that thinking is a process, not a result; a means, not an end; that a stimulating school atmosphere is a necessary common factor for the various skills to be developed; that the skills of critical thinking must be the immediate objective which the teacher keeps in mind constantly, not just intermittently.

The experimental method was based upon a philosophy of education which emphasizes the necessity of developing students' ability to think critically. This philosophy is described in the first chapter. Obstacles to critical
thinking, the need for a proper classroom atmosphere, the possibilities of transfer of training, and a study of bias, prejudice, and propaganda are discussed in the second chapter. A review of experimental research in the area of critical thinking, as described in chapter three, reveals that considerable attention has been paid to this topic, especially within recent years, but that there is a paucity of such studies within the classroom setting.

The procedures of the present study are described in chapters four and five explaining the manner in which the curriculum of the English IV program for the teaching of the experimental group was constructed so that critical thinking became an integrating principle. A conscious effort was made continually by the teachers to have this principle permeate as much of the daily program as possible. The program was directed toward acquiring the varied, specific, separable, and measurable skills identified in the Watson-Glaser Critical Thinking Appraisal and an adaptation of a Dressel-Mayhew Test of critical thinking. These skills include the ability to make deductions, to make interpretations, to evaluate arguments; power to recognize inferences, assumptions, stereotypes, bias and emotional factors; capability to point out the main point in a selection; ability to discriminate between verifiable and unverifiable material, relevant and irrelevant data, adequacy and inadequacy of data, consistency and inconsistency of arguments; power to identify literature in regard to the forms (narrative, descriptive, argumentative, expository) and in regard to the types of discourse (demonstrative, dialectical, rhetorical, poetic); capacity to identify abstract and concrete, descriptive and ascriptive terms; and some facility in recognising propaganda techniques and common fallacies of thinking. These common fallacies and propaganda techniques were
studied in relationship to desirable habits, namely; hasty generalizations
violate the desirable habit of suspending one's judgment until sufficient evi-
dence is obtained; the propaganda techniques of misusing statistics, the "band
wagon," plain folks' talk, mob appeal, name calling, and glittering generali-
ties are violations of criticalness and intellectual honesty; the fallacies of
mistaking the cause, ignoring the question, begging the question, false analo-
gy, attacking the person, the scientific slant, the transfer and testimonial
devices violate accuracy and true relationship.

The content of the English IV course of the experimental group, except
for the experimental factor, was parallel to that of the control group within
the respective schools. The basic texts in literature and grammar were the
same. The length of the daily instructional period was identical. The teacher
variable was controlled to eliminate the possibility of bias. The time between
initial and final testing was of equal duration. A whole year of instruction
was considered extensive enough for making valid comparisons.

To help control the variables, all materials to be used by the students
were duplicated for them and distributed to the four schools by the experimen-
tor. The appendix contains specimens of the work. This work was done by spe-
cial assistants assigned to the workshop. Another assistant, an art teacher,
prepared various charts for each of the schools. This also helped to insure
uniformity in carrying out the experimental factor. Figures of these are in-
cluded in the chapter describing the procedure of the experiment.

The teachers were able to communicate with one another frequently. They
met in a group in October in which time the high school teaching members of the
religious order to which they belong met in Chicago for their annual professional
meeting. The experimenter was the chairman of the English department and conducted the session by familiarizing the rest of the teachers of the department with the experiment. This was of special interest and concern to the teachers involved in the experiment, especially the demonstration using students to exemplify the work done up to that time.

Another such meeting was held for several days during the Christmas vacation in the Wisconsin school. The teachers found this gathering necessary to insure uniformity and to discuss further the experimental factor, that is, the precise method of having critical thinking permeate as much of the materials and procedures of instruction in English as possible. In April the experimenter visited the schools to demonstrate the use of a device that evolved in the course of the experiment. Further control was insured by sharing various methods and materials, by frequent correspondence, and by submitting students' work to the experimenter.

Chapter six presents the results of the experiment through three different forms of evaluation: tests, student questionnaires, and teachers' comments. The Watson-Glaser Critical Thinking Appraisal was used as one criterion measure. Form A was used for pretesting purposes; form B was used for final testing. The final test was accompanied by an adaptation of the Dressel-Mayhey Test. Form Y and Z of the Cooperative Reading Test were administered, as initial and final tests respectively, to ascertain to what extent a language arts program which integrated its curriculum through the principle of teaching for critical thinking affected the students' reading ability.
Every student in every class of the four schools of both years (1077 students) was exposed to the assigned method for the year and to the initial and final testing program. Matching of the experimental and control groups in each of the four schools could not be accomplished deliberately and directly by manipulating student placement. Rather, a statistical computation by means of an analysis of variance technique, based on the test scores of 120 students chosen by random sampling in each of the control and experimental groups, was used to determine the effect of the experimental factor. The comparability of the groups was tested on three variables. Matching was found to be very adequate on I.Q. and reading; a slight mismatching on critical thinking would not seem to be a serious flaw when one considers (1) the low probability level at which F was rejected and (2) the fact that the Watson-Glaser is an unreliable test as shown by the lower scores on the final as compared with initial for the control group. In the final reading data the differences between the control and experimental groups were not found to be significant. However, the experimental group made greater gains than the control group with schools A and D contributing the larger gains. Although the statistical results are clearcut, the practical implications are not so clear. It is not clear whether the non-significant difference is due to the unreliability of the test or due to the insensitivity of the test to measure real changes in critical thinking. An examination of the Dressel-Mayhew data showed large significant differences between the methods and among schools both beyond the .001 level.

The descriptive and sampling statistics which analyze the results of the experiment point out the fact that the experimental groups, especially in the Dressel-Mayhew results, was found superior to the control group in the final
testing. Thus the hypotheses of this study were verified, namely, a conscious effort to teach the varied, specific, separable, and measurable skills needed for critical thinking, by methods as described in this experiment, can result in significant differences in gains made according to the criterion level described here. The difference in achievements may be ascribed to the difference in methods of instruction. A tabulation of the responses to the questionnaire which was designed to present the experimental students' point of view regarding important phases of the study and an examination of students' comments pointed out that their reading habits were favorably influenced by class instruction. The majority of them were prompted to familiarize themselves with the important news of the world, to read much literature, and to do work connected with the study of literature and composition work. Fifty-five percent of the students, however, thought that they did less work in grammar, correct usage, and punctuation than they did during the preceding year. In spite of the great increase in the number of assignments, a vast majority of these seniors found more interest and challenge in their senior English class than they did in their junior year.

A third means of evaluating the experiment and its result were the reactions of the teachers who instructed the experimental group. All teachers expressed their appreciation for being able to participate in the workshop and to teach according to the experimental method. They considered the course valuable and necessary and the materials interesting and meaningful, but they all agreed that too much was attempted within the allotted time. The students, as well as the teachers, suggested that some of the phases of the study be distributed among the other three years of high school English. All four teachers
incorporated the experimental factor into their plans for teaching English after the experiment was completed.

Since the basic content of an English IV high school course employed in this experiment is typical of that of the usual Catholic high school, it would seem logical to be able to make the following inference. An application of the experimental method relative to the basic content of literature and the usual phases of the language arts should bring about similar results in other schools. Such a generalization, however, would not be "proved" by means of this experiment.

The immediate implication of this study is that not only English IV but all the classes in English in high school can profit by considering critical thinking as an integral part of the curriculum. The techniques and the subject matter pertinent to critical thinking might be distributed among the four years. Another alternative is to offer a separate course in critical thinking. Other subjects, too, might profit by this study. Plans might be made to incorporate the skills of critical thinking in teaching these subjects.

The most urgent implication is that teachers need to be alerted and trained to teach for critical thinking. America needs teachers who are convinced that it is neither wise nor possible to give students all the answers they will need in life; who prepare their students for constant readaptation to new and different problems in this kaleidoscopic world. America needs teachers who know that the aims for thinking are not complicated, but that classroom possibilities are vast; who, through specific, direct instruction and ample opportunity for practice and drill sequentially developed provide continuity in improving the regal faculty of the intellects of their students. America needs teachers
who place so high a premium upon the ability to think critically that their students feel responsibility for thoughtful behavior, experience a keen satisfaction of self-realization upon achieving skills in critical thinking, and are able to reconcile the process and the result of critical thinking with their moral convictions.

Ruskin's statement, "The highest reward for man's toil is not what he gets for it, but what he becomes by it," can be applied to such teachers for whom, like for good Peace Corps workers, "The highest reward for teachers' toils in their efforts to teach for critical thinking is not what they or their students get from it, but what they and their students become by it."
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WATSON-GLASER
CRITICAL THINKING
APPRAISAL

Form AM

by GOODWIN WATSON
Professor of Education, Teachers College,
Columbia University

and EDWARD MAYNARD GLASER
Edward Glaser & Associates, Consulting Psychologists,
Pasadena

DIRECTIONS:

This booklet contains several different types of tests designed to find out how well you are able to reason analytically and logically.

Do not turn this page until instructed to do so. Do not make any marks on this test booklet. All answers are to be marked on the separate Answer Sheet provided. If you wish to change an answer, be sure to erase your old answer completely.
DIRECTIONS. An inference is a conclusion which a person draws from certain observed or supposed facts. Thus, from the electric light visible behind the window shades and from the sound of piano music in a house, a person might infer that someone is at home. But this inference may or may not be correct. Possibly the people in the house went out leaving the lights on, and the piano music could be coming from a radio or phonograph they left playing.

In this test each exercise begins with a statement of facts which you are to regard as true. After each statement of facts you will find several possible inferences—that is, inferences which some persons might make from the stated facts. Examine each inference separately, and make a decision as to its degree of truth or falsity.

On the Answer Sheet you will find for each inference spaces marked with the letters T, PT, ID, PF, and F. For each inference make a mark on the Answer Sheet under the appropriate letter as follows:

T — if you think the inference is definitely true; that it properly follows from the statement of facts given.

PT — if, in the light of the facts given, you think the inference is probably true; that there is better than an even chance that it is true.

ID — if you decide that there are insufficient data; that you cannot tell from the facts given whether the inference is likely to be true or false; if the facts provide no basis for judging one way or the other.

PF — if, in the light of the facts given, you think the inference is probably false; that there is better than an even chance that it is false.

F — if you think the inference is definitely false; that it is wrong, either because it misinterprets the facts given, or because it contradicts the facts or necessary inferences from those facts.

Sometimes, in deciding whether an inference is probably true or probably false, you will have to use certain commonly accepted knowledge or information which practically every person knows. This will be illustrated in the example which follows.

EXAMPLE. A thousand eighth-grade students recently attended a voluntary week-end conference in a Midwestern city. At this conference questions of race relations and means of achieving lasting world peace were chosen by the students for discussion, since these were the problems the students felt to be most vital today.

Inference 1. As a group, the students who attended this conference had a keener interest in humanitarian or broad social problems than most eighth-grade students have. [T, PT, ID, PF, F]

Here is the example; the correct answers are indicated in the block at the right.

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In the above example, inference 1 is probably true (PT) because (as is common knowledge) most eighth-grade students are not likely to evidence such serious concern with broad social problems.

Inference 2 is probably false (PF) because (common knowledge) there are relatively few eighth-grade students in the United States between 17 and 18 years of age.

Inference 3 is true (T) because there is no evidence for inference 3. Thus there are insufficient data (ID) for making a judgment in the matter.

Inference 4 is definitely false (F) because it is given in the statement of facts that race relations and means for achieving world peace were the problems discussed.

Inference 5 necessarily follows from the given facts; it therefore is true (T).

In the exercises which follow, more than one of the inferences from a given statement of facts may be true (T), or false (F), or probably true (PT), or probably false (PF), or have insufficient data (ID) to warrant any conclusion. That is, you are to consider each inference by itself.

Make a heavy black mark in the space under the letter that you think best describes each inference. If you change an answer, erase thoroughly. Make no extra marks on the answer sheet.
An English teacher arranged for the students in one of her classes to see the movie *Great Expectations*, while the students in other classes studied the book itself, without seeing the picture. Tests to measure appreciation and understanding of the story were administered immediately upon completion of each type of instruction. On all tests the class which was taught with the aid of the movie did better. The class which saw the movie became so interested that before the semester was over most of those students read the book, entirely on their own initiative.

1. The tests to measure appreciation and understanding of the story were administered both to the students who saw the picture and to those who only studied the book.

2. The children who were taught with the aid of the motion picture were required to read the book before the end of the semester.

3. Pupils who see movies instead of reading books lose interest in reading.

4. Most of the children in the class which saw the picture would have preferred to study the book *Great Expectations* in the usual way without the aid of the movie.

5. The teacher who conducted the experiment will hereafter try to use motion pictures when they are available, as an aid in teaching literary appreciation.

6. Pupils can learn more about any given subject from motion pictures than they can from books.

The first newspaper in America, edited by Ben Harris, appeared in Boston September 25, 1690, and was banned the same day by Governor Simon Bradstreet. The editor's long fight to continue his little paper and print what he wished marks an important episode in the continuing struggle to maintain a free press.

7. The editor of the first American newspaper died within a few days after his paper was banned.

8. Governor Bradstreet felt he had the legal authority to ban Ben Harris's paper.

9. The editor of this paper wrote articles against taxes of the kind which later brought about the "Boston Tea Party."

10. Ben Harris was a man of persistence in holding to some of his interests and convictions.

Some time ago a crowd gathered in Middletown, Mississippi, to hear the new president of the local Chamber of Commerce speak. He said, "I am not asking, but demanding, that labor unions accept their full share of responsibility for civic betterment and community interests. I am not asking, but demanding, that they join the Chamber of Commerce." The listening representatives of the Central Labor Unions applauded enthusiastically. Three months later all the labor unions in Middletown were represented in the Chamber of Commerce, where they served enthusiastically on committees, spoke their minds, and participated actively in the civic betterment projects.

11. Both the labor union representatives and the other members of the Chamber of Commerce came to recognize one another's problems and viewpoints better through their Chamber of Commerce contacts.

12. Labor unions' participation in the Middletown Chamber of Commerce has largely eliminated worker-management disputes in that town.

13. The active participation of the labor unions caused friction at the meetings of the Chamber of Commerce.

14. The union representatives soon regretted having accepted the invitation to participate in the Chamber of Commerce.

15. Many of the Chamber of Commerce members came to feel that their president had been unaware in asking the union representatives to join the Chamber.

16. The representatives of the Central Labor Unions joined the Chamber of Commerce against the desires of the great majority of their membership.

Studies have shown that there is relatively much more tuberculosis among Negroes in the United States than among whites. There is no difference, however, in rate of tuberculosis between Negroes and whites who have the same level of income. The average income of whites in the United States is considerably higher than the average income of Negroes.

17. Tuberculosis can be cured.

18. Raising the economic level of Negroes would reduce tuberculosis.

19. Tuberculosis is less prevalent among Negroes with relatively high incomes than among Negroes with relatively low incomes.

20. Whether a white person is rich or poor makes no difference in the likelihood of his getting tuberculosis.
TEST 2. Recognition of Assumptions

DIRECTIONS. An assumption is something supposed or taken for granted. When someone states, “I’ll graduate in June,” he takes for granted or assumes that he will be alive in June, that he will remain in school until that time, that he will pass his courses, and similar things.

Below are a number of statements. Each statement is followed by several proposed assumptions. You are to decide for each assumption whether it necessarily is taken for granted in the statement.

If you think the given assumption is taken for granted in the statement, make a heavy mark between the dotted lines under “ASSUMPTION MADE” in the proper place on the Answer Sheet. If you think the assumption is not necessarily taken for granted in the statement, make a heavy line under “ASSUMPTION NOT MADE” on the Answer Sheet.

Below is an example: the block at the right shows how these items should be marked on the Answer Sheet.

If you do not see why the answers marked are right, ask the examiner to explain. In some cases more than one of the given assumptions is necessarily made; in other cases none of the given assumptions is made.

EXAMPLE. STATEMENT: “We need to save time in getting there, so we’d better go by plane.”

PROPOSED ASSUMPTIONS:
1. Going by plane will take less time than going by some other means of transportation. (It is assumed in the statement that greater speed of a plane over other means of transportation will enable the group to get to their destination in less time.) ........................................

2. It is possible to make plane connections to our destination. (This is necessarily assumed in the statement, since, in order to save time by plane, it must be possible to go by plane.) ........................................

3. Travel by plane is more convenient than travel by train. (This assumption is not made in the statement — the statement has to do with saving time, and says nothing about convenience or about any other specific mode of travel.) ........................................

STATEMENT: “Let us immediately build superior armed force and thus keep peace and prosperity.”

PROPOSED ASSUMPTIONS:
21. If we have superior armed force, that will insure the maintenance of peace and prosperity..................

22. Unless we increase our armaments immediately we shall have war........................................

23. We now have peace and prosperity..........................

STATEMENT: “A wise man will save at least twelve dollars each week out of his earnings.”

PROPOSED ASSUMPTIONS:
24. No fools have sense enough to save twelve dollars a week........................................

25. A person needs to be wise in order to save twelve dollars a week........................................

STATEMENT: “Even if all the wealth in the country suddenly were to be distributed equally, some people soon would again become rich and others poor.”

PROPOSED ASSUMPTIONS:
26. The real causes of wealth and poverty would not be much affected by such Socialism..........................

27. Our present economic system is better than such Socialism..........................

STATEMENT: “Mary isn’t going to invite John to her party.”

PROPOSED ASSUMPTIONS:
28. Mary hasn’t yet had her party..........................

29. Mary now doesn’t like John..........................

30. The party will be at Mary’s house..................

STATEMENT: “Live in the city of Zenith — lowest taxes.”

PROPOSED ASSUMPTIONS:
31. Efficient management of a city implies lower taxes..........................

32. An important consideration in deciding where to live is avoidance of high taxes..........................

33. The people of Zenith are content with their present city government..........................

STATEMENT: “Our school is fortunate in having all American pupils, so we have no race problems.”

PROPOSED ASSUMPTIONS:
34. American pupils do not present any race problems..........................

35. If we practiced democracy, there would be no race problem..........................

36. A school is unfortunate if its pupils are of varied nationalities..........................

Go on to the next page.
Deduction

DIRECTIONS. Each exercise below consists of two statements (premises) followed by several proposed conclusions. For the purposes of this test, consider the two statements in each exercise as true without exception. Read the first conclusion beneath the statements, and if you think it necessarily follows from the statements given, answer by making a heavy black mark between the pair of dotted lines under "CONCLUSION FOLLOWS" in the corresponding blank on the Answer Sheet. If you think it is not a necessary conclusion from the given statements, then put a heavy black mark under "CONCLUSION DOES NOT FOLLOW," even though you may believe it to be true from your general knowledge.

Likewise read and judge each of the other conclusions. Try not to let your prejudices influence your judgment — just stick to the given statements and judge each conclusion as to whether it necessarily follows from them. Mark all your answers on the Answer Sheet.

Here is an example; the block at the right shows how your answers should be marked on the Answer Sheet.

EXAMPLE. Some holidays are rainy. All rainy days are boring. Therefore —

1. No clear days are boring. (The conclusion does not follow, as you cannot tell from these statements whether or not clear days are boring and some may be.) ..................... .
2. Some holidays are boring. (The conclusion necessarily follows from the statements, since, according to them, the rainy holidays must be boring.) ................................ .
3. Some holidays are not boring. (The conclusion does not follow from the statements even though you may know that some holidays are very pleasant.) ..................... .

All musicians are temperamental. Some musicians are not proud. Therefore —

37. All temperamental people are musicians. ............ .
38. No proud people are temperamental. ............ .
39. Some proud people are musicians. ............ .

No jockey is a heavyweight boxer. All heavyweight boxers are large men. Therefore —

40. No jockey is a small man. ............ .
41. No heavyweight boxer is a small man. ............ .
42. Jockeys are small men. ............ .

Some cannibals are sincere idealists. All cannibals are fanatics. Therefore —

43. Some sincere idealists are fanatics. ............ .
44. Some fanatics are sincere idealists. ............ .
45. No fanatics are sincere idealists. ............ .
46. All fanatics are cannibals. ............ .

All mice that are injected with substance "A" develop disease "X." Mouse #24 was not injected with substance "A." Therefore —

47. Mouse #24 did not develop disease "X." ............ .
48. Not all mice with numbers between 20 and 30 were injected with substance "A." ............ .
49. Mouse #24 did not develop disease "X." ............ .

No Republican is a Democrat. All Democrats favor prosperity. Therefore —

50. Republicans favor prosperity. ............ .
51. No Republican opposes prosperity. ............ .
52. No Democrat opposes prosperity. ............ .
53. No Republican favors prosperity. ............ .

All Jews feel friendly toward the State of Israel. David feels friendly toward the State of Israel. Therefore —

54. David is not friendly toward the Arabs. ............ .
55. David is Jewish. ............ .
56. Some non-Jews also feel friendly toward the State of Israel. ............ .

If an adult has the ability to give love to others, he must have received love as a child. Some adults did not receive love when they were children. Therefore —

57. Some adults do not have the ability to give love to others. ............ .
58. If an adult received love as a child, he has the ability to give love to others. ............ .

If a person is superstitious, he believes fortunetellers. Some people do not believe fortunetellers. Therefore —

59. No superstitious person doubts fortunetellers. ............ .
60. If a person is not superstitious, he will not believe fortunetellers. ............ .
61. If a person believes fortunetellers, he is superstitious. ............ .

Go on to the next page.
A report of the U. S. Census states that during 1940 there were approximately 1,656,000 marriages and 264,000 divorces granted in the United States.

62. Getting a divorce is a quick and easy matter in the United States.

63. If the above ratio still holds true, then about six times as many people get married each year as get divorced.

64. The divorce rate in the United States is much too high.

Victims of radiation sickness (for example, after an atomic explosion) are likely to die of anemia because the blood-building properties of the bone marrow are damaged. In everyday medical practice, X-ray dosages have to be worked out with utmost care to keep the patient from falling prey to radiation sickness. Experimenting on rabbits, Dr. Leon Jacobson found that when the spleen and appendix were protected with lead, the animals survived what would otherwise have been a fatal overdose of X rays. The undamaged spleen and appendix make enough blood to enable the damaged tissue to recover.

65. If from the blood-forming organs a substance could be isolated which would speed an individual’s recovery from radiation sickness, that substance probably would also enable X-ray patients to take heavier doses.

66. Dr. Jacobson’s experiments on rabbits should be tried on a sufficiently large scale with people to see whether the same results would hold true.

Usually I fall asleep promptly, but about twice a month I drink coffee in the evening; and whenever I do, I lie awake and toss for hours after I go to bed.

67. My problem is mostly mental; I am over-aware of the coffee when I drink it at night, anticipating that it will keep me awake, and therefore it does.

68. I don’t fall asleep promptly after drinking coffee at night because the caffeine in coffee stimulates my nervous system for several hours after drinking it.

At the end of the semester the pupils in Mr. Black’s class averaged 10 points higher than the pupils in Miss Walter’s class on the same geometry test. Mr. Black and Miss Walter used a somewhat different method of teaching geometry.

69. Mr. Black probably is a better teacher than Miss Walter.

70. The pupils in Mr. Black’s class were brighter as a group than the pupils in Miss Walter’s class, and therefore they learned more easily.

71. The method used by Mr. Black in teaching geometry was superior to the method used by Miss Walter.

When Great Britain began to offer free public medical service, the government was surprised because far more people than they had expected came for eyeglasses and dental work.

72. People who previously had neglected their eyes and teeth now chose to have such treatment.

73. People who didn’t really need these services sought them because they were free.

74. People in Great Britain previously had been careless about the state of their eyes and teeth.

75. The British public was pleased with the government health program.
TEST 4. Interpretation (Continued)

The Los Angeles Times made a survey of the number of men and women drivers involved in automobile accidents in the Los Angeles area during a given period of time. They found that men drivers were involved in 1210 accidents while women drivers were involved in only 920 accidents.

76. If the survey figures constitute a representative sample, men drivers are involved in accidents more frequently than women drivers in the Los Angeles area.

77. More men than women drive cars in the Los Angeles area.

78. Women are safer drivers than men in the Los Angeles area.

Intelligence tests show that Negro children in Northern cities surpass Negro children in Southern cities but do not score as high as white children in Northern cities.

79. White children as a group score higher because they are born with higher native intelligence than Negro children.

80. The Negro families who moved to the North are on the average more intelligent than those who remained in the South.

81. Northern Negroes receive better schooling than Southern Negroes, which in turn influences performance on the tests.

The history of the last two thousand years shows that wars have become steadily more frequent and more destructive, the twentieth century being the bloodiest on record.

82. Mankind has not advanced as much in the art of keeping peace as it has in the science of waging war.

83. Wars are caused by basic traits of selfishness, greed, and pugnacity, which are rooted in human nature.

84. Increased industrialization, competitiveness, and improved weapons bring on increasingly frequent wars.

85. There will be increasingly frequent future wars, and they will become steadily more destructive than past wars.

TEST 5. Evaluation of Arguments

Directions. In making decisions about important questions it is desirable to be able to distinguish between arguments that are strong and those which are weak in so far as the question at issue is concerned.

Strong arguments must be both important and directly related to the question.

Weak arguments may not be directly related to the question, even though they may be of great general importance; or they may be of minor importance; or they may be related to trivial aspects of the question.

Below is a series of questions. Each question is followed by three or four arguments. For the purpose of this test you are to regard each argument as true. The problem then is to decide whether it is a strong argument or a weak argument.

You are to answer by making a heavy mark on the Answer Sheet under "STRONG" if you think the argument is strong, or by making a heavy mark under "WEAK" on the Answer Sheet if you think the argument is weak. When evaluating an argument, judge it on its own merit; try not to let counter-arguments or your own attitude toward the question influence your judgment. Judge each argument separately. In some questions all the arguments may be strong, in others all may be weak.

Here is an example. The block at the right shows how these arguments should be marked on the Answer Sheet. Study them carefully until you know just what is expected of you. Note that the argument is evaluated as to how well it supports the side of the question indicated.

EXAMPLE. Should all young men go to college?

1. Yes; college provides an opportunity for them to learn school songs and cheers. (This would be a silly reason for spending years of one's life in college.)

2. No; a large per cent of young men do not have enough ability or interest to derive any benefit from college training. (If this is true, as the directions require us to assume, it is a weighty argument against all young men going to college.)

3. No; excessive studying permanently warps an individual's personality. (This argument, although of great general importance when accepted as true, is not directly related to the question, because attendance at college does not necessarily require excessive studying.)

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Go on to the next page.
Remember that for the purpose of this test each argument is to be regarded as true.

Can rich and poor people who happen to oppose each other at law obtain approximately equal justice from the courts?
86. No; a rich person can hire better lawyers and technical experts, pay for the time of more witnesses, and continue the fight in higher courts.
87. No; rich people win the majority of their lawsuits against poor people.

Should married women be eligible for employment as public school teachers if they are otherwise qualified?
88. No; there are more single women in our country than there are school-teaching jobs.
89. Yes; women tend to become better teachers after marriage.
90. No; a mother's first responsibility is to her own children.

Should infants be fed by regular schedule rather than whenever they seem to be hungry?
91. No; babies know best when they are hungry and ready to eat.
92. Yes; children must sooner or later learn that they can't always have their own way.
93. Yes; a regular schedule is easier for the parents.

Should the government take over all the main industries in the country, employ all who want to work, and offer the products at cost prices?
94. No; so much concentration of economic and bureaucratic power in government would undermine our personal and political freedom.
95. No; elimination of competition and the profit motive would result in much less initiative for production of useful new goods and services.
96. Yes; the government already operates post offices, highways, parks, military forces, public health services, and other public services.

Should groups in this country who are opposed to some of our government's policies be allowed unrestricted freedom of press and speech?
97. Yes; a democratic state thrives on free and unrestricted discussion, including criticism.
98. No; if given full freedom, opposition groups would disunite the American people, weaken our position, and ultimately lead to loss of our democracy.
99. No; the countries opposed to our form of government do not permit the free expression of our point of view in their territory.

Go back and check your work.
You will be given an opportunity to read and study a passage of social science writing, and to give your interpretation of it. Read it through to see what is expected of you before beginning.

In the various questions which follow, you will be asked to examine the selection from several points of view. You may answer the questions in any order. There will probably be more things to note under some questions than under others, but you should make your coverage as complete as possible.

1. List any stereotypes or cliches which you can find in the selection.
2. List any examples you can find of emotional or biased statements in the sele-
You will be given an opportunity to read and study a passage of social science writing, and to give your interpretation of it. Read it through to see what is expected of you before beginning.

In the various questions which follow, you will be asked to examine the selection from several points of view. You may answer the questions in any order. There will probably be more things to note under some questions than under others, but you should make your coverage as complete as possible.

1. List any stereotypes or cliches which you can find in the selection.
2. List any examples you can find of emotional or biased statements in the selection.
3. Does the selection present unverifiable data as though they were facts? If so, list them.
4. What is the main point in this selection?
5. Are the facts which are presented in the selection as supporting the author's position pertinent to his argument? Explain.
6. What additional information is needed before passing judgment upon the author's position? Or, do you think enough data have been provided?
7. Is the presentation consistent? If not, list examples of inconsistencies.
8. Judging the selection as a whole, what are some of the ideas and beliefs which the author takes for granted?

You will find the rest of the questions on the next paper.

Selection

Those of us who have never been abroad do not realize how much we Americans owe to our competitive enterprise system. A year or so before the Second World War broke out an economist was sent to Europe to find out how much the earnings of the average American factory worker would buy in comparison with the earnings of workers abroad. Certain articles were selected that are used by practically all civilized peoples. In each country the economist visited, he showed the store clerks his American articles and asked for similar ones. If there were no goods of comparable quality available, as was frequently the case, he bought the nearest equivalent. He ascertained from the best available official sources the average wages paid factory workers. For his food comparison, he used as his measuring stick a basket containing a selection of twenty-four different foods in ordinary use. The average American family of two adults and three children uses four of these baskets, or the equivalent, every day. To earn these four baskets of food, the investigator found that the average American worker had to work about 1.6 hours; the British or French worker, 3.2 hours; the Belgian, 3.6 hours; the German, 3.9 hours; the Italian, 6.2 hours; and the Russian, 10 hours.
While the United States had one automobile in use for every four persons, the proportion was one to eight persons in France; one to 29 in Sweden; one to 252 in Russia; and one to 1,344 in Bulgaria.

Under our competitive enterprise system in America, a thrifty worker does not have to spend every cent he earns to support his standard of living. This is evidenced by the amount of life insurance in force. In the United States life insurance averaged $842 for every man, woman, and child in the country at the time this survey was made. In England the average was $353; in Germany, $117 and in Italy, $36. Along with our industrial progress has come a remarkable expansion in general social welfare. Our hospitals, museums, libraries, and schools are the envy of the civilized world.

There is no need for me to bombard you with further statistics. With all its shortcomings—and there are many because it is operated by fallible human beings—competitive enterprise in America has undoubtedly brought more blessings to the average man than any economic system the human race has yet devised. The men of our far-flung military forces are discovering that with their own eyes. Just a few weeks ago a young soldier friend of mine in France, who had probably never been more than a hundred miles from his birthplace in Lancaster, Pennsylvania, wrote me that after seeing the way people lived in Europe, he thanked God that he had a country like America to come home to. As a matter of fact, he never will come home because he lies tonight in some lonely grave on the German front where he was killed in action in November....

9. What form of discourse is this selection (narration, description, argumentation, exposition)? Give reasons for your answer.

10. Are the arguments for the author's conclusions primarily demonstrative, dialectical, rhetorical, or poetic? Explain.

11. Write a sentence telling what kind of terms (concrete or abstract) are used in this selection.
APPENDIX III

OUTLINE OF FALLACIES AND PROPAGANDA TECHNIQUES
AS VIOLATIONS OF CRITICAL THINKING
(Charts Made for Experimental Classes)

FALLACIES and PROPAGANDA

TECHNIQUES—VIOLATIONS OF CRITICAL THINKING

I. SUSPENDED JUDGMENT

Hasty generalizations

II. CRITICALNESS and INTELLECTUAL HONESTY

Misusing statistics
Band wagon
Plain folks
Snob appeal
Name calling
Glittering generalities

III. ACCURACY and TRUE RELATIONSHIP

Mistaking the cause
Ignoring the question
Begging the question
False analogy
Attacking the person
Transfer
Testimonial
Scientific slant
APPENDIX IV

LETTER DISTRIBUTED TO 531 SENIORS IN THE EXPERIMENTAL GROUP EXPLAINING THE COURSE AND THE SKILLS OF CRITICAL THINKING PERTINENT TO THIS STUDY
Dear Senior,

So you are a senior. And what do you expect of your English IV class? Will it prepare you for the intelligent life that will be expected of you because of your citizenship in the United States, in the world, and in Christ's Mystical Body? Exactly how can an English class do that? You can try by developing certain skills that pertain to your highest faculty, your intellect. Below is a list of those skills. You are invited to designate at the end of each quarter whether or not or to what extent you have mastered them. Some of these skills are easier than others; some are so complex that it will take you a lifetime to master them. You will not be expected to achieve the impossible in 180 days, but you will be expected to try.

<table>
<thead>
<tr>
<th>Ability to make deductions</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to make interpretations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation of arguments</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Recognition of:
- Inferences
- Assumptions
- Stereotypes and cliches
- Bias and emotional factors
- Main point in a selection
- Verifiable and unverifiable material
- Relevant (pertinent) and irrelevant data
- Adequacy and inadequacy of data
- Consistency and inconsistency
- Forms of discourse: narrative, descriptive, argumentative, expository
- Types of arguments (discourse): demonstrative, dialectical, rhetorical, poetic
- Terms: abstract, concrete, descriptive, ascriptive

Fallacies in thinking

Does this scroll remind you of medieval times? Did you know that the science of thinking dates back farther than that? It was Aristotle (384-322 B.C.) who left us this science complete and systematized. He is rightly considered the Father of Logic.

Did our Lord ever express Himself about thinking correctly? Do you recall when He put the Pharisees and Saducees to shame for their lack of logic as they asked for signs when such were plentiful? He seldom used ridicule and irony, but the questions He often asked made others think, despite themselves.

We hope that as you try to improve your ability to think straight, you will develop a devotion to the Holy Spirit. Sertillange's book, *The Intellectual Life*, should help you do that.

Thoughtfully yours,

Your English teacher
MEASUREMENT of the ABILITY TO DISCRIMINATE BETWEEN INFERENTIAL AND DESCRIPTIVE STATEMENTS
William Valentine Haney, Evanston, Ill., 1953

After you listen carefully to each statement, determine whether the statement is:

a. "T" - meaning: on the basis of the information presented in the story the statement is true.

b. "F" - meaning: on the basis of the information presented in the story the statement is definitely false.

c. "?" - meaning: the statement MAY be true (or false) but on the basis of information presented in the story you cannot be definitely certain.
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c. "?" - meaning: the statement MAY be true (or false) but on the basis of information presented in the story you cannot be definitely certain.

Story (A) "A black car is parked in front of 619 Oak Street. The words, "James M. Curley, M.D.," are spelled in small gold letters across the door of the car.

Story (B) Babe Smith has been killed. Police have rounded up six suspects, all of whom are known gangsters. All of them are known to have been near the scene of the killing at the approximate time that it occurred. All had substantial motives for wanting Smith killed. However, one of the suspected gangsters, Slinky Sam, has positively been cleared of guilt.

Story (D) A business man had just turned off the lights in the store when a man appeared and demanded money. The store owner opened a cash register. The contents of the cash register were scooped up and the man sped away. A member of the police force was notified promptly.

(Story C) The moon was hidden behind a cloud. An automobile, driven by an intoxicated driver, smashed into the side of a truck. No one was injured in the truck but the automobile turned over and its driver was pinned inside.

---

Inferences are important.
We rely upon them in our everyday lives and in science.
It is practically impossible to live without making them.
It is extremely easy to make statements of inference with the same appearance of certainty as has the statement of fact.
Advertisers can purposely use the inference-fact confusion to trick the public.

---

FACT: a thing done; deed; that which has actual existence; an event, description; staying with what has been observed

INERENCE: concluding, finding out by reasoning; People inferred that so able a governor would make a good president.
- indicating, implying: Ragged clothing infers poverty.
- deriving by reasoning or implication: When they saw the pile of papers on the teacher's desk, the students made the inference that they would have written work.

"We shall call the process by which a supposed truth or truths ( the reasons) are used to obtain another truth ( the conclusion) by thinking alone, without independent investigation of the truth of the conclusion, an inference." Max Black

"An inference, as we shall use the term, is a statement about the unknown made on the basis of the known." S.I. Hayakawa

"...going beyond what has been observed." W. Haney
ASSUMPTIONS are reasons, usually unexpressed, which are necessary to the validity of a conclusion.

EXAMPLE: A storm must be coming (conclusion), because the barometer is dropping rapidly (reason).

The complete chain of reasoning would go as follows:
(Assumption) If the barometer drops rapidly, a storm is coming.
(Reason) The barometer is dropping rapidly.
ASSUMPTIONS are reasons, usually unexpressed, which are necessary to the validity of a conclusion.

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The complete chain of reasoning would go as follows:

(Assumption) If the barometer drops rapidly, a storm is coming.
(Reason) The barometer is dropping rapidly.
(Conclusion) A storm is coming.

In each of the statements below an assumption is needed to complete the chain of reasoning. Pick out an assumption which will complete the chain of reason and write it in the space below the statement.

1. MEMBER OF WOMEN'S CLUB: "Well, you can get this speaker for next meeting if you want to, but I definitely think he is a subversive and that anything he tells you will be false."

2. SALESMAN AT DOOR: "Good morning, madam, I represent Kleenvac Sweepers."
   HOUSEWIFE: "No, thank you, I have a good vacuum cleaner."
   SALESMAN: "Can't I demonstrate our line to you?"
   HOUSEWIFE: "No."
   SALESMAN: "What's the matter- don't you want other people to make a living?"

3. STUDENT: "I never walk under ladders. Call it superstition if you want to, but no one has ever proved to me that I'm wrong about its being bad luck."

4. Overheard AT POLITICAL CLUB MEETING: "He questioned the wisdom of some of the President's decisions; therefore, I could see that he had subversive tendencies."

5. STUDENT: "I don't see why you don't admit that the school election was rigged. You haven't given me one single bit of evidence that it was not."

6. MOTORIST FINDING PARKING TICKET ON HIS CAR: "Well: The police in this town obviously expect everyone to walk or ride a bicycle."

7. LADY BUYING BOOK OF HOROSCOPES: "Of course I believe in astrology; science hasn't been able to prove it wrong."

8. OVERHEARD AT WOMEN'S CLUB MEETING: "When she said that she didn't think that they needed Italian marble halls in the new grade school building, I knew she just didn't want our children to have a decent education."

9. STUDENT: "Our English teacher thinks Shakespeare was a great playwright, but do you know that he didn't even go to college? How could he be great?"

10. LITTLE BOY TO FATHER: "Sure Pop, I believe in ghosts, how are you going to show me there ain't any?"
ASSUMPTIONS

Assumptions contain unstated or implied reasons for conclusions. Unless you uncover these assumptions and make a judgment about their truth, you cannot be sure the conclusion is true. You cannot uncover these assumptions unless you develop the habit of looking for them. You may wonder why you should look for things that an author did not write. But it is often the things that an author does not say that are important to you—important especially in order to judge what he did say and in order to judge his conclusion.

Read these statements and see if you can uncover the assumptions.

1. "There are four syllables in disremember, only two in forget. Use the short word."

The assumptions are:
   a. Disremember is a longer word than forget.
   b. Words are measured in syllables.
   c. It is better to use shorter words.
   d. Forget and disremember mean the same thing.

2. "Save your breath for something useful. Avoid attaching an unnecessary s to the words anyway, anywhere, nowhere."

The assumptions are:
   a. Attaching an unnecessary s to a word wastes breath.
   b. One should not waste breath.
   c. The words anywhere and nowhere waste breath.
   d. Breath can be put to useful purposes.
   e. S's on the words anyway and nowhere are unnecessary.

3. "In learning to spell a new word, find it in the dictionary, notice the syllables into which it is divided, and spell it aloud."

The assumptions contained in the statement above are:

4. "Keep in mind the key words that may help you to spell correctly. For instance, by using the word Alice you can learn to spell relieve and deceive."

The assumptions are:
   a. That you have a mind.
   b. That there are at least two kinds of words, key words and some other kind.
   c. That key words may help you.
   d. That Alice is a key word.
   e. That there is something special about the word Alice which will help you learn to spell relieve and deceive.
   f. That Alice is a word.
CONCRETE AND ABSTRACT TERMS
An Adaptation of the Work of K. B. Henderson, Illinois Curriculum Program

A concrete term always refers to something you can see or touch or hear.

An abstract term does not refer to anything you can see, hear, or touch. You cannot check on the meaning of an abstract term by pointing to what it stands for.

For instance, could you put your finger on a "hurry"? Take a snapshot of it? No,
CONCRETE AND ABSTRACT TERMS
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For instance, could you put your finger on a "hurry"? Take a snapshot of it? No, it refers to an idea about how things are done. Because we have no way of checking to see what an abstract term refers to, we often run into mix-ups; e.g., "Let's get this assignment done in a hurry." Suppose I didn't know what you meant by "hurry". I thought I had only five minutes when I could have used thirty minutes. Unnecessary confusion might be the result.

Read the passage below and see if you can spot the abstract and concrete terms:

"I believe in freedom of the press", he replied. "Ever since this country was founded this has been one of our basic rights. No dictator, monarch, or bureaucrat should be allowed to take away this heritage. Our presses should print the truth no matter whose reputation is ruined, no matter whose position is jeopardized or no matter what public official is embarrassed. I assure you that when you read the Sentinel you will find that I follow this policy."

Directions: The following list of terms were taken from the passage above. Place an "A" beside the abstract terms and a "C" beside the concrete terms. Judge each term as it was used in the passage above.

<table>
<thead>
<tr>
<th>term</th>
<th>abreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press</td>
<td>presses</td>
</tr>
<tr>
<td>Freedom</td>
<td>monarch</td>
</tr>
<tr>
<td>Country</td>
<td>rights</td>
</tr>
<tr>
<td>Reputation</td>
<td>bureaucrat</td>
</tr>
<tr>
<td>Dictator</td>
<td>heritage</td>
</tr>
<tr>
<td>Truth</td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td></td>
</tr>
<tr>
<td>Official</td>
<td>Sentinel</td>
</tr>
<tr>
<td>Policy</td>
<td></td>
</tr>
</tbody>
</table>

Directions: In the examples below place an "A" or a "C" beside the word as you did above, in addition place an X beside the reason which best describes why you chose an "A" or a "C".

---

**freedom**
1. Everyone knows that freedom means the same to every American.
2. Freedom is a definite thing. One either has it or doesn't have it.
3. Freedom is not something you can touch or feel.
4. Freedom is a noun; therefore, it must be the name of a thing.

---

**press**
1. Press is the name of a piece of machinery.
2. A press can be seen, felt or heard.
3. Press is a noun; therefore it must be the name of a thing.
4. Press is used here to refer to a class of things; this is, newspapers, radio, and television reporting etc. It is, therefore, not something that can be felt or touched.

---

**Sentinel**
1. Sentinel does not refer to a person or place but to an idea.
2. This term refers to an object which you can see or touch.
3. All proper nouns are concrete terms.
4. This is the name of a particular thing and is therefore a concrete term.
Fun with circles circles circles circles

all ... some
total group ........ part of the group
total universal ............ particular
In any discussion where these ideas are useful, there is always present a universe. The large circle stands for this universe, that is, for the whole group. The small circle represents a part within that circle. The small circle stands for a particular section of the universe. The following diagrams are used to picture the relationships between the following items rather than their comparative sizes or numbers.

I. Now draw circles on your own paper to diagram the following terms. Be careful to label them properly.

1. Poor students; all students in a school
2. Adjectives; modifiers
3. Fiction; books
4. Fiction; literature
5. A SENTENCE is composed of WORDS.
6. Magazines; Today

II. Universe; part of the universe; a part of the part of the universe

1. Within a man's life
   - Infancy
   - Childhood
   - Adulthood
2. Chicago; Cook County; Illinois
3. Chicagoans; parishioners of St. Nicholas Parish (in Chicago);
   Sodalists (members of the parish)
4. Page; chapter; book
5. Division; school; class
6. Dollar; cent; dime
7. Sentence; words; clause
8. Stories: novels, short stories
9. Poetics: epics, novels
10. Literature; fiction, short stories
11. Girls; good girls, Lourdians
12. Sodalists; sodalists of a certain parish, sodalists who are daily communicants, sodalists who meditate daily.
13. All the people in the world; people interested in gov't., good citizens, foreign born citizens.
Reasoning about Grammar

1. John went into the X house to get a Z. After going up X flights of stairs he went through a Z to find a Z. Z went with him. They had never seen a Z before...
Reasoning about Grammar

1. John went into the X house to get a Z. After going up X flights of stairs he went through a Z to find a Z. Z went with him. They had never seen a Z before but they knew one could always get X Z’s if they tried hard. At last they spotted a Z. It was X, X, and X. They crept upon the Z very Y. It sprang Y very Y and ran Y away.

II. In the sentences above, the letters represent certain parts of speech. Which ones?

\[X=\quad Y=\quad Z=\quad\]

III. This exercise demonstrates which of the following? Put a (✓) beside the appropriate statements.

1. Parts of speech are not the same.

2. The words, not the use of the words, determine the part of speech to which it belongs.

3. The use of a word in a sentence determines its classification as a particular part of speech.

4. Learning lists of X’s, Y’s and Z’s would not always be useful if a word can be an X, a Y, or a Z, depending upon its use.

5. Grammar is like algebra.

IV. Which ones of the following combinations of X, Y, and Z’s would be likely to occur in sentences in the order listed here, when X, Y, and Z represent the same parts of speech as in the paragraph (I) above? Check (✓) correct answers.

1. YXZ  
2. YYXZ  
3. ZXX  
4. ZY  
5. XZ  
6. YXXZ

V. Write out on a separate sheet of paper a combination of words which are the same parts of speech represented by the letter combinations which you marked above. (Example XZ= slithy tove; that is, "Slithy" is same part of speech as X, "toves" the same part of speech as Z.)

After each word combination, write out a statement or statements which prove that your combination of the parts of speech representing X Y, and Z are correct. (Example: XZ= slithy toves. X’s are ______ (part of speech). Z’s are ______ (part of speech). Slithy is an X or ______; tove is a Z or XZ, or "slithy tove" is a combination which would be likely to occur in a sentence in this order.

Reasoning about High School

Valid: the inference follows as a logical consequence of the premises (even though the conclusion is false).

Invalid: the inference does not seem to follow as a logical consequence of the premises (even though the conclusion is true).

1. High school students like to read novels. Marion is a high school student. Therefore Marion likes to read novels.

2. Over a period of ten years in a certain high school 70 per cent of the students enrolled in senior English passed the course. Marion is now enrolled in this course. His chances of passing the course are in the ratio of seven to three.

3. Some students do not study. All students are persons enrolled in schools. Therefore some persons enrolled in schools do not study.

4. Marion is on the right of John, who is on the right of Frank; Frank is on the right of Paul; who is on the right of Stanley. Therefore Stanley is on the right of Marion.
Julius Caesar

In Mark Antony's series of speeches to the citizens in Act III Scene 2 he uses two words many times. One word applies to Caesar, the other to Brutus.

I. What are these words?

II. Are they descriptive or ascriptive words?

III. Anthony uses these words to gain certain ends. Which of the statements below best describes what Anthony does with these words? Place an X beside the proper answers.

1. Since these words are descriptive, Antony is using them to describe the facts in order to appeal to the reason of the crowd.

2. Through various facts and examples he creates doubt about the application of the words to Caesar and Brutus.

3. These terms are ascriptive and Antony creates doubt in the minds of the crowd as to whether Brutus and Caesar meet the criteria for the application of these terms.

4. Antony uses these words to get his point across, to describe the situation as he and the crowd see it.

5. These words are unimportant and were only used by Shakespeare to give rhythm to Antony's speech.

6. Antony uses these words to describe the facts to the crowd. The crowd, however, does not accept the facts.

7. Antony points out certain facts which causes the crowds to rebel against the application of these terms to Caesar and Brutus.

8. Antony uses these words at first to gain the confidence of the crowd. He later uses these words to stir up the crowd after they have rebelled against the application of these terms to Brutus and Caesar.

9. Antony shifts the meaning of these terms every time he uses them and in this way confuses the crowd.

Valid or Invalid Reasoning?

1. Either the interests of individual persons in society conflict, or they do not conflict. The interests of Marion and John, who are individuals in society, do not conflict. Therefore, the interests of individuals in society do not conflict.

2. All politicians are propagandists. No student is a propagandist. Therefore no student is a politician.

3. No honest student is a thief. No thief is a gentleman. Therefore all gentlemen are honest men.

4. All stupid students should be excluded from this school. Some aliens are stupid persons. Therefore all aliens should be excluded from this school.

5. Most intelligent students get good grades. Marion is an intelligent student. Therefore Marion probably gets good grades.

6. No law which destroys students' possibilities of perfecting their intellectual life should be passed. The "No Homework" proposal endorsed by some of the members of the Student Council would interfere with the intellectual development of the students. Therefore it should not be passed.

7. All good students are willing to work to capacity in their scholastic efforts. Marion is a good student. Therefore Marion is willing to work to capacity in his scholastic efforts.
APPENDIX X

OUTLINE OF THE INTRODUCTION OF ASHLEY'S
THE ARTS OF LEARNING AND COMMUNICATION

INTRODUCTION

THE STORY OF THE LIBERAL ARTS

I. Adam: alone, observing

A. Influence of observation
Introduction

THE STORY OF THE LIBERAL ARTS

I. Adam: alone, observing

A. Influence of observation
   1. Proper name -- belonging to a single thing
   2. Common name -- representing a universal concept
   3. Natural sign -- natural connection between the sign and the thing
   4. Convention sign -- sign whose meaning came from agreement

B. Sons of Adam and Eve

II. Savages: figuring out ways in recreating something (4 causes)

   A. Fix clearly his purpose or end (final cause)
   B. Picture the form or pattern (formal cause)
   C. Decide out of what material to make it (material cause)
   D. Find the power and instruments to cut, shape, and fasten this material (instrumental cause)

III. Ancient cities: experts in many arts

IV. Greeks

   A. Arts and sciences: flowered
      1. Logic, the art of arts (clear thinking is the basis of every art and science)
      2. Philosopher -- lover of wisdom
      3. Socrates -- defining of terms
      4. Plato -- stating his principles (basic truths on which knowledge rests)
      5. Academy
         a. Mathematics
         b. Algebra, its application to music
         c. Geometry
         d. Astronomy

   B. Aristotle (Lyceum): logic to make proofs or demonstrations
      1. Demonstrative -- proves a statement is true
      2. Dialectical logic -- probable proofs
      3. Rhetorical -- persuasion
      4. Poetics -- entertain people by helping them to appreciate and enjoy the truth

   C. Museum in Alexandria, Egypt: founded by followers of Aristotle
      1. Liberal arts: four types of logic and mathematics
      2. Natural science: study of nature of man and his world
      3. Social science: the study of man's life
      4. Theology: the study of God
THE ONE TRUE TEACHER

I. Failures in history
   A. Savage people (corrupt acts): disasters as the flood
   B. Ancient cities: warfare and vain schemes as Tower of Babel
   C. Successful wisdom of Greeks: ended by Romans
   D. Romans: emperor was made a god; followed foolish pride of previous civilizations

II. The Jewish nation
   A. Kept true idea of God, his law relation of man to nature
   B. Kept themselves pure only by remaining narrow
   C. Did not know how to combine wisdom of Greeks with the truth of Bible (Solomon)
   D. Kept knowledge in storage (Jerusalem) (Famished nations?)

III. True teacher of mankind: Jesus Christ
   A. Second Adam of the human race
   B. The Church
      1. Gathers together the fragments of truth wherever they are to be found
      2. Cleanses them of error
      3. Fits them into the broad framework of Christ's own teaching

CHRISTIAN EDUCATION

Overcoming Three Great Efforts of the Forces of Darkness

First Threat
Effort of pagan Rome to absorb the Christians when it found that it could not destroy them by persecution, effort to water down the truth of Christ's teaching and turn it into a mere form of pagan philosophy

Efforts to overcome the threat
Great fathers of the Church:
St. Ignatius of Antioch
St. Ireneaus
St. Basil
St. Gregory Nazianzen
St. Augustine
St. Jerome

Comments:
Christ's teaching: greater than that of philosophers
Whatever is true in philosophy might be used in Christian education

Attempts to overcome it
1. Church patiently kept at work building the foundations of new civilization:
   Monastery schools, esp. Benedictine Education kept alive, purified of its paganism, given a new and truer form based on the study of Sacred Scriptures

2. Church gradually restored peace; established universities; wisdom of Lyceum and the Museum was restored (but instead of natural theology, Sacred Theology was QUEEN)

Arts and sciences making up medieval education;...
see outline p.15
I. The Liberal Arts
   A. The Trivium (three ways of knowledge)
      1. Grammar (and with it poetics)
      2. Rhetoric
      3. Logic (including both demonstrative and dialectical logic)
   B. The quadrivium (the four ways of knowledge)
      1. Arithmetic or algebra
      2. Geometry
      3. Music
      4. Astronomy

II. Philosophy
   A. Natural science (with it medicine)
   B. Social or moral science (with it law)
   C. Metaphysics or natural theology

III. Sacred Theology
   3. This system of education perfected by great Doctors of Church
      St. Thomas Aquinas, Bonaventure, Anthony of Padua, Albert the Great, Robert Bellarmine,
      Peter Canisius, great educators: St. Ignatius Loyola, John Baptist de la Salle, Angela Merici

This system: foundation of all education today, even of that given in non-Catholic schools

Third Threat

The decay of religious unity which we call Protestantism and the growth of indifference to spiritual things which we call Secularism

Results of various temptations:
   Crusades: romantic luxuries and mysterious cults
   New World: enormous riches and power
   Renaissance: interest in lit. and fine arts
   Rulers: supremacy; attempt to dominate Church

Work of the Church

Progress in art, science, invention, geo. exploration: roots in ed. given by Church. Men forgot this; attacked it as enemy of progress; Church continued patiently to spread her missions into other lands.

Questions (see pp. 20, 21)

1. What is an art?
   A servile art (outside the mind)?
   A liberal art (within the mind)?

2. Explain: logic is a liberal art.

3. Classify and explain the following signs.
   a. footprints
   b. spoken words (whose meaning came from agreement)
   c. "chair," "bird," "man,"
   d. "Eve," "Chicago"
CHRISTIAN EDUCATION TODAY

I. The Church today
   A. World-wide, teaching all nations
   B. Wars, quarrels: difficult for voice of Church to be heard
   C. U.S.: two systems of educations
      Non-Catholic
      a. Excellent in many ways
      b. Origin in the schools of the Church, now separated from her influence
      c. Teach much of what they learned from the Church and from civilizations
         which she preserved and developed
      d. Leave out teaching of many truths (disagreement about basic principles
         among non-Catholics)
      Catholic Schools
      a. Not perfect (confusion and troubles in the world)
      b. Sound foundation, striving to give best possible education: the
         whole teaching of Christ and show how all the other knowledge
         which the human race has discovered can be fitted into this
         framework and developed still further
      c. Subjects essentially the same as in trivium and quadrivium
         (names and arrangement of courses different due to outside
         pressures and influences)

II. Improving Catholic schools
   A. Leo XIII, 1879 ("Aeterni Patris"): Catholic teaching placed under the
      guidance of phil. and theo. of St. Thomas Aquinas
   B. Pius XII: repeated this advice; urged to fill in the Thomistic framework
      with all the new discoveries of our age
   C. Students' role in this great story of the advance of truth; concerned with
      four great fields of human knowledge
         1. Liberal arts: arts of thinking and expression (think clearly,
            study well, teach and persuade others)
         2. Natural sciences: knowledge of the world and of human nature is basis
            of everything we think and do and of all human progress
         3. Social sciences: guide in living with others
         4. Christian doctrine: tells us about God and the purpose of human
            life
   D. Liberal arts
      1. Mastering (the arts of study: weapons)
      2. Elementary school: preparing to study all these subjects
      3. High school (new phase of education): completing your liberal arts
         studies (also in college)
      4. Four types of logic (guide to liberal arts: to help you to think
         orderly and to speak effectively
         a. Demonstrative logic (scientific)
         b. Dialectical logic (probable opinion)
         c. Rhetoric (persuasion)
         d. Poetics (recreating)
      5. Everything you say or read for clear thinking
         a. Define your terms (definition) Socrates
         b. State your principles (judgment) Plato
         c. Prove your conclusions (argument) Aristotle
CHAPTER I

Poetics: The Art of Storytelling

I. How to read a story

A. The difference between a story and a sermon
CHAPTER I
Poetics: The Art of Storytelling

I. How to read a story

A. The difference between a story and a sermon

1. Imaginative literature: Poetics
   a. Entertains and delights, is recreational
   b. Includes a great variety of types: epic, novel, short-story, etc.
   c. Directly and profoundly rests and delights our souls
      by lifting our minds and emotions above the cares, confusions,
      strains, and frustrations of everyday life to a wider and
      clearer vision
   d. Is not a mere escape from life
   e. Good imaginative writing is bad rhetorical writing
   f. Gives us a glimpse of the goal ahead which encourages and inspires
      us to live more fully and perfectly
   g. Imaginative writer wishes us to notice and enjoy the skill with
      which his story is told

2. Persuasive literature: rhetoric
   a. Does not aim at entertainment; seeks to persuade us; wants us
      to do something
   b. Urges us to a decision about some problem which is immediately
      at hand (action or achievement)
   c. Is found in propaganda, advertising, selling, the political speech,
      the sermon
   d. Good rhetorical writing is usually bad imaginative writing
   e. Rhetorical writer seeks to conceal the fact that he is trying
      to influence us

B. The soul of a story

1. Plot: the soul of the writing; primary among the objects or repre-
   sentation or imitating (deadwood: any word or incident
   which does not contribute to the plot)
   2. Action: the central idea of a story; that by which character can
      be known; human words are more suited to narrate this than to
      paint pictures or descriptions in static terms
   3. Character: this, in addition to plot and thought, make up the
      three objects of representation or imitation; these make up the
      form of poetic work
   4. Style: pertains to the medium (or matter) of a work
   5. Catharsis: (Greek) purification: the power of a story to arouse
      the emotions and then bring them to rest in the vision of life,
      cleansing the soul of disturbed emotions.

C. The qualities of a good plot

1. Philosopher: wise man who is able to take a broad
   view of life at will because of wisdom which comes only after
   a long life of discipline and thought
   2. Poet: is able to give us a glimpse of a broad vision of life even
      when we are young and perhaps foolish
3. ________________: not aroused by something dry and abstract, but by something vivid and concrete

4. Qualities
a. ________________: characteristic of a good plot since it welds the parts of the work into a perfect whole (one principal action)
b. ________________: a beginning (a new action arises from some situation), a middle (unfolding of new action in a series of connected events or incidents), resolution (a final rest in which all the forces set in motion)
c. ________________: action moves in one straight line from beginning to end
d. ________________: action seems first to move toward a contrary goal suddenly reverses itself and moves toward a contrary goal (climax)

5. ________________: resolution or ending; the unraveling or solving of a mystery or plot; the outcome of a situation; the closing event or episode

D. Characters and thought
1. ________________: must appear to be so, like real human beings
2. ________________: to the action they are to perform, not improbable
3. ________________: in the characters the readers see both the outward action and the inward action (enters into their experience)
4. ________________: of characters; to help us fully understand their interior motives

5. Comments of author

6. Thought and rhetoric: Kept strictly subordinate to plot for good imaginative literature
7. ________________: plot, characters, thought, pattern which writer wishes to embody in his materials
8. ________________: materials of the imaginative writer by which he makes his study, with its characters and thought, live in our imagination

9. ________________: first step in the study of style
10. ________________: the weaving of the matter of a story to fit its plot

II. The magic of words
A. Using the dictionary
1. Pronunciation of words
   a. ________________: conventional sigh (each is a sound that leads to the knowledge of something other than itself because of human custom and usage)
b. ___________________: a word resembles the thing it stands for (bow-wow): imitation

c. ___________________: the study of sounds as tools of expression belong to this art

d. ___________________: that quality that depicts the sound to be high or low

e. ___________________: refers to the sound being loud or soft

f. ___________________: refers to richness or thinness

g. ___________________: definite pitch

h. ___________________: a mixture of unrelated sounds

i. ___________________: musical sounds in speech; can be sung on a sustained pitch

j. ___________________: sounds made at the beginning or ending of a vowel sound and cannot be pronounced or sung by themselves ("sounding with")

k. ___________________: consonants including a vowel sound

l. ___________________: a slight rise and fall of the voice in speaking

m. ___________________: the increase in volume on the principal syllable of a word

n. ___________________: a similarity between vowels ("sounding too")

o. ___________________: similarity between final consonants and vowels

p. ___________________: similarity of sound at the beginning of syllables

q. Appreciating and using the music of words: finding a new pleasure in speaking and listening; influencing those with whom we speak

2. The origin of words p. 42

a. _______________: word origin

b. _______________: individual and apparent to the senses

c. _______________: some general idea which could be applied to many things and which appeals more to the intellect than to the sense

3. Grammatical function

a. _______________: single meaning

b. _______________: several meanings (bank..bank)

c. _______________: some connection (same but different
4. Current meanings

5. Connotation of words
   a. ____________ : "together-names"; two words mean the same thing; have different shades of meaning
   b. ____________ : "opposite-names"; two words mean opposite things
   c. ____________ : the things to which any word can be applied; covers them all
   d. ____________ : point out all the things to which it extends
   e. ____________ : a word which denotes many things each one of which is exactly like the other
   f. ____________ : a word which denotes some of a few of these things which are exactly alike
   g. ____________ term: a group of things taken as a group (a word denoting)

B. Using a thesaurus: vividness of words
   1. ________________ : collection of synony s, antonyms and other related words: Roget's most outstanding
   2. Goals
      a. ________________ : comes from the use of exact or technical terms
      b. ________________ : achieved by using words which are concrete, rich
         in connotation and imagery and pleasant to the ear (especially required in poetry)
   3. Figures of speech: special uses of words generally involving some type of analogy to increase the vividness of language
      a. ________________ : an analogy of similarity (implied comparison)
      b. ________________ : using a term which is just the opposite of what we mean or contrasts what we actually say with what is expected
      c. ________________ : a metaphor made very explicit by using such words of comparison as "like" or "as"
      d. ________________ or ____________ : a person or thing having a hidden meaning (as a simile)
      e. ________________ : the transferrence of a word from its original meaning to something connected with it in some way other than by similarity or dissimilarity
      f. ________________ : the transferrence of the name of a part of the whole or of the whole to a part (e.g. class for a member, or vice versa)

4. Language
   a. ____________ or newly invented words: vivid effects possible but
CHAPTER II

Dialectics and Rhetoric: Arts of Discussion and Persuasion

Dialectics

Remember: this is an important chapter. It should give you a comprehensive view of
the study of English. Your "harvest" will be determined largely by your effort.
CHAPTER II

Dialectics and Rhetoric: Arts of Discussion and Persuasion

Dialectics

Remember: this is an important chapter. It should give you a comprehensive view of the study of English. Your "harvest" will be determined largely by your effort.

I. The art of conversation

II. Discussion and debate
   A. Intelligence and effectiveness
   B. Informal rules
   C. Disagreement
   D. Syllogisms
   E. Truth of statements
      1. False
      2. True
         a. Certain (by evidence, by authority)
         b. Probable (well grounded, common opinion)
      3. Experience
         a. Our own
         b. Someone else's (trustworthy)
   4. Probable statements
   5. Dialectician
   6. Poet's statements
   7. Demonstrative mode of speaking
   8. The dialectical mode of speaking
   9. The rhetorical and poetic modes of speaking

Rhetoric

I. The most practical of arts

II. Salesmanship
   A. Essential to business success
   B. Small part of the great and noble art of persuasion (other parts?)
   C. Not necessarily dishonest (high pressure advertising, the "big lie")
   D. The greatest master of persuasion: Divine Lord, Truth itself
   E. Gospels: largely a record of persuasive words

III. The difference between rhetoric, poetics, and dialectics
   A. Dialectician (avoids an appeal to the emotions)
   B. Poetic writer
      1. Not immediately concerned with persuading
      2. Presents a story which excites our emotions and then brings them to rest in the enjoyment of the beautiful
      3. Develops an appreciation and admiration of what is noble in human life, a disgust with whatever is base and mean (but this is not his immediate aim)
   C. Rhetorician
      1. Is immediately concerned with persuading his audience to act, to do, or avoid something
      2. Hopes they will hurry away with a look of determination to put into practice what he has urged them to do.

IV. The instruments of rhetoric; the rhetorician
   A. Helps his audience to see the nature of his goal
   B. Persuades his audience to avoid something by showing its nature
   C. Has five weapons
      1. Delivery of speech:
      2. Style of composition:
      3. Personal character:
II. The mass media of communication

A. Oratory

B. Newspaper

1. Questions that should occur to us:
2. Persuasive (rhetorical) aim
   a. Not very evident
   b. Supposed to be confined to:
   c. Pervaded a great deal
3. Learning to read a newspaper well
   a. Take two papers of widely different/ types; read thoroughly
   b. Skim a paper all the way through
      1) Compare the different uses of the same news services
         a) Make-up
         b) Style
      2) Figure out intention of editor and his estimate of audience
4. Coming to a conclusion
   a. Newspaper: not a chief source of information
      1) To live a genuinely liberal life
      2) To avoid being a slave
   b. Newspaper: useful for person who reads critically

C. Advertising

1. Appears in all mass media
2. Is different from other kinds of rhetoric
3. Works on fact that purchasing public
4. Creates dilemma: confused deliberations (vague and tenuous motives)
5. Develop two habits
   a. Discounting
   b. Trying to glean from advertisement
6. Recognize evil
   a. Big expenditures
   b. Present circumstances
   c. Social duties
      1) Advertiser
      2) Authorities

D. Radio, television, movies

1. Take the place of newspapers (for many):
2. Provide public with three main classes of entertainment
   a. __________ real work of art
   b. Mass-appeal programs
   c. Time-killing programs
2. Ashley-II, 3

3. Do not have a very great function in our society as rhetorical media
   a. First two (radio, television)
      1) Controversial matter kept at a minimum
      2) Desire of commercial sponsors not to offend any group
   b. Obvious places for rhetoric
      1) Political speeches
      2) Interview programs
   c. Styles of these speakers
      1) More direct and intimate than platform speaking
      2) Maximum importance:
   d. Future uses for direct propaganda for a particular point of view

4. Learn to be selective; leave ample time for more rewarding activities
   a. Slave of mass-mind
   b. Messages of Popes
   c. Ethical codes of each industry
   d. Working within a corporation for higher standards

B. Many kinds of printed material
1. Become acquainted with the whole spectrum of available reading material
2. Realize that mass media magazines are only inferior versions of much better publications (from which they copy a great deal)
3. American publications are generally weak in effective discussion or genuine rhetoric
4. Discussion neglected today
   a. Letter to editor
   b. Serious thinker
   c. Americans seem to be afraid of
   d. People seem more interested in proving

II. The weakness of the mass media
   A. Propaganda machines during World War II
   B. One of most effective works of persuasion (Winston Churchill)
   C. Genuine classical forms of rhetoric still remain great
      1. Personal conviction of a leader
      2. Mere advertising debases the public
   D. Christians can use grace of confirmation

   THE NEED OF GOOD STYLE

I. Defining "style"
   A. Persuading audience
   B. Qualities of a good style (effectively selecting and organizing for effective persuasion)
   C. Conclusion: begin by making an outline of what we wish to say

II. Outlining a composition (an orderly classification of statements in which each general statement is divided into lesser general statements: reaching ultimate unit of statements)

III. Diagramming a sentence
   A. Carrying out an outline completely: grammatical analysis
   B. Three principal parts:
   C. Things to consider
      1. Sentences and modifiers (simple, compound, subordinate clauses)
      2. Moods of verbs (indicative: state; interrogative: ask; subjunctive: request; suppose; imperative: command)
      3. Actions expressed by verbs (intransitive: clear, definite; transitive: demand object or object complement: direct object, objective complement; indirect object; infinitive)
D. Ultimate units of a sentence
   1. Subject
   2. Predicate

IV. Variety in style
   A. Composition: development of one part of outline at a time
   B. Simple style
      1. Levels of usage: formal, informal, vulgar
      2. Inadequacy in fulfilling all requirements of rhetoric and poetry
   C. Rhythm in poetry and prose (regular arrangement of sound according to time)
      1. Sound of word: emotional quality
      2. Combination of series of sounds differing in pitch according to some pattern or proportion (high-pitched, low-pitched vowels; alliteration; rhyme: assonance)
      3. Kinds of rhythm (regular, loose, very irregular, Latin, Greek, English)
      4. Units of rhythm ("feet"): dactyl, anapest, trochee, iambic
      5. Requirements of rhythm: variety, emphasis

D. Sentence structure: most important means of creating emphasis and variety
   1. Confused sentences? Emphasis is lost
   2. Every sentence alike? Get variety by using different types of modifiers
   3. Practice expressing the same idea in a great variety of ways so that in writing a composition we can vary our expression as required

E. More figures of speech: means of achieving more colorful and ornate style
   1. Transference of words from one meaning to another
   2. Arrangement of ideas in a sentence
      a. Parallelism
      b. Antithesis
      c. Combination
      d. Climax
      e. Anticlimax
      f. Effect of figure of speech
         1) Personification
         2) Apostrophe
   3. Clarity in spite of color or ornament
   4. Benefits of variety
   5. Mood or tone: rhetoric and poetry
   6. Basic rule of style: Begin with a clear expression of your basic ideas in a simple style; then if your purpose is poetic or rhetorical choose the appropriate devices of sound, of sentence-structure, and of figures of speech to achieve variety and emphasis and to sustain the desired emotional mood.

F. Examples of style
G. Definitions
H. Teaching and study suggestions
A Drill Lesson: Introduction in Ashley's The Arts of Learning and Communication

The Answers

a. the Academy
b. natural science
c. rhetoric
d. Aristotle

e. Jesus Christ
f. poetics
g. demonstrative logic
h. dialectical logic

i. theology
j. social science
k. historic threat to education

THE ARTS OF LEARNING AND COMMUNICATIONS

DRILL LESSONS BASED ON THE INTRODUCTION OF ASHLEY'S

APPENDIX XIII
A Drill Lesson: Introduction in Ashley’s *The Arts of Learning and Communication*

The Answers

a. the Academy  
b. natural science  
c. rhetoric  
d. Aristotle  
e. Lyceum with a museum and laboratories  

f. Jesus Christ  
g. poetics  
h. demonstrative logic  
i. dialectical logic  
j. liberal arts  
k. main subjects to be mastered at the museum  
l. theology  
m. social science  
n. historic threat to education  
o. kinds of logic  
p. the Museum

THE QUESTIONS

1. **Main subjects (k)**: liberal arts, natural science, social science, theology

2. **The Academy**: Plato’s gymnasium, the first great university where mathematics was the basic study because it is by the hard intellectual wrestling that the mind is developed in the art of logic

3. **Aristotle**: realized that logic should be strictly applied not only to mathematics but to all branches of learning

4. **Lyceum (e)**: the first complete curriculum of studies founded by Aristotle

5. **Kinds of logic**: kinds of proof

6. **Aristotle**: showed that the chief task of logic is not merely to define terms and to state principles, but to make proofs or demonstrations

7. **Demonstrative (h)**: a statement is certainly and exactly true

8. **Dialectical (i)**: giving probable proofs and continuing search

9. **Poetics**: entertaining people by helping them to appreciate and enjoy the truth

10. **The Museum**: a great school at Alexandria, Egypt, from which Aristotle’s system of education spread to the whole western world (basis of all our education today)

11. **Liberal Arts**: the four types of logic: demonstrative, dialectical, rhetorical

12. **Natural Science**: the study of the nature of man and the world in which he lives

13. **Social Science**: the study of man’s life

14. **Theology**: the study of God

15. **Jesus Christ**: the supreme philosopher and teacher who required no one to teach him

16. **Historic (n)**: effort of pagan Rome to absorb Christians into their pagan philosophy

17. **Jesus Christ**: practiced the useful arts, enjoyed fitting recreation, taught through stories which are masterpieces of poetics and rhetoric, corrected our understanding of nature, of life, and of society
The Answers

a. Philosophers  e. common names  i. logic  
b. Socrates    f. proper names  j. thinking clearly  
c. Plato     g. signs  k. arts of recreation  
d. useful arts  h. sophists  l. conventional signs  
m. King Solomon

THE QUESTIONS

1. Signs a connection 
2. Proper names each belongs to a single thing 
3. Common names represent a universal concept 
4. Conventional signs words which are natural but such whose meaning came from agreement 
5. Useful arts for food, shelter, clothing that men require for life itself 
6. Arts of recreation needed to enjoy life and live well 
7. Solomon wisest man of ancient times 
8. Logic the art of arts, the art of clear and orderly thinking 
9. Thinking clearly giving precise reason or proof for whatever we claim to be 
10. Sophists clever men in ancient Greece who were sometimes more interested in ingenuity and effectiveness than in soundness of argument 
11. Philosophy truly wise men who refused to be called anything but "lovers of wisdom" 
12. Socrates believed that the only way to settle an argument about what is true and what is false is to begin by defining your terms 
13. Plato showed that to think clearly one must not only define his terms but must also state his principles (the basic truths on which knowledge rests)

TRUE OR FALSE 
(If false, provide the correction to make it true)

E. 1. God named all the cattle, all the birds of the air, and all the beasts of the field. p. 3
  2. Natural signs have a natural connection between the sign and the thing for which it stands. p. 5
  3. The people who appreciated the value of thought did not always appreciate the value of truth. p. 9
  4. When pagan Rome tried to absorb the Christians, the Fathers of the Church came to the defense of the Church. pp.14-15
  5. The monastery school, especially those of St. Vincent de Paul, kept ancient education alive, purified it of its paganism and gave it a new and truer form based on the study of Sacred Scriptures. p. 15
  
FILL IN THE BLANKS

1. The discovery of writing proved that people were truly civilized because it shows that they had begun to appreciate the value of human thought. p. 9
2. The fathers of the Church were St. Clement, Gregory, Nazianzen, Jerome
Scene: A restaurant. Two friends, Tom and Harry, are revealed eating. Tom is attack­
ing an oversized porterhouse steak; Harry is toying with an even larger salad.

Harry: "How can you eat that revolting food, Tom?"
Tom: "Revolting? This wonderful piece of juicy steak?"
Vegetarianism, or How Not to Argue (possible answers listed at the bottom of page)

Scene: A restaurant. Two friends, Tom and Harry, are revealed eating. Tom is attacking an oversized porterhouse steak; Harry is toying with an even larger salad.

Harry: "How can you eat that revolting1 food, Tom?"

Tom: "Revolting? This wonderful piece of juicy steak?"2

Harry: "I call it a piece of the scorched backside of a cow's carcase."3

Tom: "Now you're being disgusting! Whatever you call it, it's still the best steak I've tasted in a long while."4

Harry: "You're just a necrophagist.5 In any really civilized country6 you'd be locked up for murder."

Tom: "Necrophagist! I don't believe there's any such word.7 What does it mean?"

Harry: "Filter of corpses.8 Now look, Harry, that's going too far. I know you're a fanatical vegetarian, but that's no reason for abusing those who disagree with you. What do you mean by calling me a murderer?"

Tom: "Isn't a man who causes a murder to be committed a murderer?9"

Harry: "I suppose so."

Tom: "Would manufacturers produce goods unless they were sure of customers?"

Harry: "No."10

Tom: "Aren't you a consumer of corpses--sorry, steaks."

Harry: "You can see I am. Come on--get to the point."

Tom: "Animals wouldn't be killed unless people ate them. Therefore, you cause animals to be murdered. Therefore, you're a murderer."

Harry: "Animals would have to be killed even if they weren't eaten. Otherwise there just wouldn't be any room for people to live."

Tom: "Oh, yes, there would! Animals in a state of nature keep their numbers down. Darwin proved that!13

Harry: "Well, if I'm a murderer, so are you!4 What do you suppose your shoes are made of?"

Tom: "I wouldn't wear them if I could get equally warm shoes that weren't made of leather."

Harry: "You object to taking of all life, don't you?15"

Tom: "Yes."

Harry: "Well, how do you justify eating vegetables. They're alive, aren't they? You disgusting vegetablist."

Harry: "You can't say 'vegetablist'--that's mixing Latin and Greek."17

Tom: "Of course I can say it--vegetablist. Get back to the point--get back to the point."

Harry: "Well, I suppose vegetables are alive. But you've got to admit that they're a low form of life."

Tom: "I admit nothing of the sort. Julian Huxley says that 'life is one and indivisible. How can you draw a line between lower and higher forms of life?'"

Harry: "In that case you ought to approve of eating human beings."

Tom: "Now you're being fantastic. When you start accusing me of cannibalism, I know you've lost the argument. Anyway, my steak's growing cold."

(A silence falls, broken only by the sounds incidental to the munching of meat and the crunching of lettuce.)

a. name calling
b. emotive language
c. hidden assumption
d. diversion
e. an unnecessary admission
f. a shift of meaning
g. appeal to authority
h. a "you too" argument
i. equivocation
j. drawing admissions by skillfully worded questions
k. reiterating real or pretended disgust
l. a counterattack (vs. meeting the argument)
m. refusing the "hail"

n. refusing the opponent's attempt at diversion
o. escaping the force of the attack by making a distinction
p. irrelevance
q. fallacy: things that are continuous must be identical
r. fallacy: getting personal (ad hominem)
Dear Seniors,

The books listed below can be of great help to you in trying to acquire some of the skills needed for intelligent reading and communication. Try to read at least a few of these during the remaining months of your last year of high school. Consult the card catalogue in the public library. If enough of you are interested to petition certain books, the library might purchase some of these, especially the more recent ones.

Bibliography

Borass, Julius, Teaching to Think, New York, Macmillan Co., 1924.
Bibliography continued -- page 2


You might find many other books related to the topics of:

- propaganda
- thinking
- critical thinking
- thoughts and thinking
- language and its expression
- straight thinking

Take notes on the reading that you do so that you might share your learning with your classmates.
"The shot heard 'round the world" echoes today from the cane fields of Cuba to the jungles of the Congo. It is heard and distorted by Fidel Castro and Patrice Lumumba. People in the jungles and cane fields have been set afire with the desire for democracy. Is it, however, a fire that will purge and illumine a new nation's ideals or rather one that will destroy and embitter a people not yet ready for the flame?

Did the rage of Fidel Castro against the tyranny of the Batista regime have the same ring as Patrick Henry's "Give me liberty or give me death!" Does Castro hold with Thomas Jefferson "That all men are endowed by their Creator with certain inalienable rights...that to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed?"

Patrice Lumumba, premier of a revolution-torn Congo, menaces the free world with the threat of a Russian alliance. Does he believe with Charles Carroll that "without morals a republic cannot subsist any length of time?"

Our first president called "unity of government the main pillar of the edifice of real independence...A government for the whole," he said,"is indispensable and no alliances, however strict, can be an adequate substitute." These are words of great importance to a free nation and, unless the Congolese and the Cubans are able to comprehend their full meaning, these unfortunate peoples will fan the fires of freedom in vain.

"Voice of Youth"
Chicago Sunday Tribune
February 5, 1961
Bibliographies, Abstracts, and Annotations

A bibliography is a list of books, maps, etc.; for example, a list of works relating to a particular subject or person or a list of the works of a particular writer; the art of describing books correctly with respect to authorship, editions, physical form, etc.

Dictionary of Education by Carter V. Good

Main criteria for bibliographical data

Accuracy... for the sake of the worker and readers
Bibliographies, Abstracts, and Annotations

A bibliography is a list of books, maps, etc.; for example, a list of works relating to a particular subject or person or a list of the works of a particular writer; the art of describing books correctly with respect to authorship, editions, physical form, etc. Dictionary of Education by Carter V. Good

Main criteria for bibliographical data

Accuracy... for the sake of the worker and readers
Completeness... it is made to use, not to serve as "ornamentation"
Consistency in style: order of entry of the data for similar references,
punctuation for similar references.

How to Write a Thesis by Reeder, p. 39-42.

A Magazine Article:


Title of a Chapter:


The Entire Book:


Newspaper Article:

Use same form as for a periodical article; state name of newspaper, volume, date, page and column.

Intelligent cutting of routine labor will prevent much of the bibliographic work from done over later.

An abstract is a brief summary that gives the essential points of a book, pamphlet, or article.

An annotated bibliography is a list of references accompanied by notes that may indicate the subject, content, method, findings, etc., or may give evaluations, of each publication listed. Dictionary of Education by C. V. Good

... one which has comments after each reference telling succinctly the contents and the merits of the reference.

How to Write a Thesis by Ward G. Reeder

Annotations should be governed by the specific purposes of the bibliography and of the editor: give the reader the chief values of the reference for the treatment involved. Brevity is essential in annotations.

Active verbs can give various shades of meaning; analyzes, appeals for, argues, attempts, calls attention to, cites, compares, considers, contains, criticizes, deals with, defines, describes, details, devises, discusses, emphasizes, estimates, explains, examines, gives, includes, indicates, involves, lists, outlines, points out, portraits, presents, recommends, redefines, reviews, seeks, sets up, shows, states, studies, suggests, summarizes, tabulates.

How to Locate Educational Information, Alexander Burke
Dear Student,

At the beginning of the school year you were given a letter challenging you to try to master some particular skills necessary for critical thinking. This sheet is intended to help you do that. You are to compose test exercises based on some specific scenarios and situations that will aid you in understanding the Watson-Glaser Critical Thinking Appraisal.
Dear Student,

At the beginning of the school year you were given a letter challenging you to try to master some particular skills necessary for critical thinking. This sheet is intended to help you do that. You are to compose test exercises based on some reading materials, e.g., selections from your anthology; these exercises should have the following directions for those taking the tests that you compose:

Test 1. Inference

Directions. An inference is a conclusion which a person draws from certain observed or supposed facts. Thus, from the electric light visible behind the window shades and from the sound of piano music in a house, a person might "infer" that someone is at home. But this inference may or may not be correct. Possibly the people in the house went out leaving the lights on, and the piano music could be coming from a radio or phonograph they left playing.

In this test each exercise begins with a statement of facts which you are to regard as true. After each statement of facts you will find several possible inferences—that is, inferences which some persons might make from the stated facts. Examine each inference separately, and make a decision as to its degree of truth or falsity.

T - if you think the inference is definitely true; that it properly follows from the statement of facts given.

PT - if, in the light of the facts given, you think the inference is probably true; that there is better than an even chance that it is true.

ID - if you decide that there are insufficient data; that you cannot tell from the facts given whether the inference is likely to be true or false; if the facts provide no basis for judging one way or the other.

PF - if, in the light of the facts given, you think the inference is probably false; that there is better than an even chance that it is false.

F - if you think the inference is definitely false; that it is wrong, either because it misinterprets the facts given, or because it contradicts the facts or necessary inferences from those facts.

Sometimes, in deciding whether an inference is probably true or probably false, you will have to use certain commonly accepted knowledge or information which practically every person knows. This will be illustrated in the examples.

Test 2. Recognition of Assumptions

An assumption is something supposed or taken for granted. When someone states, "I'll graduate in June," he takes for granted or assumes that he will be alive in June, that he will remain in school until that time, that he will pass his courses, and similar things.

Below are a number of statements. Each statement is followed by several proposed assumptions. You are to decide for each assumption whether it necessarily is taken for granted in the statement.

If you think the given assumption is taken for granted in the statement, mark it "assumption made," if not, mark it "assumption not made."

Test 3. Deduction

Each exercise below consists of two statements (premises) followed by several proposed conclusions. For the purposes of this test, consider the two statements in each exercise as true without exception. Read the first conclusion beneath the statements, and if you think it necessarily follows from the statements given, answer by marking it "conclusion follows"; if it doesn't follow, mark it "conclusion does not follow."

Try not to have your prejudices influence your judgment—just stick to the given statements and judge each conclusion as to whether it necessarily follows from them.
Test 4. Interpretation

Each exercise below consists of a short paragraph followed by several proposed conclusions. For the purpose of this test assume that everything in the short paragraph is true. The problem is to judge whether or not each of the proposed conclusions logically follows beyond a reasonable doubt from the information given in the paragraph. If you think that the proposed conclusion follows beyond a reasonable doubt (even though it may not follow absolutely and necessarily), then mark it "conclusion follows." If it doesn't, mark it "conclusion doesn't follow." In some cases more than one of the proposed conclusions may follow, in other cases none of the conclusions may follow.

Test 5. Evaluation of Arguments

In making decisions about important questions it is desirable to be able to distinguish between arguments that are strong and those which are weak in so far as the question at issue is concerned. Strong arguments must be both important and directly related to the question. Weak arguments may not be directly related to the question, even though they may be of great general importance; or they may be of minor importance; or they may be related to trivial aspects of the question.

Below is a series of questions. Each question is followed by three or four arguments. For the purpose of this test you are to regard each argument as true. The problem then is to decide whether it is a strong argument or a weak argument.

Mark the statement either "STRONG" or "WEAK." When evaluating an argument, judge it on its own merit; try not to let counter-arguments or your own attitude toward the question influence your judgment. Judge each argument separately. In some questions all the arguments may be STRONG, in others all may be WEAK.

Example: Should all young men go to college?
1. Yes; college provides an opportunity for them to learn school songs and cheers. (This would be a silly reason for spending years of one's life in college.) WEAK
2. No; a large per cent of young men do not have enough ability or interest to derive any benefit from college training. STRONG
3. No; excessive studying permanently warps an individual's personality. (This argument, although of great general importance when accepted as true, is not directly related to the question, because attendance at college does not necessarily require excessive studying.) WEAK

Documentation

Footnotes: this term applies to citations of sources for statements of fact or opinion or for quoted matter.

Examples

Book
5. Greene, p. 749. (later reference)
6. Ibid., p. 224. (immediately following)

Essay Contained in the Author's Own Collection
121. Freeman, p. 98. (later reference)
122. Ibid., p. 32. (immediately following)
The Story of the Trapp Family Singers

I. Answer the following questions in essay form.

A. What did Maria Augusta Trapp mean when she wrote, "If people would only understand that you cannot buy feasts with money." How did she prove that she meant what she said? (p.75)
I. Answer the following questions in essay form.

A. What did Maria Augusta Trapp mean when she wrote, "If people would only understand that you cannot buy feasts with money." How did she prove that she meant what she said? (p. 75)

B. Were the Trapp Family Singers too idealistic in their answers to the questions presented to them after concerts or in the camp toward the end of the Singing Weeks? These were the questions:

1. What do you think about popular music?
2. Why does the Trapp Family not wear American clothes?
3. What are you going to do about your girls marrying? Do they meet young men? Do they have boy friends?
4. How could we do what you are doing; sing in our family?

C. Do you consider the last chapter, "Cor Unum (One Heart)" an appropriate one? Explain by referring to events in the life of the family.

D. List instances of the recurring theme, "God's Will Hath No Why."

II. Choose the best answer:

E. The term "just loaned" as used in the first chapter had reference to:

1. The money that friends let the Trapp Family use.
2. The fact that Maria was to return after a year.
3. The war relief work.

F. The most evident cause of the Baron's illness was:

1. The farm work was disagreeable to him.
2. The tours were too taxing on his strength.
3. His previous work for his country.

G. The Trapp family came to America because:

1. They loved to travel.
2. They wanted to do missionary work by means of their music.
3. Political conditions of Europe urged them to do so.

H. The relationship between the Trapp Family and Uncle Peter in his use of handbooks can be summarized in the following manner:

1. The members of the family had language difficulties and had to depend upon handbooks as Uncle Peter did.
2. They ridiculed Uncle Peter.
3. They used other means to guide them in their activities.

I. When the Nazis marched into Salzburg, Austria, on March 11, 1938, a Gestapo man:

1. Pounded on the door and summoned Georg to meet Hitler.
2. ordered all schools closed the next day and ceremonies in the Church to be discontinued.
3. With a gun, supervised bell-ringing in every church.

J. After the Trapps gave a concert in Vermont to get funds for the school roof:

1. The domestic science teacher and her students baked for the Trapps.
2. Captain Trapp earned a good yearly salary teaching military drill.
3. The carpentry teacher and his boys shingled the Trapps' new roof.

Suggestion:

Answer part I first (since it can be done quickly). You will then be able to gauge your time better.
Jane Eyre by Charlotte Bronte

A knowledge of the following words and phrases will help you to enjoy your reading:

hearth = fireside, the pavement on which a fire is made
heather = a species of heath (low evergreen undershrubs)
moor = an extensive area of wet waste ground overlaid with peat (soft coal)
wicklet = a small gate or door; a grilled or grated window
slough = a place of deep mud or mire; a slue (slaw) or swamp wall; turnstile
stile = a step or set of steps for ascending and descending in passing a fence or
paroxysms = sudden seizure of emotion or activity
hideous indigence; ugly poverty
antipodes = the exact opposites or contraries, e.g. of the globe
surlily = ill-favoured, abrupt, crude, crabbed
inanition = emptiness; exhaustion from lack or nonassimilation of food
rue a blunder = suffer remorse for a mistake
elysium = the abode or state of ideal delight and happiness; paradise
hiatus = an opening, a gap, a slight pause between two vowels (co-operate)
inexorable = not to be persuaded or moved by entreaty; inflexible, relentless
ebullition = act, process, or state of boiling or bubbling up; agitation, excitement
ruth = compassion for misery; repentance, regret, remorse
lacrymose = generating or shedding tears; tearful
grange = a farm, a farmhouse with outbuildings
coster = a stableman
bourne or bourn = a stream
hierophant = a priest, an expositor of sacred mysteries

Can you identify typically English expressions (British), such as:
by-bye, I had the intelligence (I got the news), it does not signify (matter)

Reading the introduction to the book (by Mark Schorer) will help you understand:
1. Charlotte Bronte, like her creation, Jane Eyre, retains her psychic health through the most fearsome tribulations; she vindicates the purity of her humble bread and releases and realizes a thousand of its gaudy dreams.
2. Jane Eyre is representative of the socially dispossessed, the English governess who is both victim and victimizer.

As you read the book, notice that Jane Eyre gives us a picture of Charlotte Bronte's mind containing nothing but hunger, rebellion, and rage. Are these adequate materials for the production of a novel?

In the preface to the second edition, the author asks whether the unusual is wrong. She asserts that conventionality is not morality, that self-righteousness is not religion, to attack conventionality is not to assail self-righteousness; to pluck the mask from the face of the Pharisee is not to life an impious hand to the Crown of Thorns. This implies: appearance vs. truth; vice vs. virtue; external show vs. sterling worth. Is this in keeping with Catholic teaching?

Jane Eyre has obvious weaknesses. The action is pitted with implausibilities and absurdities, such as:
1. The account of the manners of an aristocratic life with which the author was unfamiliar, (childish)
2. The notion of keeping a raging maniac in the manner described is ridiculous.
3. The episode of the old gipsy fortune teller is not consistent with Rochester's Byronic austerity.
4. Turning the orphaned heroine out into the world alone and having her discover her cousins challenges the reader to throw the book aside.
5. The act of mental telepathy that brings the protagonists to their bitter-sweet embrace is unrealistic.
In spite of its silly, feeble parts ("rationalized fantasy" - "myth domesticated") the whole of the novel is compelling and strong. Things happen to happen, they do not have to happen. The novel begins at the beginning, covers a good stretch of time through a series of rather disparate adventures, and arrives at last at a happy ending.

The structure of *Jane Eyre* is nearly artless; it employs one of the oldest conventions - the fiction that presents itself as fact, the memoir of a presumably real person. Charlotte Bronte called this not a novel but an autobiography; the "real" author was Jane Eyre herself, and Currer Bell was merely her editor.

Nevertheless, *Jane Eyre* does have certain organizing principles that give it the dramatic coherence of a novel. The action falls into four large blocks:
1. First ten chapters (childhood and education); introductory
2. Next seventeen chapters (Thornfield Hall; Rochester)
3. Next eight chapters (flight and stay at Moor House and Morton; St. John Rivers) (Parts 2 and 3 form the heart of the novel; notice the conflict of the two characters in these parts)
4. Final three chapters (the return of Jane Eyre; a chastened Rochester)

What are some of the features in the style of this author that make her book great?

1. Analogy: the use of nature to help tell the story (allowing the symbolic sub-structure to heighten and express the thematic conflict, e.g. vegetation, especially the chestnut tree = dormant, blasted, blossoming-dramatic poetry) xiv-xv
2. Personification, e.g. "his reserve was again frozen over and my frankness was concealed beneath it."
3. Metaphor: in describing the ruined house she wrote, "A lover finds his mistress asleep on a mossy bank...he finds she is stone-dead."
4. Parallelisms: two persons took a coach to Whiteross: St. John and Jane
5. The plot. Can you discuss this in terms of the explanations given by Ashley?
6. Characters: Consistent? Plausible?

Identify the following:

2. Licentious, remorseful, handsomely ugly, physically passionate.
3. Land owner, a man with certain economic and social responsibilities, with humor to soften his severity and tenderness to soften his pride.
4. Kindly and rigid, turbulent within and frigid without, in love and unyielding, suffering from that spiritual pride that is the mark of the religious fanatic and that can lead as readily to martyrdom as to acts of cruelty.
5. Motivated by a desire of a new kind that is based on the frank recognition of a need to find self-fulfillment in the world, in relations with others.
6. Unadulterated malignity.
7. Unadulterated goodness.
8. Unadulterated malice.

Minor characteristics: one-dimensional
Major characteristics: multi-faceted and of a certain complexity

How is Jane's major conflict resolved?

After reading this book, can you debate the following topics intelligently?

1. Women should not go to college since their duty is to become good housewives.
2. This novel encourages divorce.
3. It was unfair for Jane Eyre to endure so much suffering and privation because of the laws of morality.

"Reading Is A Form of Living" J.B. Kerfoot (How To Read)

...if, as we come in contact with the realities of living, we begin in any measure whatever to develop an interest in the meaning of life; if we experience the slightest promptings of a will to inquire, if, hesitatingly at first, but with growing curiosity and deepening interest, we begin to ask questions of experience; if from thus asking questions of experience, we come little by little to the seeking of experience in order to question it, then more and more consciously and purposefully we find ourselves turning to fiction and enjoying it because it synthesizes our own observations of life and extends and amplifies and interprets them.
I. Thomas Merton was a college English teacher. Don't be surprised that he uses well chosen but often difficult terms. Here are a few of them:

- nadir of winter darkness - the lowest point
- time of greatest depression
- a vast and complicated charade - big, complex guessing game (syllables dramatized)
- miasma - noxious influence or atmosphere
- eclectic - choosing, as doctrines or methods from various sources, systems, etc.
- Pieta - a representation of the Virgin Mary mourning over the dead body of Christ
- satiated with prayers - gratified, satisfied with more than enough praying
- asesy - the power of a being to exist absolutely in virtue of itself (God)
- hyperdia - the special homage paid to the Virgin Mary

II. What do you know about the following persons?
1. Mark Van Doren, professor at Columbia University
2. Baronne de Husse, relief worker
3. Etienne Gilson and his Spirit of Medieval Philosophy
4. William Blake, poet
5. Gerald Manley Hopkins, Jesuit poet
6. Mary Baker Eddy, religious organizer
7. John Dewey, educator
8. Thomas Aquinas and Duns Scotus, Dominican and Franciscan philosophers and theologians
9. Dante, Italian poet, author of The Divine Comedy

III. Do you think that the following elements help the reader to understand and enjoy?

1. Clever devices, such as, "As a matter of fact she was about twice my age, but you could be twice sixteen without being old, as I now realize, sixteen years after the event."

2. Occasional short sentences. "And the time dragged on." "But in this he also failed." Notice his use of short sentences in expressing sorrow.

3. Theorizing, philosophizing about such topics as: grace, virtue, asesy, intellect, passions, hell. Does this give depth to what he says? Does this reflect Merton's mind? What kind of persons would be inclined to enjoy this?

4. Antithesis (a contrast or opposition of thoughts, usually in two phrases, clauses, or sentences): First paragraph: free by nature - prisoner of my own violence; loving God and yet hating Him; born to love Him, living instead in fear and hopeless self-contradictory hunger; End of Part One (seventh from last paragraph): "In filling myself, I had emptied myself. In grasping things, I had lost everything. In devouring pleasures and joys, I had found distress and anguish and fear."

5. Paradox (a statement that seems contradictory, unbelievable, or absurd but that may be actually true in fact): "enclosed within the four walls of my new freedom."

6. Irony (a method of humorous or sarcastic expression in which the intended meaning of the words used is the direct opposite of their usual sense): (Germany) embraced the betrayed nation (France) in arms of steel."

7. Humor: "I said rosaries all the way up to the shrine, while the trees went by in a big greenish-yellow blur. If Our Lady had tried to appear to me, I probably would never even get a glimpse of her."

8. Parallels: throwing stones at his brother who stood at a distance; in the monastery the grille created a separation.

IV. Thought Questions
1. Would you recommend this book to someone who is a possible convert?
2. To what extent did reading influence Merton's conversion?
3. If someone asked you for advice in choosing a contemplative or an active order, what explanation would you give? Would you suggest that this person read the "Epilogue" of this book?
4. If Thomas Merton were to become an educational leader of a large system, what things would be emphasized?
M = assumption made  NM = assumption not made (on the basis of the following sentences)

A. As November began, my mind was taken up with this one thought: of getting baptized and entering at last into the supernatural life of the Church.
   1. Baptism is one way of sharing in the supernatural life of the Church.
   2. The events in previous months had nothing to do with this event.
   3. On November 1st he was not a baptized member of the Church.

B. But my human nature, my weakness, and the cast of my evil habits still remained to be fought and overcome.
   1. Something in human nature can be contrary to the life one may want to live.
   2. New demands are likely to be made upon him.
   3. His past mode of living had been bad.

C. And I, who was asking for eternal life, stood and watched him, catching a word of Latin here and there.
   1. The speaker had some knowledge of Latin.
   2. The Latin words were not used throughout the ceremony.
   3. The one who stood and watched was also listening.

D. Gerby joined me as I was turning into Broadway. I do not remember whether Ed Rice caught up with us on Broadway or not. Lax and Seymour came after we were in church.
   1. Gerby was a close friend.
   2. An event of some significance was to take place in the church.
   3. The church was within walking distance.

Degrees of truth or falsity or probability of certain inferences drawn from given data:
T = completely true  PT = probably true  ID = insufficient data
F = false  PF = probably false

A. I tore out all those sins by their roots, like teeth. Some of them were hard, but I did it quickly. But ever since that day, I have loved confessions.
   1. Confessing his sins had a good effect on his attitude toward confessions.
   2. It was easy for him to confess all his sins.
   3. It was a distasteful task for him.
   4. Confession has become one of his frequent spiritual practices.

B. Heaven was entirely mine — that Heaven in which sharing makes no division or diminution.
   1. Mary may share this Heaven without having the "portion" reduced.
   2. The word "mind" does not refer to a particular individual.
   3. The author has a clear understanding of heaven.

C. And God, that center Who is everywhere, and whose circumference is nowhere, finding me, through incorporation with Christ, incorporated into this immense and tremendous gravitational movement which is love, which is the Holy Spirit, loved me.
   1. The writing of this sentence followed an event which resulted in an "incorporation".
   2. The magnitude of God can be calculated.
   3. God's love is the Holy Ghost.

D. And He called out to me from His own immense depths.
   1. The person who called out did this from a deep cave in the earth.
   2. This calling was a great privilege.
   3. This calling signifies the giving of an important work to perform.

The reason ideas have such a hard time getting into some heads is that they have to squeeze themselves in between prejudices.
APPENDIX XX

FURTHER APPLICATION
OF SKILLS OF CRITICAL THINKING
TO LITERARY SELECTIONS
The Song at the Scaffold

Test 1. Inference (T P ID PP F)

1. The fireworks catastrophe was the beginning of the revolution. ___________
2. Fear always accompanies a revolution. ___________
3. Government mismanagement and mistakes lead to revolutions. ___________
4. Signs often precede catastrophes. ___________
5. The royal bride and groom were guilty of mismanagement. ___________

Test 2. Recognition of Assumptions (Page 11, second part of second paragraph)

1. Life in a convent is idealistic rather than realistic. ___________
2. All who want to escape reality enter convents. ___________
3. Convent life offers no challenge. ___________
4. Convents offer great possibilities for personal development. ___________

(Assumption MADE or NOT MADE)

Test 3. Deduction (Conclusion: FOLLOWS, DOES NOT FOLLOW)

All religious are sacrificial. Some religious are afraid. Therefore -

1. Some sacrificial people are religious. ___________
2. Some sacrificial people are afraid. ___________
3. All who are afraid are not sacrificial. ___________
4. Some people who are afraid are religious. ___________

A person wanting to become a religious asks for admission. Blanche asked for admission. Therefore -

1. Blanche wanted to become a religious. ___________
2. Blanche had the qualifications to become a religious. ___________
3. The community accepted her. ___________

Test 4. Interpretation (Conclusion FOLLOWS, DOES NOT FOLLOW)(Page 68, paragraph 3)

1. Sister Marie of the Incarnation was not martyred. ___________
2. Sister Marie of the Incarnation escaped. ___________
3. Sister Marie of the Incarnation was now living alone. ___________
4. Sister Marie of the Incarnation was a sacrificial person. ___________

Test 5. Evaluation of Arguments (Arguments: STRONG, WEAK) (Page 78, "Preparation")

Is The Song at the Scaffold a novel of great merit, one that a person can appreciate and enjoy?

1. Yes; we can learn much history by reading it. ___________
2. Yes; it is a good example of learning how to write a novel. ___________
3. Yes; it provides a humanistically valuable type of entertainment. ___________

Haney's Story

A certain west coast university scientist chartered a ship for exploration purposes. When a large white bird was sighted, the scientist asked permission to kill it. He stated that wild albatrosses are usually found only off the coast of Australia. He wanted the bird as a specimen for the university museum.

The crew protested against the killing of the bird, calling the scientist's attention to the old sea superstition that bad luck follows the killing of a white albatross. Nevertheless the captain granted permission to kill the bird and the bird was killed. These mishaps happened after the bird was killed:

The net cables fouled up three times.
The net caught on the bottom and was ripped to shreds.
The shaft on the main winch snapped and it took crew members five hours to reel it in by hand 1,700 feet of cable.
A rib was broken when Jackie Larson, a scientific aide, fell down a hatch ladder.
The scientist became seasick for the first time hin his life.
Lost gear forced the ship to head for land. The book left his job.

Author's purpose: to inspire the falling morale of England

RECOGNITION OF ASSUMPTIONS: an assumption is something supposed or taken for granted. Below are a number of designated statements, each of which is followed by several proposed assumptions. Mark them respectively "ASSUMPTION MADE" or "ASSUMPTION NOT MADE".

1. STATEMENT: "From the moment that the French defences...were broken at the end of the second week in May, only a rapid retreat to Amiens and the south could have saved the British and French armies who had entered Belgium at the appeal of the Belgian King...."

PROPOSED ASSUMPTIONS:
A. The enemy was now on the offensive.
B. The Belgian king was able to save them.
C. This was a plot of the Belgian king.

2. STATEMENT: "Behind this armoured and mechanized onslaught came a number of German divisions in lorries, and behind them again their plodded comparatively slowly the dull brute mass of the ordinary German Army and German people, always so ready to be led to the trampling down in other lands of liberties and comforts which they have never known in their own."

PROPOSED ASSUMPTIONS:
A. Germany knew few liberties and comforts.
B. Most Germans were slow, dull brutes.
C. The entire German army was mechanized.

3. STATEMENT: "I have, myself, full confidence that if all do their duty...we shall prove ourselves once again able to defend our island home, to ride out the storm of war, and to outlive the menace of tyranny."

PROPOSED ASSUMPTIONS:
A. They are not able to defend their home.
B. They hope to live longer than tyranny.
C. The storm of war presently exists.

4. STATEMENT: "I know there are a great many people affected by the orders which we have made who are the passionate enemies of Nazi Germany."

PROPOSED ASSUMPTIONS:
A. Many people have become Nazi enemies due to the orders.
B. The orders are to become Nazi enemies.
C. Many people are victims of these orders as well as the tendency to hate Nazis.

5. STATEMENT: "The hospital ships, which brought off many thousands of British and French wounded, being so plainly marked, were a special target for Nazi bombs...."

PROPOSED ASSUMPTIONS:
A. Ships were specially marked in order to insure bombing.
B. The British and French who were wounded marked the ships.
C. The ships were necessarily designated medical ships.
Edmund Campion by Hilaire Belloc, pp. 741-745

T—definitely true; PT—partly true or probably true; ID—insufficient data; PF—probably false; and F—definitely false

1. "He (Campion) traveled in fair comfort, mounted and equipped as befitted a gentleman of moderate means. He was attended by his servant and more often than not by one or more of the younger members of the household where he had last stayed, but it was his habit for most of the way to ride in silence at some little distance from his companions, praying and meditating as he had done on the road to Rheims. Changes of horse and clothing were provided for him at different stages; he was constantly on the move, rarely, for fear of the pursuivants, stopping anywhere for more than one night. He must in this way have visited fifty or more houses during the three months." (p. 741, column 2, paragraph 1)
   A. Those accompanying him were present not for companionship but for service.
   B. The group traveled only at night.
   C. He often attracted his hosts or members of their families so much so that they joined him.
   D. This evasive business allowed little time to visit more than close relatives every few months.
   E. He rode upon a horse himself.

II. "Wherever they went the priests found an eager reception. Sometimes they stayed in houses where only a few were Catholic. There was constant coming and going in the vast, ramshackle households of the day, and an elaborate hierarchy in the great retinues. It was natural enough that any respectable wayfarer should put up there for the night, whether or not he had any acquaintance with his host." (p.742, middle of page, column 1)
   A. The priests received an eager reception from Catholics only.
   B. Estates were accustomed to travelers seeking shelter, whether they were close relatives or strangers.
   C. They often stayed in places where most people were not Catholic.
   D. They often stayed in large estates and castles where they were not known.
   E. Every vast household had a large hierarchy dwelling there continually.

III. "...The scars of the Tudor revolution were still fresh and livid; the great houses of the new ruling class were building, and in sharp contrast to their magnificence stood the empty homesteads of the yeomen, evicted to make way for the 'gray-faced sheep' or degraded to day labor on what had once been their common land; the village churches were empty shells, their altars torn out and their ornaments defaced; while here and there throughout his journey he passed, as with a different heart, he had often passed before, the buildings of the old monasteries." (p. 742, column 1, paragraph 1)
   A. The conquerors had elevated their economy and founded their society upon the ruins, devastation and suffering of the conquered.
   B. The village churches were being put to other uses.
   C. The yeomen were being deprived of their freedoms.
   D. The only remaining scars of the Tudor revolution were physical ailments of invalids who fought in war.
   E. The ruins were being caused by a popular reconstruction program.

"Democracy at its best demands of its citizens ability to think clearly, to attack problems intelligently, and to exercise critical judgments...they should be able to substantiate their statements with evidence, to draw inferences carefully, and to order their ideas clearly for presentation to others... (Students) should have practice in those skills which freedom of speech and of press demand of the listener and the reader. They should evaluate critically ideas found in newspapers, books, and magazines, heard in discussion or over the radio, or presented on the screen, learning in the process to validate authority, to distinguish fact from opinion, to recognize untoward emotional appeal, and to detect false inferences of unsubstantiated generalizations."

— English Language Arts, p. 45
A Guide for the Independent Reading
of the April, 1961, Issue of Today Magazine

In your group discussions this month, I challenge you to apply the
knowledge you have acquired and the skills that you have developed
in your English IV class.

---

Speaker, Author, Leader

Group One

Read and discuss: "Cracks in the Plaster," "The Right to Know," and "Sharer of Life"
in terms of our diamond.

---

Listener, Reader, Follower

---

Group Two

Symbols ↔ Referents

As you read the three selections: "The
Noblest Virtue," "Like the Phoenix," and
"Our Letter-Writing Friends" try to
analyze the use of symbols (words) for
the same or different referents.

---

Group Three

This year you paid attention to the topics of prejudice, bias,
objectivity (vs. subjectivity), descriptive (vs. ascriptive) data.
Discuss these after intelligently reading "Hero of the Land,"
"Unseparate and Equal," and "It Could Be You (but is it?)."
Group Four

Some time this year you had seen in your classroom a sign like this:

In terms of that sign discuss the selections: "Working for What?" "Easter the Newness of Life in Us," and "Our Lost Freedoms."

----------------------------------------------------------------------------------------------------------------------------------

Group Five

Give RATINGS (evaluations) for a "Priest's Story," "Evening with Fred," and "Easter Joys."

Give REASONS (specific)

RULES (general)

Was the selection: narrative, expository, descriptive, argumentative?

Were the arguments: poetic, demonstrative, dialectical, rhetorical?
EXPOSITION: unfolding of a subject :: ARGUMENTATION: convincing of persons :: 
DESCRIPTION: presenting a picture :: NARRATION: relating a story

N.B. These individual forms of discourse are usually found in combination.

EXPOSITION: a setting forth of the meaning or purpose of a writing, discourse, law; 
discourse or an example of it designed to expound, explain, or appraise analytically. By telling what something is, how it is made, or how it functions,
EXPOSITION: unfolding of a subject :: ARGUMENTATION: convincing of persons :: DESCRIPTION: presenting a picture :: NARRATION: relating a story

N.B. These individual forms of discourse are usually found in combination.

EXPOSITION: a setting forth of the meaning or purpose of a writing, discourse, law; discourse or an example of it designed to expound, explain, or appraise analytically. By telling what something is, how it is made, or how it functions, exposition tries to make a concept clear. It is addressed to the intellect rather than to the emotions.

The writer must have an unblurred and undistorted idea in his mind. must be logical in organizing his thoughts.

Some methods of exposition: definition, classification, differentiation.

ARGUMENTATION: act or process of forming reasons, making deductions, drawing conclusions and applying them to the case in discussion.

Aim: to convince a reader of the truth of a conclusion; to present a set of facts in such a manner that they will cause the reader to act as you desire.

The proposition: the point which is being argued
The issues: specific questions which must be settled in the course of the discourse

The methods of reasoning

Causes of error in reasoning
1. Faulty observation
2. Hasty conclusion
3. Wrong sources of information
4. Unwarranted conclusion from accurate facts

Application of reasoning to the writing of argument; precautions:

1. Analogy (If two objects are alike in one respect are they necessarily alike in another respect?)
2. Rationalizing (justifying an action after it was done)
3. Wishful thinking
4. Argument against the man (ad hominem)
5. Argument of the people (ad populum)
6. The red herring (a remark which is drawn across the main path of the argument and so turns it into by-paths)
7. Ignoring the issue

Ask yourself: Are the arguments pertinent (related to the matter, relevant)? Are they consistent (having agreement with themselves)? Is unverifiable (not proven to be true) data presented as though it were factual?

NARRATION: discourse, or an example of it, designed to represent a connected succession of happenings; especially such discourse involving plot, setting, and characterization. It deals with a succession of incidents bound together by chronological order or by the logical sequence of events.

Narration places emphasis on the results of a sequence of events; exposition puts emphasis on the manner.
The other forms may make use of narration.

DESCRIPTION: discourse or an example of it designed to give a mental image of a scene, a person, an emotional situation, etc. It is intended to produce in the mind of the reader or listener the same impression of an object which he would get from the object itself: a clear, vivid impression of a scene, a person, a sensation, an emotion, or other image which exists in the writer's own consciousness.

N.B. Ashley warns us against confusing the "parts" or "forms" of discourse (narration, description, argumentation, exposition) with the types of discourse (rhetorical, poetic, dialectical, demonstrative logic). Why is it easy to confuse these? As you read the selections in your anthologies, try to identify the forms and types of discourse. If you develop these skills, you will not be easily deceived by propaganda.
RESOLVED:

To express myself in fresh language, in simple, straightforward statements.

To avoid:

Cliches: trite phrases, hackneyed expressions, expressions which deviate enough from the ordinary or the literal usage to call attention to themselves and which have been used so often that they become trite (used until they become so common as to have lost novelty and interest) and tedious.

Trite expressions: sometimes called clichés or bromides, flat expressions which have become stale through too frequent use.

There is nothing inherently wrong with such expressions, but they have been used so much that they may bore the reader and weaken the effect of writing.

"They are the staple of those who lack imagination or who are too lazy to think of fresh, new expressions and figures of speech." Sanders, Gerald G., Unified English Composition, p. 176 and Taft, Kendall B., The Technique of Composition.

Some trite expressions:

acid test
all in all
among those present
as luck would have it
beat a hasty retreat
blushing bride
brave as a lion
brawny arms
breathless silence
brown as a berry
carpet of green
clear as crystal
conspicuous by its absence
doomed to disappointment
downy couch
each and every
eagle eye
enjoyable occasion
fair sex
gave the finishing touch
glassy stare
good as gold
goodly number
 green with envy

inner man
innocent as a lamb
in our midst
in the last analysis
in this day and age
in touch with
irony of fate
last but not least
lonely sentinel
mantle of snow
mental picture
Mother Earth
nipped in the bud
no sooner said than done
not a sound broke the stillness

order out of chaos
partake of refreshments
proud possessor
put in an appearance
red as a rose
royal reception
sigh of relief
silence reigned supreme
slow as molasses
slow but sure
specimen of humanity
staff of life
stands like a sentinel
sun-kissed meadows
weaker sex
word to the wise
white as a sheet
Types of Discourse
Identify the following selections with one or more of the following:

**Demonstrative**  (guides us in attaining scientific, that is, certain and exact, truth)

**Dialectical** (guides us in choosing the more probable opinion, when we do not yet know enough to have scientific truth)

**Rhetorical** (guides us in persuading others to right opinion and action, when their emotions might incline them to the opposite way)

**Poetic** (guides us in recreating others with the contemplation of beautiful deeds and the quiting of restless emotions)

1. "There is a Power whose care
   Teaches thy way along that pathless coast-
   The desert and illimitable air-
   Lone wandering, but not lost."  William Cullen Bryant

2. "I answer that a virtue is special when it relates to some object under some special aspect. Since then, the definition of justice consists in rendering another person his due....Therefore piety is a special virtue."  St. Thomas, Summa Theologiae, II-II q.101,a.3.

3. "The peculiar lack of any generosity or delicacy in the current Eng­list nationalism appears to have no other possible origin but in this fact of our unique neglect in education of the study of the national literature."  G.K.Chesterton, "A Defence of Patriotism"

4. "It is for us, the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced."  Abraham Lincoln, "Gettysburg Address"

5. "I believe that only in the schools can prople be educated to analyze understand and become critical of various issues that occur in every­day current events. Starting in the sophomore year in high school and continuing through the senior year in college, classes in current events should be taught. The classes should utilize newspapers, magazines and pamphlets in place of a textbook. By continual discussion over a period of time, an individual will develop an analytical mind and be able to think for himself when a situation arises."  Laurence Stern, "Opinion of the People," Chicago Sun-Times, Jan.9,1961

6. An organ which pumps to the body a much greater quantity of blood than can be supplied by the food eaten is a pump to circulate the blood. The heart is such an organ. Therefore, the heart is a pump to circulate the blood.  - Harvey's explanation of the circulation of the blood.

7. "I am very willing to agree with you in fancying that, in the greatest improvements in society, government will be in the republican form. It is a fixed principle with me that all good government is and must be republican."  John Adams to Samuel Adams

8. "Suddenly the church clock struck noon, then the Angelus. At the same moment the trupets of the Prussians who were returning from drill blared under our windows...M. Hamel rose, very pale, from his chair. Never had he appeared to me so tall."  Alphonse Daudet, "The Last Lesson"

9. "How, then, can it be perilous for you to take such a man on your shoulders? I am satisfied that the great body of republicans think of him as I do. We were, indeed, dissatisfied with him on his rati­fication of the British treaty. But this was short lived."  Thomas Jefferson, on the Character of George Washington

10."These observations were perhaps not very sensational to the uninitiated, but they were of passionate interest to the scientist. It often happens in physics that an inexplicable phenomenon can be subjected, after some investigation, to laws already known, and by this very fact loses its interest for the research worker."  Madame Curie by Eve Curie
INTEREST IN LEARNING

Medfield, Mass., Feb. 21 -- Amid all the talk about aid to education, it might be well to remember that there is more to getting an education than spending a certain number of hours a day in air conditioned classrooms with teachers carefully trained in modern methods.
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Medfield, Mass., Feb. 21 — Amid all the talk about aid to education, it might be well to remember that there is more to getting an education than spending a certain number of hours a day in air conditioned classrooms with teachers carefully trained in modern methods.

The first requisite for a good education is the desire to learn. Today there are loud complaints that high school students can't read and college students can't articulate their thoughts sufficiently to write. Why? Abraham Lincoln spent almost no time in school, but even today's intellectuals can scarcely deny his ability to read and write.

Surely I don't underestimate the part the school plays in educating today's children, but the most important need, an interest in learning, must be met in the home — not in Washington, D.C. Mrs. Elizabeth M. Robie

Choose the answer which best answers the following:

1. The main point in this selection is:
   - a. Classrooms should have air conditioning and carefully trained teachers.
   - b. The first requisite for a good education is the desire to learn.
   - c. The federal government should give financial aid to schools.

2. This selection is predominantly:
   - a. Poetic. It is meant to entertain the reader.
   - b. Dialectical. It presents probable opinions.
   - c. Demonstrative. It presents accurate, scientific information.
   - d. Rhetorical. It aims at persuading.
   - e. A combination of two of these forms: rhetorical and dialectical.

3. Is this presentation consistent and does it support the author's position?
   - a. No. The fact about Abraham Lincoln presents an opposing argument.
   - b. No. The sentence about air conditioning and carefully trained teachers is in direct disagreement with the main thesis.
   - c. Yes. All details support the central argument.

4. What additional information is needed? Or, do you think enough data have been provided to make this a consistent whole?

5. What are some of the ideas and beliefs which the author takes for granted (assumes)?
   - a. Students have free wills. Therefore, they and their parents ought to feel responsible.
   - b. All of our schools encourage an interest in education.
   - c. If federal aid is given to schools, it will necessarily control the curricula.

6. Did Mrs. Robie use any stereotypes or cliches in her letter?

7. Was this letter an emotional or an intellectual appeal?
   - a. The words "good," "carefully trained," and "modern methods" are favorable terms. Therefore, this selection is a biased and an emotional one.
   - b. She states her position and then gives supporting arguments that are in conformity with good reasoning.
   - c. She uses the good example of Abraham Lincoln, whom all Americans love, to arouse emotions in the readers. Therefore, this is an emotional appeal.

8. Does this letter use any unverifiable data as though they were facts. If so, list them.

9. This selection is ___ narrative, ___ descriptive, ___ argumentative, ___ expository.

10. List the abstract terms in this letter.
CITY HAS FINE POINTS (Chicago Sun-Times, March 2, 1961)

I am not an American but a foreign student studying in America, and I fully agree with The Sun-Times when you denounce the attitude of the British Broadcasting Corporation and Cassandra of the London Daily Mirror, in portraying the uglier side of Chicago. I have been in Chicago for more than two years and I think this city has many fine points that I need not enumerate here.

Incidentally, this should serve as an eye-opener to some American newspapers and magazines (not The Sun-Times) which suffer from the same fault, namely, in concentrating only on the seamy side of other countries and completely ignoring their better side. You can realize how much it hurts the feelings of the people of those countries and hampers good relations between them and the American people.

Sailil Kumar Niyogi

1. The arguments for the author's conclusions are primarily: ___ demonstrative, ___ dialectical, ___ rhetorical, ___ poetic.

2. This letter is primarily: ___ narrative, ___ descriptive, ___ argumentative, ___ expository.

3. Check the words that are abstract: Chicago, attitude, newspapers, good relations, foreign student, The Sun-Times.

4. Which of the following might easily be classified as stereotypes or cliches?
   ___ for more than two years, ___ an eye-opener, ___ hurts the feelings of people
   ___ for more than two years, ___ an eye-opener, ___ hurts the feelings of people

5. The writer probably takes the following things for granted (assumptions):
   a. In America a foreign student may voice his opinion through an open letter.
   b. All of Chicago is ugly.
   c. Foreigners are not concerned about public opinion.

6. This letter is (an intellectual, an emotional) appeal because:
   a. Such words as "uglier," "seamy side," and "good relations" express favor or disfavor and make this letter an emotional appeal.
   b. It deals with the topic of hurting the feelings of people.
   c. Even though it deals with topics referring to the emotions, it presents arguments which most people consider as rational.

7. This letter is consistent because:
   a. The example of foreign countries does not help to explain his point.
   b. All the details of this short letter give you the one impression that the author is not in favor of portraying the uglier side of Chicago or of other places.

8. Do you think all the facts in this letter are verifiable? ______________

9. Is the example stated in the second paragraph pertinent to his argument? ______________

10. What is the main point of his argument?
    a. Foreign students should be allowed to write open letters.
    b. Portraying the uglier sides of places hurts the feelings of the people and hampers good relations.

11. What argument would you offer in opposition to this view to justify the above procedures? ____________________________
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Sailil Kumar Niyogi

1. The arguments for the author’s conclusions are primarily: __demonstrative, __dialectical, __rhetorical, __poetic.

2. This letter is primarily: __narrative, __descriptive, __argumentative, __expository.

3. Check the words that are abstract: Chicago, attitude, newspapers, good relations, foreign student, The Sun-Times.

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   for more than two years, an eye-opener, hurts the feelings of people

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    b. Portraying the uglier sides of places hurts the feelings of the people and hampers good relations.

11. What argument would you offer in opposition to this view to justify the above procedures?
Test:

Identify the following by inserting the correct words on a sheet of paper. Some words are used once, some not at all; one answer calls for two words.

<table>
<thead>
<tr>
<th>major</th>
<th>context</th>
<th>equivocal</th>
<th>conclusion</th>
<th>fallacies</th>
<th>logical thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>minor</td>
<td>homonym</td>
<td>reference</td>
<td>language</td>
<td>referent</td>
<td></td>
</tr>
</tbody>
</table>

A GUIDE TO LOGICAL THINKING
A.M.D.G. William Shanner SRA Guidance Series
A GUIDE TO LOGICAL THINKING

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<td>referent</td>
<td>generalizations</td>
</tr>
<tr>
<td>sample</td>
<td>analogy</td>
<td>deduction</td>
<td>premise</td>
<td>theories</td>
<td>superstititions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>senses</td>
<td>universe</td>
<td>intellectual</td>
</tr>
</tbody>
</table>

1. ____________ The whole group.
2. ____________ A part of the entire group.
3. ____________ Knight; night; two, too, to; here, hear; there, their.
4. ____________ Explanations that can account for different facts.
5. ____________ Likeness between one thing and another.
6. ____________ Words which differ in origin and often in spelling but have the same pronunciation.
7. ____________ Words which have two or more wholly different meanings with mere resemblance of words or sounds employed; words that are used in entirely different meanings.
8. ____________ A statement that is put first 2) that represents the universe.
9. ____________ A relation of likeness between two things, attributes, circumstances or effects.
10. ____________ Science of clear thinking: figuring out the reasons and causes behind things; getting evidence to back up and prove your point.
11. ____________ The faculty of verbal expression and the use of words in human intercourse; also the words themselves in their grammatical relationships.
12. ____________ Aristotle, an ancient philosopher, said that there is nothing in the intellect that was not somehow in the
13. ____________ Principles or laws derived from particulars that are similar.
14. ____________ Explanations that can account for different facts, from unlike things.
15. ____________ Reasoning from the general to the particular or from the universal to the individual, or specifically from given premises to their necessary conclusions.
16. ____________ Any reasonings failing to satisfy the conditions of logical proof or violating the laws of valid argument.
17. ____________ An adjective that pertains to the highest faculty of man.
18. ____________ That to which words are related; that thing or things which words symbolize.

True or False:

______ 1. The ability to think clearly is one of the most useful tools we can have in dealing with the problems of life.
______ 2. If we learn to think clearly we will be able to avoid all the problems of life.
______ 3. Superstitions are mixed-up notions of what causes what.
______ 4. A prejudice is a good thing because we can be prejudiced for or against something. It is a making up of our minds after we consulted many sources.
______ 5. To become saints we should try to control strong feelings; this ability (of controlling strong feeling) is also necessary for developing good thinking habits.
______ 6. It is wrong to have feelings about things; we should use our intellects.
______ 7. Christ teaches us to be able to face up to unpleasant facts cheerfully. Doing this should help us establish habits that will give us greater assurance in establishing good thinking habits.
Questions Based on Chapters 4, 5, 6 of Shermer's A Guide to Logical Thinking

1. We must be careful when making deductions. Explain why we must make sure that the statements with which we start are true.

2. Explain the following: don't take for granted something that is really doubtful (hidden assumption). Why is it important for you to state all your assumptions very clearly to yourself?

3. Explain the term, "guilt by association."

4. Explain the use of the word "monopolies" as used in the fourth chapter.

5. Explain the fallacy from "analogy."

6. Explain the fallacy "from authority." What questions should we ask ourselves?

7. Explain the "carry-over" fallacy.

8. Explain the fallacy that says, "Everybody's doing it."

9. Explain that fallacy which confuses feeling with logical thinking.

10. Is it possible to give as evidence the very thing to be proven? Explain "question-begging."

11. How can "handkerchiefs" interfere with straight thinking?

12. Explain how getting arguments into side issues is like the work of a smoke-screen artist.

13. Explain why giving simple answers to complex questions is referred to as "meatball thinking."

14. What defenses should we use to protect ourselves from fallacious thinking?

15. What barriers do you want to learn to avoid so that you will not be kept from using logical tools and so that you will be able to develop good thinking habits?

16. Name four habits that you want to establish that will give you greater assurance in developing good thinking habits.

17. Explain how developing good thinking habits will help you in life.
"Celestial Homespun" Katherine Burton

altruistic ____________ commodities ____________
transcendentalists an imperative leaving no option
altruistic  commodities  an imperative leaving no option  universal dependence
transcendentalists  evasive reply  petitioner; judge of his necessity
interim  abstemious  symbolic sin-offering
immaculate  irresponsible influence  payment of blackmail
irresistible influence  succession  flat ururpation
succession  tradition  ungrateful beneficiary
totall dependence  infallibility  total insensibility

"The Tell-Tale Heart" E.A.Poe
petitioner's; judge of his necessity
vulture  symbolic sin-offering
dissimulation  payment of blackmail
sagacity  flat ururpation
stealthily  ungrateful beneficiary
unperceived shadow  intermin
over-activeness  total insensibility
vehemently  onerous business
violent gesticulations  commensurability
decision  oblique

"The Great Carbuncle " Nathaniel Hawthorne
abstemious  irresistible influence
headlong current  ungrateful beneficiary
carbuncle  trade-offs
headlong current  ungrateful beneficiary
strata  total insensibility
unperceived shadow  onerous business
remote and solitary  commensurability
over-activeness  oblique
vehemently  rectitude
unperceived shadow  proffer

"To a Waterfowl" W.C.Bryant
petitioner's; judge of his necessity
solitary way  a sentiment was perceptible
plashy brink  mutually conclusive
rocking billows  inestimable ingredients
illimitable air  haughty mien
abyss of heaven  sword's pommel

"Snow-Bound" J.G.Whittier
petitioner's; judge of his necessity
waning moon  buried vault
muted and ominous prophecy  dead progenitors
crested helmet  maiden reserve
querulous challenge  whimsical fraternity
hoary night  intervening years
firmament  singular fatality
bridle-post  allay their sanguine hopes
sagging beam  baffled by want of sagacity or perseverance
andirons' straddling feet  philosophical indignation
langorous sin-sick air  presentiment
scythe  impalpable powder
chowder  crucible
grudgeland  perusal
conjuring-book  incalculable sum
occult hint  potentates of the earth
teal and loon  ethereal luster
dodder  dross
prodigies of rod and gun  indite
homespun warp of circumstance  diadem
genial mood  obsequious sneer
unprofaned  rare sepulchral lamp
"Gifts" R.W. Emerson  ancestral vault
general insolvency  prodigious spectacles
vexatious  emblem of conjugal affection
impediment  shrank affrighted
a proud assertion  convulsively grasping
beauty outvalues utilities  abominable spectacles
stern countenance  resolute bravado
APPENDIX XXVI

A STUDY OF THE KINDS
OF WORDS AND EXPRESSIONS
AS THESE RELATE
TO REFERENTS AND REFERENCE
At Learning's fountain it is sweet to drink.

But 'tis a nobler privilege to think.

-Tennyson

Word Referent Reference
(a symbol)
Symbols are not the thing. Thing or abstraction Thoughts and feelings about the thing
A symbol is an out-stretched finger pointing to the thing. Someone or something that refers to another, e.g., country represented by the flag e.g., pride, patriotism, shame, military virtues (soldier), private enterprise (businessman)

Kinds of Words and Expressions
Plain: eat, fish, drink,
Scientific: chloride,
Technical: ontology,
Polite: please,
Childish: naughty, daddy, undies,
Undignified: chum, crank, bawl,
Too dignified for familiar use: recalcitrant, eleemosynary,
Abstract: sagacity, honor,
Concrete:
Formal: (dignified for common things and acts): progeny, quaff,
Trite (cliche): "we Americans,"
Colloquial: reckon,
High-sounding: adumbrate, exacerbate,
Poetic: gambol, roseate,
Bias: failed to come (vs. did not come): fanatical (eloquent): atrocities (wise severity)
Emotive ("snarl - purr" words) See Hayakawa's Language in Thought and Action, pp. 44,
Euphemistic (pleasant in meaning): that "growth" (cancer); passed away (died),
Euphonic (pleasant sound): an apple,
Hyperbolic (exaggerating): "millions of cats,"
Vague: matter, items,
Words having a suggestive effect: lice, lemon, spider,
Words of persuasion: "women know values,"
### ANSWER SHEET

<table>
<thead>
<tr>
<th>A Guide to Logical Thought</th>
<th>Reasoning about High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Universe</td>
<td>1. <strong>Invalid</strong>: the conclusion may be properly drawn only if all high school students like to read novels</td>
</tr>
<tr>
<td>2. Sample</td>
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</tr>
<tr>
<td>3. Homonym</td>
<td>2. <strong>Invalid</strong>: Grades are not assigned on the basis of chance</td>
</tr>
<tr>
<td>4. Theories</td>
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<td>5. Analogy</td>
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<tr>
<td>6. Homony</td>
<td>3. <strong>Valid</strong></td>
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<tr>
<td>7. Equivocal</td>
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</tbody>
</table>

**SPECIMEN ANSWER SHEETS**

FOR DRILL EXERCISES IN VOCABULARY AND READING

APPENDIX XXVII
A Guide to Logical Thought

1. Universe
2. Sample
3. Homonym
4. Theories
5. Analogy
6. Homony
7. Equivocal
8. Major premise
9. Analogy
10. Logical thinking
11. Language
12. Sense
13. Generalization
14. Theories
15. Deduction
16. Fallacies
17. Intellectual
18. Referent
19. T
20. T
21. F
22. F
23. T
24. F

Reasoning about Grammar

II. X Adjective
   Y Noun
   Z Adverb

III. X 1. X 4.
    x 2. X 5.
    x 3. X 6.

Julius Caesar
1. a
2. b
3. c
4. d
5. e
6. f
7. g
8. h
9. i
10. j

Miscellaneous Interest in Learning

1. b
2. b and d (or e)
3. c
4. Enough
5. a
6. -
7. b
8. -
9. Argumentative, expository
10. Interest, learning, education, desire, thought, ability

Reasoning about High School

1. Invalid: the conclusion may be properly drawn only if all high school students like to read novels
2. Invalid: Grades are not assigned on the basis of chance
3. Valid
4. Invalid: The persons might be arranged in an arc or in a circle so that Stanley would be in some other position relative to A.

Assumptions

8. Anyone or everyone who doubts that marble halls are needed in grade schools does not want children to get a decent education.
9. Only playwrights who go to college can be great or no playwright who has not gone to college can be great.
10. Ghosts exist if you can't prove that they do not.

One should believe anything which is difficult to prove wrong.

How Well Do You Read?

Types of Discourse
1. Poetic
2. Demonstrative
3. Dialectical
4. Rhetorical
5. Rhetor-Dialect
6. Demonstrative
7. Dialectical
8. Poetic
9. Rhetorical
10. Dialectical

City Has Fine Points
1. Dialectical, rhetorical
2. Argumentative, expository
3. Attitude, good relations
4. An eye-opener
5. A
6. C
7. B
8. Yes
9. Yes
10. B

An Evaluation of This Examination
<table>
<thead>
<tr>
<th>C.</th>
<th>M.</th>
<th>H.</th>
<th>&quot;Valid or Invalid Reasoning:&quot;</th>
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<tbody>
<tr>
<td>1.</td>
<td>a</td>
<td>1.</td>
<td>a sentinel</td>
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<td>2.</td>
<td>policy</td>
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<tr>
<td></td>
<td>c</td>
<td>3.</td>
<td>(Boatright) See &quot;Julius</td>
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<tr>
<td></td>
<td>d</td>
<td></td>
<td>Caesar&quot; Paper</td>
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<tr>
<td>2.</td>
<td>a</td>
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<td>a freedom</td>
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**ASSUMPTIONS**

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<td>d</td>
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</table>

**"A Colossal Military Disaster"**

Edmund Campion

1. A. made        B. not made    C. not made
   I. PT A.      F. B.        C. D.
   15. a         16. a        28. a
   17. d         18. b        29. a
   20. b         21. d        30. a
   22. g         23. a        31. a
   24. d         25. a

2. A. made        B. not made    C. not made
   II. E A.      F. B.        C. D.
   19. a         20. a        21. a
   22. b         23. a        24. a
   25. a

3. A. not made    B. made       C. made
   III. j A.     F. B.        C. D.
   12. a         13. a        14. a
   15. a         16. a        17. a

4. A. not made    B. not made    C. not made
   IV. E A.      F. B.        C. D.
   26. a         27. a        28. a
   29. a         30. a        31. a

5. A. not made    B. made       C. made
   V. E A.       F. B.        C. D.
   32. a         33. a        34. a

**Haney's Stories**

1. A. made        B. not made    C. not made
   I. PT A.      F. B.        C. D.
   1. a          2. a         3. a
   4. a          5. a         6. a
   7. a

2. A. made        B. not made    C. not made
   II. E A.      F. B.        C. D.
   8. a          9. a         10. a
   11. a         12. a        13. a
   14. a

3. A. not made    B. made       C. made
   III. j A.     F. B.        C. D.
   16. a         17. a        18. a
   19. a         20. a        21. a
   22. a

4. A. not made    B. not made    C. not made
   IV. E A.      F. B.        C. D.
   24. a         25. a        26. a
   27. a         28. a        29. a
   30. a

5. A. made        B. not made    C. not made
   V. E A.       F. B.        C. D.
   31. a         32. a        33. a
   34. a         35. a        36. a
   37. a

**The Seven Storey Mountain, p. 2**

<table>
<thead>
<tr>
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**Trapp Family Singers (II)**

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**Presses**

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**Test 4:**

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**Test 5:**

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APPENDIX XXVIII

ANSWER SHEETS PREPARED
FOR USE
WITH MISCELLANEOUS EXERCISES
<table>
<thead>
<tr>
<th>Name</th>
<th>Period</th>
<th>Homeroom</th>
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<tr>
<td></td>
<td>Section I</td>
<td>- Keystone Drills -</td>
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<td>5.</td>
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</table>

Footnotes
2. Green, p. 749. (Later reference)
3. Ibid., p. 749. (Immediately following)
1. What is a word? It is not the object. Calling a spider a "butterfly does not change it. Words can influence us but not the things they represent. Why, then, do we have strong feelings about such words as "spider" and "snake" even though they are not present? If you heard these words in a language you did
1. What is a word? It is not the object. Calling a spider a "butterfly does not change it. Words can influence us but not the things they represent. Why, then, do we have strong feelings about such words as "spider" and "snake" even though they are not present? If you heard these words in a language you did not understand, would you be similarly affected? Telling the truth is matching words with facts.

2. The harder it is to see a clear picture when you hear a word, the harder it is to get people to agree on its exact meaning, e.g.
   a. Abstract, concrete terms
   b. Possibility of same term pointing to different referents, e.g.

3. The same word can mean different things to different people. Therefore:

   Choose only one meaning for each word; otherwise use more definitions. Learn how to define words (genus, class; species; differences)

   SYMBOL
   S1 S2 S3 S4

   Words are symbols (names) for thoughts.

When defining a term:
   a. Don't put the term you are defining in too broad or too narrow a class.
   b. Don't begin your definition with "when" or "where."
   c. Do not use the word itself or a word derived from it.
   d. Don't define an unfamiliar term with a word more unfamiliar still.

"We are weak, not because our vocabulary is inadequate, but because we are stale in the way we use it." Walpole, p. 156

"Denote" implies all that strictly belongs to the definition of the word. "Connote" implies all of the ideas that are suggested by the term. Altick, Chapter I

"Improvement in our ability to understand language, as well as in our ability to use it, depends, therefore, not only upon sharpening our sense for the informative connotations of words, but also upon the sharpening of our insight into the affective elements in language through social experience, through contact with many kinds of people in many kinds of situations, and through literary study." Hayakawa, p. 92

ALTICK  ASHLEY  BLACK  CHASE  HAYAKAWA  PHILBRICK  TRESSLER  WALPOLE
1. Why do we have more than one word (synonyms), more than one kind (neutral, favorable, unfavorable, etc.), more than one way (descriptive, affective, factual, subjective, objective, emotional, referential)?

a. Referential language refers to objects or actions or situations which can be pointed to or described, and makes statements which may be verified or disproved by the other fellow.

b. Emotive language expresses the speaker's feeling, and aims at stirring those of the hearer and perhaps spurring him on to some action. Walpole, p. 40

"To call these (emotive) judgments "smirk-words" and "purr-words" does not mean that we should simply shrug them off. It means that we should be careful to allocate the meaning correctly—placing such a statement as "She's the sweetest girl in the world" as a revelation of the speaker's state of mind, and not as a revelation of facts about the girl... Verifiable reports are needed." Hayakawa, p. 45

"Ordinarily if a word has a rich comprehension it has a narrow extension and can be applied to a few things only, since the more meaning a word has, the fewer are the things which it will fit." Ashley, p. 52

"In using words we are always aiming at two goals: clearness and vividness. It is not easy to achieve both these goals at the same time, because clear words are often very abstract, while vivid words must be concrete. Clarity comes from the use of exact or technical terms... Vividness is achieved by using words which are concrete, rich in connotation and imagery, and pleasant to the ear." Ashley, p. 53

TO CRITICIZE EMOTIONALLY TONED UTTERANCES

Read the passage slowly, carefully, and calmly several times, noting any points in the utterance that seem to deserve further examination.

Recognize the general intention and context of the utterance. Extract the words and phrases in the passage that are particularly effective in conveying the desired suggestion.

Reword, in neutral language, the impersonal content of the original passage.

Black, pp. 175-6

"Most words which stand for ideas have connotations even though they are often scarcely perceptible. This is because ideas themselves have connotations: they produce some sort of intellectual or emotional reaction inside us." Altick, p. 5

"The English language is very rich in words approximately equivalent in explicit meaning, while markedly divergent in their emotive associations and suggestion." Black, p. 171

"The view that only in 'propaganda' and abuse is language used emotively is none the less profoundly mistaken for being widely held. We must insist, to the contrary, that language is normally used to express attitudes and exert influence as well as to convey explicit statement; it is as much of an exception for language to be 'uncolored' or neutral as for matter to be without odor." Black, p. 171

"Every notion can be so worded as to make its subject seem either admirable or ridiculous." Black, p. 171

HOW JUDGMENTS STOP THOUGHT

"A judgment ("He is a fine boy," "It was a beautiful service," "Baseball is a healthful sport") is a conclusion summing up a large number of previously observed facts... Students almost always have difficulty in writing themes of the required length because their ideas give out after a paragraph or two. The reason for this is that those early paragraphs contain so many judgments that there is little left to be said. When the conclusions are carefully excluded and observed facts are given instead, there is never any trouble about the length of papers." Hayakawa, p. 46
I. Great complexity
   1. Linguistic signs are artificial, while the simplest kinds of nonlinguistic signs are natural.
   2. Response to signals is stereotyped (unvaried) and undifferentiated, while response to linguistic signs is variable and complex.
The Uses of Language  

CRITICAL THINKING  
by Max Black (Chapter 9, pp.161-180)  
Prentice-Hall, Inc.

I. Great complexity
1. Linguistic signs are artificial, while the simplest kinds of nonlinguistic signs are natural.
2. Response to signals is stereotyped (unvaried) and undifferentiated, while response to linguistic signs is variable and complex.
3. Signals normally serve a single purpose, while linguistic signs tend to serve a number of different purposes simultaneously.

II. Many purposes
1. Assertions, questions, requests, commands, exclamations, prayers, etc.
2. Dialectical, poetic, rhetorical, demonstrative arguments
3. Ceremonials
    All intelligent criticism of any instance of language in use must begin with understanding of the motives and purposes of the speaker in that situation.

III. Some distinctions
1. Personal (expressive, dynamic), impersonal
2. Stated, suggested
3. Emotive, neutral

IV. An analysis
    fabulously---fictitiously, astonishingly
    playboy---a pleasure seeking prodigal
    repudiate---to refuse to accept as true, just, or of rightful authority or obligation
    endow---to enrich with anything of the nature of a gift
    libel, libellous---any defamatory statement, oral or in writing

(A) "A fabulously rich playboy, who got tired of his ponies, got the idea that he would like to repudiate the free enterprise that privileged his grandfather to endow him with so many million dollars he could never hope to count them."

(B) "The rich man in question is supporting federal control of industry."

(C) The man in question is an idle gambler, who has far more money than he deserves, and is now irresponsibly using the vast financial power that he did nothing to earn.

(D) A very wealthy American sportsman has decided to oppose the system of unregulated commercial trading that enabled his grandfather to leave him his large fortune.

V. Application---Explain the following:
    "In every tongue the speaker labours under great inconveniences, especially on abstract questions, both from the paucity, obscurity, and ambiguity of the words, on the one hand, and from his own misapprehensions, and imperfect acquaintance with them, on the other."---George Campbell, 1776.

VI. Suggested rules of procedure for the criticism of emotively toned utterance:
1. Begin by reading the passage slowly, carefully, and calmly several times, noting any points in the utterance that seem to deserve further examination.
2. State the general intention and context of the utterance.
3. Extract the words and phrases in the passage that are particularly effective in conveying the desired suggestion.
4. Make the suggestions of each word explicit, and combine the partial suggestions in a single statement.
5. Formulate, in neutral language, the impersonal content of the original passage.
6. Determine the evidence in favor of the original passage, as now elaborated.
VI. Application of the above rules

The South has lived too much in the past. It's time she rejoined the Union. She is entitled to be back in the house of her fathers. For her political and economic reversion the South has been paying a huge price. We have been content to blame many of our woes on the rest of the country, particularly the North, the Yankee. Gentle warnings, subdued alarms, polite suggestions have failed to awaken the rest of the nation to the fact that here is a great economic frontier, crying for development. Growing pains have not yet awakened all our own populace here in the South to our great potentials. It's time to make a rude noise.

"The narcotic that has been keeping the South in her twilight sleep is poverty. Her evasion of reality, her self-pity, her inertia have given her bad government, filled many of her important political offices with demagogues and incompetents. Here and there thieves who went into office penniless emerged millionaires—even went to prison for their racketeering....

"Since the War Between the States (the Civil War to the cold bread country), the South has at times given the rest of the country reason to think of some of her governors as clowns and of some of her legislatures as dominated by charlatans and scalawags. The South has sometimes elected to office noisy quacks and fantastic scatterbrains. Able men have had difficulty in being heard or seen in the burlesque played by some of our leaders." (Collier's Magazine, July 25, 1945)

Another Exercise:

Tennyson: "Every moment dies a man.  
Every moment one is born."

Babbage (mathematician): "Every moment dies a man.  
Every moment 1 1/16 is born."

Criticize Babbage's criticism of Tennyson. It is true that the rate of birth was slightly in excess of that of death.

"O'Donnell always uses the words world-saver, do-gooder, internationalist, global-thinker, post-war planner contemptuously, usually accompanied by the adjectives dreamy, starry-eyed, breast-beating, sweaty or slobbering and alongside the phrase pay roll patriot. Dumbarton Hoax, San Fiasco, nd the crime conference on the Crimea are O'Donnellisms."

Make a study of the emotive terms used by some other newspaper columnist.

- Abstract - Concrete - Reason -

presses
1. This term is abstract because it is not a proper noun.
2. Since these presses are not identified as particular presses, it is an abstract term.
3. Presses can be seen and heard.
4. This term is the plural of "press" and must be the same kind of term.

rights
1. Our rights are stated definitely in documents and are real things.
2. This is a concrete term because everyone knows what rights are.
3. This term does not refer to anything.
4. This term refers to an idea. Rights cannot be seen, felt or heard.
1. The versatility of words, e.g. the word "man"
   he is only sixteen - not yet a man
   no man is allowed to take courses in cooking
   in this college
   what a piece of work is man - how infinite
   in capacity.....

Every word has to play many parts; every word has a variety of meanings according
to the circumstances and the time in which it is used.
The versatility of such a word as "man" is far from being a defect.

2. Ambiguity: a word is ambiguous in a certain usage when in that occurrence the
   interpreter (or hearer) is unable to choose between alternative meanings of the
   word, any of which would seem to fit the context; signs function defectively.

Cases of ambiguity: interpreter
   a. Unable to locate the object intended to be named by a sign
   b. Puzzled about the motives of a speaker
   c. Unable to decide between an "emotive" and a "neutral" interpretation.....
      other types of situations
Ambiguity distinguished from some related notions:
Vague words stand for qualities like "heaviness" or "brightness" but do not
tell how much of these qualities an object has.
Indefinite statements give less information about the situation than might be supplied.
Vagueness and indefiniteness characterize most of the words we use and, in
   general, are not to be regarded as defects. The reverse is true of ambiguity,
   subject to the exceptions noted below:
Maintaining a reputation for infallibility by the judicious use of ambiguity (3), e.g. Delphic oracle
Effective means (literary use of language) for evoking complex responses
   (playing on two senses of a word), e.g. Hilaire Belloc:
   When I am dead, I hope it may be said:
   "His sins were scarlet, but his books were read."

3. Detection and removal of ambiguity: recognition of shifts of meaning
   a. "Sign, referent." Confusion of the word with its referent:
      Mary is a girl. Girl ends with an "l". Therefore Mary ends with an "l".
   b. Regarding properties of the sign as indicating properties of the thing mentioned
      Gregorian reform of the calendar in 1582: "Give us back our ten days!"
   c. Dictionary meaning: contextual meaning (They seldom coincide)
   d. Connotation: denotation
      Connotation: property or properties a thing must have in order that the
      term shall apply to it
      Denotation: class of objects having that property
      Core of difficulty: unnoticed shift of meaning away from a standardized
      meaning
      Caution: a word or phrase can have connotation without denotation:
      "a man with green skin and two heads"
   e. Process (a doing something): a product (the result of an activity), e.g.
      science, education (particularly characteristic of words ending in "-tion")

4. Metaphors: emphatic ways of presenting the characteristics underlying the implicit
   comparison. The metaphorical term tends to transfer its original suggestions
   and to cause the hearer to extend the basic comparison illegitimately. Metaphors
   are not to be condemned without examination.

   See p. 200 # 1, 2, 3, 7
I. The occasions of definition (pp. 203-204)
A. Introduction of new terms, e.g. "aileron"
B. Removal of ambiguity, e.g. "socialism"
C. Extension of meaning, e.g. "treason"

II. The meaning of "definition"
A. Explanation of the use of a word (or other sign)
B. A "process-product" variation in meaning according to circumstances
C. An individual (contextual) meaning which remains close to "dictionary" meaning

III. Standard forms for definition
A. Definiendum (that which is to be defined)
B. Definiens (that which does the defining)

IV. The relativity of definition
A. A social transaction
   1. More like a hand-shake than a sneeze
   2. Takes at least three to make a genuine definition (explanation, giver, receiver)
B. A "good" definition
   1. Useful to receiver (enlighten the person addressed)
   2. Adapted to different persons (as different patients need different treatment)

V. Rules of definition
1. The definition should be adequate for the purpose it is to serve
2. The definition should be intelligible to the person addressed
   a. The definiens should not contain any words that are as unintelligible (to the reader) as the definiendum
   b. The definiens should not contain any part of the definiendum
3. The definiens and definiendum should be equivalent, i.e. should be substitutes for each other in every context
   a. The definiendum should not be wider than the definiens.
   b. The definiendum should not be narrower than the definiens
   c. The definiens should not be expressed in metaphorical or figurative language
4. The definition should be an explanation of the meaning of the definiendum, not a statement only about the things mentioned by the definiendum

VI. Division and classification
A. Definition by division (definition by means of a genus and differentiating property)
   1. Example: Existing things: living, non-living, manufactured, others; mobile, stationary; using own power, others; moving above ground, others; moving in air others; sometimes containing people, others; usually containing furniture, others
   2. Aspects of the process of division
      a. Genus: the sum of the constituent notes that are common to two or more species
      b. Species: divisions of a class into subclasses
      c. Differentia: characteristic or property used in dividing a genus into its species -- the process of division or classification
B. Division by classification (organizing collections of things)
   e.g. fingerprints: arch, loop, whorl
C. Characteristics of satisfactory classification
   1. The basis of the classification will be made clear at each stage
   2. The division will be exhaustive at each stage
   3. A class will always be divided into non-overlapping sub-classes
VII. Criticism of specimen definitions
A. Gilbertian: Of the humorously topsy-turvy kind characteristic of Gilbert and Sullivan opera
B. Education by infusion of grace
C. A politician is a man who sits on the fence with his ear to the ground (Popular saying.)
D. War is by definition nothing more than wholesale and organized murder
E. Prejudice is a biased attitude of mind
F. Prejudice is the influence on our thinking of any feeling, impulse, or motive which is not relevant to the immediate purpose of this thinking
G. The referent in logic, is the object referred to by a word
H. The connotation of a word is concerned with the qualities of the referent, e.g., a cow is a four-legged mammal that moos
I. Denotation is when things are pointed out
J. The suggestive aspect of language merely suggests one's opinion
K. "President: Washington, Roosevelt, and so on."
L. Democracy: Government of the people, by the people, and for the people

Oral Exercises
1. Each of the following accounts describes some occasion in which definition would be useful. Identify in each case the words to be defined; give definitions that you would regard as appropriate; state what type of definition you are using.

   a. On being asked to prove that "the sun will rise tomorrow," a student answered "The sun will rise tomorrow, because it is already "tomorrow" at some places on the Earth. And at these places the sun has already risen."

   b. Keller: "Americanism is what we want taught here."
      Joe: "Americanism is a fine thing."
      Tommy: "Fine! But how would you define Americanism?"
      Keller: "Why--er--everybody knows what Americanism is!"

   c. The owner of a tavern was appealing against the withdrawal of his license: "Revocation was on the ground that the tavern was closer than 100 feet to the Highwood Methodist Church - a distance which must be maintained under state law."

   d. After an air-raid, the British announced that bombs had been dropped at random. German newspapers later carried the story that the British town of Random had been completely destroyed.

Oral Exercise p. 225 #3
   pp. 227-228 #2

The successful person, among other qualities, possesses the ability to analyze.
INDICATION OF BIAS

Understanding English, An Introduction to Semantics, F. A. Philbrick
The Macmillan Co., New York, 1942 (pp. 55-61)
INDICATION OF BIAS

Understanding English, An Introduction to Semantics, F. A. Philbrick
The Macmillan Co., New York, 1942 (pp.55-61)

1. Bias words: same referent but different references expressing different attitudes
on the part of the user

Identify the following with: neutral, favorable, or unfavorable

dog, cur, hound

did not come, failed to come
liberty, license
stink, stench, odor, smell
whiff, savor, aroma, perfume, bouquet
brute, animal, creature
lion, eagle, tiger, pig
hyena, snake, rat, worm
skunk, jackass, vulture
Mother Nature, alma mater
liberal, pink
father of his people, a son of Illinois, one of Wisconsin's most loyal sons
dynamo, steam engine, steam roller, machine, sausage machine (applying to a person)
time-tested, out-of-date
wrong-headed, right-minded
arrogance, self-confidence, conceit
 crank, faddist
statesman, politician
social reformer, revolutionary
red, loyalist
up-to-date, newfangled
bigoted, devout
cutthroat dog
community, people, mob

2. Direct statement of opinion: "To spit on thee again, to spurn thee too"
"But lend it rather to thy enemy"

3. Selection of material
Choosing some items; excluding others

4. Exploitation of words with multiple meaning (not a common device, because it requires
more skill than plain lying or calling names; dangerous because less easily detected)
Caesar was "ambitious"
Progressive: school devoted to certain theories of education (Dewey) school making
progress from bad to good

5. Suggestion of inferences (a favorite method of persuasion because readers are likely
to hold more tenaciously to opinions supposedly their own than to those handed them
ready-made by the author)

6. Rhetorical questions, e.g. Should the American people place their future into the
hands of unscrupulous politicians? Strategy: listener becomes convinced with the
help of his own mental effort.

7. Less direct approach: listener makes wrong conclusions because of suggestions made
by the speaker. "The scandal of X is now a thing of the past." Was it really a
scandal? What was it?

8. Irony (expressing directly the opposite of the meaning which is intended to be
conveyed with a view to emphasizing the falsity of the statement)
Bias words: the favorable one for the unfavorable, or more rarely, the other way
around---"all honorable men"; I wrong the "honorable" man
aroma, perfume---a bad smell
a disastrous political error---statemanlike

Abbreviation: disrespect---"Musso" Mrs. B.
In conjunction with "real", "true", "genuine", 'good' (intensifiers of bias words)

9. Bias and setting
Socialist: term of abuse in some circles
term of praise in others
Uncle Sam---i.e. U. S.: respect (except in penitentiaries!)
In enemy countries: antagonism, anger, dislike
Characters:
  Antonio: a merchant
  Salerio: a friend of Antonio
  Shylock: A Jewish money lender

Salerio: Why, I am sure, if he forfeit, thou wilt not take his flesh; what's that good for?

Shy: To bait fish withal! If it will feed nothing else, it will feed my revenge.
He hath disgrac'd me and hinder'd me half a million, laugh'd at my losses, mock'd at my gains, scorn'd my nation, thwart'd my bargains, cooled my friends, heated mine enemies—and what's his reason? I am a Jew. Hath not a Jew eyes? Hath not a Jew hands, organs, dimensions, senses, affections, passions? fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same winter and summer as a Christian is? If you prick us, do we not bleed? if you tickle us, do we not laugh? if you poison us, do we not die? and if you wrong us shall we not revenge? if we are like you in the rest, we will resemble you in that.

If a Jew wrong a Christian, what is his humility? Revenge. If a Christian, wrong a Jew, what should his sufferance be by Christian example? Why, revenge. The villainy you teach me I will execute, and it shall go hard but I will better the instruction.

Indicating Bias
1. Direct statement of opinion
2. The selection of material
3. Bias words
4. Exploitation of words with multiple meaning
5. Inferences
6. Rhetorical questions
7. Less direct approach (for more lasting impression): omission, taking for granted
8. Setting
9. Irony
Antony: Friends, Romans, countrymen: lend me your ears;
I come to bury Caesar, not to praise him.
The evil that men do lives after them;
The good is oft buried with their bones;
So let it be with Caesar. The noble Brutus
Hath told you Caesar was ambitious;
If it were so, it was a grievous fault,
And grievously hath Caesar answered it.
Here, under leave of Brutus and the rest--
For Brutus is an honorable man;
So are they all, all honorable men--
Come I to speak in Caesar's funeral.
He was my friend, faithful and just to me;
But Brutus says he was ambitious;
And Brutus is an honorable man.
He hath brought many captives home to Rome
Whose ransoms did the general coffers fill;
Did this in Caesar seem ambitious?
When that the poor have cried, Caesar hath wept;
Ambition should be made of sterner stuff.
Yet Brutus says he was ambitious;
And Brutus is an honorable man.
You all did see that on the Lupercal
I thrice presented him a kingly crown,
Which he did thrice refuse; was this ambition?
Yet Brutus says he was ambitious;
And, sure, he is an honorable man.
I speak not to disprove what Brutus spoke,
But here I am to speak what I do know.
You all did love him once, not without cause;
What cause withholds you then to mourn for him?
O judgment, thou art fled to brutish beasts,
And men have lost their reason: Bear with me;
My heart is in the coffin there with Caesar
And I must pause till it come back to me.
Citizens speak
Antony: But yesterday the word of Caesar might
Have stood against the world; now lies he there,
And none so poor to do him reverence.
O masters, if I were disposed to stir
Your hearts and minds to mutiny and rage,
I should do Brutus wrong, and Cassius wrong,
Who, you all know, are honorable men.
I will not do them wrong; I rather choose
To wrong the dead, to wrong myself and you,
Than I will wrong such honorable men.
But here's a parchment with the seal of Caesar,
I found it in his closet, 'tis his will.
Let but the commons hear this testament--
Which, pardon me, I do not mean to read--
And they would go and miss dead Caesar's
wounds
And dip their napkins in his sacred blood;
Yea, beg a hair of him for memory,
And, dying, mention it within their wills,
Bequeathing it as a rich legacy
Unto their issue.
Citizens:
Antony: Will you be patient? Will you stay awhile?
I have o'ershot myself to tell you of it.
I fear I wrong the honorable men
Whose daggers have stab'd Caesar: I do fear it.
Citizens:
Antony: You will compel me, then, to read the will?
Then make a ring about the corpse of Caesar,
And let me show you him that made the will.
Shall I descend? And will you give me leave?
Citizens:
Antony: Nay, press not so upon me; stand far off.
Citizens: If you have tears, prepare to shed them now.
You all did know this mantle; I remember
The first time ever Caesar put it on.
'Twas on a summer's evening, in his tent,
That day he overcame the Nervii.
Look, in this place ran Cassius' dagger through;
See what a rent the envious Casca made;
Through this the well-beloved Brutus stabbed
And as he pluck'd his cursed steel away,
Mark how the blood of Caesar follow'd it
As rushing out of doors, to be resolved
If Brutus, as you know, was Caesar's angel;
Judge, O you gods, how dearly Caesar loved him!
This was the most unkindest cut of all;
For when the noble Caesar saw him stab,
Ingratitude, more strong than traitors' arms,
Quite vanquish'd him; then burst his mighty heart;
And, in his mantle muffing up his face,
Even at the base of Pompey's statue,
Which all the while ran blood, great Caesar fell.
Oh, what a fall was there, my countrymen!
Then I, and you, and all of us fell down,
Whilst bloody treason flourished over us.
Oh now you weep, and I perceive you feel
The dint of pity; these are gracious drops.
Kind souls, what weep you when you but behold
Our Caesar's vesture wounded? Look you here,
Here is himself, marred, as you see, with traitors.
Citizens:
Ant: Good friends, sweet friends, let me not stir you up
To such a sudden flood of mutiny.
They that have done this deed are honorable.
What private griefs they have, alas, I know not,
That made them do't; they're wise and honorable,
And will, no doubt, with reasons answer you.
I come not, friends, to steal away your hearts.
I am no orator, as Brutus is;
But, as you know me all, a plain blunt man,
That love my friend; and that they know full well
That gave me public leave to speak of him;
For I have neither wit, nor words, nor worth,
Action, nor utterance, nor the power of speech
To stir men's blood; I only speak right on;
I tell you that which you yourselves do know;
Show you sweet Caesar's wounds, poor, poor dumb mouths,
And bid them speak for me: But were I Brutus,
And Brutus Antony, there were an Antony
Would ruffle up your spirits and put a tongue
In every wound of Caesar that should move
The stones of Rome to rise in mutiny.
Citizens:
Antony: Yet hear me, countrymen; yet hear me speak.

Why, friends, you go to do you know not what.
Wherein hath Caesar thus deserved your loves?
Alas, you know not; I must tell you then:
You have forgot the will I told you of.

Ant: Here is the will, and under Caesar's seal.
To every Roman citizen he gives,
To every several man, seventy-five drachmas.

Ant: Hear me with patience.
Ant: Moreover, he hath left you all his walks,
His private arbors and new-planted orchards,
On this side Tiber; he hath left them you,
And to your heirs forever; common pleasures,
To walk abroad and recreate yourselves.
Here was a Caesar! When comes such another?

Ant: Now let it work. Mischief, thou art afoot;
Take thou what course thou wilt!

What did Antony really do in his speech?
He indirectly impugned (called into question)
the motives of the conspirators. Through his
harangue (speech—addressed to the multitude
noisy, ranting, extravagant) the people be-
came incited to the point of frenzy and
rushed for a to do violence to the conspirators.

This is exactly what Antony wanted.

I. As a politician
Brutus: fool
Antony: wise

As a man
Brutus: noble
Antony: ignoble (base, mean,
not honorable)

II. The people
Are appealed to as ungrateful
More sinned against than sinning
Robbed of their great father and protector

III. The speech
interspersed with floods of emotion,
half heartfelt, half cunning
Filled with constant repetition
of "Caesar" and his image

IV. Means used
Ironic (expressing directly the
opposite of the meaning which is
intended to be conveyed, with a
point of emphasizing the falsity
of the statement)
Ambiguous referent
Antithesis (placing together oppo-
site words or statements to height-
en the effect)
Climax (ascending arrangement of
ideas)
Personification (a metaphor by
which lower animals, lifeless
objects or abstract ideas are rep-
resented as endowed with human
attributes)
Appeal to emotion
Selection of material (choosing such
evidence which will bring about
desired emotional reaction)
Giving people a chance to express
themselves (cooperation)
Rationalizing (to explain or justi-
fy on grounds of reason)
Suggestion (in spite of intention
to do the very opposite)
Elusiveness (discourse characterized
by force and persuasiveness)
Apostrophe (a sudden breaking away
from the regular course of the nar-
rative to address, in the second
person (you), some absent or per-
sonified thing)
Appeal to patriotism
Challenge
Condescending humility (with a pur-
pose)
Anticlimax (desc. arrangement-ideas)
Rhetorical question (for emphasis)
### COMMUNICATION ANALYSIS

**Topic:** The Presidential Election

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<th>SOURCE and DATE</th>
<th>NEUTRAL</th>
<th>BIASED (in favor of)</th>
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<td></td>
<td>Republicans</td>
</tr>
<tr>
<td></td>
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<td>Democrats</td>
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APPENDIX XXXII

A SELF-EVALUATION
FOR COMPOSITION WORK

CHECK-LIST FOR BETTER COMPOSITIONS

(Pfell Conference for Teachers of English, Urbana, 1953)

Name

Date
CHECK-LIST FOR BETTER COMPOSITIONS

(Fall Conference for Teachers of English, Urbana, 1959)

Name ________________________________ Date __________________________

Title of Composition: ___________________________________________________

Procedure:  a. Examine your composition for each of the following characteristics.
              b. Revise it until you feel you cannot improve it further.
              c. Then initial each statement which you feel describes your work.
              d. If you cannot honestly initial a statement, explain why at the bottom.
              e. Clip this check-list on top of your paper when you turn it in.

1. My composition has a definite purpose or central idea.

2. My title indicates what this point is.

3. I had certain readers in mind as I wrote.

4. I arranged my ideas in the best order to help the readers understand.

5. Every fact or detail I gave relates to the point I was trying to make.

6. Each paragraph contains a clear topic sentence or idea.

7. I composed my opening sentence to catch the attention of the reader.

8. In my last sentence I emphasized my purpose or point.

9. I checked each sentence to see that the subject and predicate agreed.

10. I provided an unmistakable antecedent for each pronoun.

11. I began each sentence with a capital letter and ended it with a suitable mark of punctuation.

12. I looked up the spelling of all words I was not positive I knew how to spell.

13. I can explain why I placed every punctuation mark where I did.

14. I have read my composition aloud to catch unintentional repetitions and omissions.

EXPLANATIONS: ____________________________________________________________
SYNOPSIS OF THE PRINCIPLES OF MOTION PICTURE CRITICISM
by Donald P. Costello

There has been a growing interest in the Church in a positive program of motion picture education. Critical standards for the judgment of motion pictures can be collected in two years.
SYNOPSIS OF THE PRINCIPLES OF MOTION PICTURE CRITICISM
by Donald P. Costello

There has been a growing interest in the Church in a positive program of motion picture education. Critical standards for the judgment of motion pictures can be collected in two ways:

1. Deductively: from a general critical literary principle, to the movies, to a particular movie.
2. Inductively: from an effective movie, to a general principle of good movies. The most workable shortcut is to go from a particular judgment by a professional movie critic to the critical principles.

A SUGGESTIVE LIST OF CRITICAL STANDARDS FOR THE JUDGMENT OF MOTION PICTURES
(inductive reasoning)

Basic Questions: What was the effect intended? How did this movie get that effect? What prevented this movie from acquiring the desired effect?

A. Is there a single powerful, final effect? Was the effect dissipated by irrelevant scenes and irrelevant issues?
B. Was there sufficient cause for the final effect? Or did the movie arouse the emotions simply, cheaply, dishonestly, superficially, sentimentally?
C. How was the final effect dictated by the type of movie represented?
D. Is the final effect of significance or value? The purpose of films is entertainment, but there are two types of entertainment:
   1. Superficial - that which is immediately pleasurable, which makes us feel happy.
   2. Humanistically valuable - that which offers something higher than pleasure, which entertains us because we are human beings.

Theologians, Gerald Warym and William F. Lynch, point out moral dangers of "aesthetic squalor" and the superiority of the "higher entertainment." Movie discussion groups must, therefore, discuss moral issues in a whole artistic context. It is the function of movie discussion groups to discuss independently the basic questions concerning a movie:
What is its artistic value? What is its social value? What is its moral value?

As our suggestive list of critical standards for the judgment of motion pictures goes on to deal with both the matter and form of movies, we must always repeat the question, "Does each element contribute or does it distract from the desired effect?"

MATTERS general critical principles

A. Plot
   1. Original (the effect can have no power if the story is completely predictable)
   2. Believable
   3. Consistent (the ending must be prepared for and should, in fact, be inevitable)
   4. Interesting
   5. Well-structured (the emotion should be heightened until the climax; then a denouement without anti-climax; natural, not forced)
   6. Universal

B. Characterization (must be true to human psychology)

C. Settings and costumes and props
   1. Do they make a contribution to the film?
      a. Sometimes they have a value of their own - which is the only value of the film, as beautiful western scenery in a trite Horse Opera.
      b. Sometimes they contribute to the desired effect, as the outlandish fin-de-siècle decor of Gigi.
      c. Sometimes they make a negative contribution, by not interfering in a personal drama, by being hardly noticeable, as in Marty.
2. Do they distract from the film?
   a. Sometimes they are not appropriate, as beautiful clothes worn by
      the occupants of a cold water flat.
   b. Sometimes they overwhelm to the point of distraction, as in
      The Tales of Hoffman, which was like "looking through a ka-
      leidoscope for two hours."

D. Atmosphere and tone
   1. In realism - is it convincing as a reality, never breaking the illusion
      of the real?
   2. In fantasy or romance - is it consistent, never lapsing into realism?

FORM: particular principles of the medium

A. Cinematic quality
   1. Does the film exploit the potentialities of the medium? The motion
      picture should move and be visual, without excessive narration or
      excessive dialogue.
   2. If adapted from another medium, can it stand on its own as a work of
      cinematic art? Were there enough changes to make the work fit
      its new medium? Yet not so many changes as to destroy the spirit or
      the worth of the original?
      a. Is it simply a photographed play? Does it do nothing which
         couldn't have been done just as well in the theatre?
      b. Does it have the diffusive quality of a novel rather than
         the concentrated power of a film?

B. Photography
   1. Camera (Is the camera used simply to record? Is it used creatively,
      for editorial comment, or for emphasis?)
   2. Editing (Does the film have good pace? Is it too short or too long?)
   3. Lighting
   4. Special effects, e.g., spectacle, montage, filters.
   5. Transitions
   6. Color and wide screen

C. Sound and music

D. Acting
   1. Well cast? Intelligent interpretation of character?
   2. Technically competent? Appropriate for cinema? Projects well, yet
      not overdone? Do characters act as a unit; do they inter-act?
   3. Does the personality or charm or physical beauty of the star over-
      whelm the character? (This could be good or bad, depending on the
      worth of the character overcome.)

E. Outstanding individual contributions
   1. Does one contribution dominate?
   2. Can you recognize and distinguish the contributions of each actor
      and technician? (e.g., The Defiant Ones is a triumph of the director
      and the actors over a forced and artificial screenplay)

Outside Elements

A. Advertisements
B. Audience
C. Historical background of story, of director, of star, as these affect the movie
   (Sometimes it is desirable to set the movie into some kind of context.)

Gigi and The Defiant Ones (tied for the most Academy Award nominations, were nominated for nine Oscars) are at the opposite poles in cinematic potential, are examples of something the movies can do better than any other medium, and yet they are very different:

Gigi: expands the horizon, combining all the elements of visual appeal into a big, colorful, gay view of life; is most like the spectacular theatre of the Nineteenth Century, but it adds the technical virtuosity and spectacle of a super-realistic camera and a big screen which immerse the viewer in a creation of gay mood, color, settings, music.

The Defiant Ones: puts a frame around human existence, creating a small but intensely penetrating and reflective view of life; is most like a tightly unified and concentrated short story, but it adds the evocative power of artistically assembled barren black and white pictures, immersing the viewer in a somber world of thoughtful and emotional experience.
Label the following as true or false:

1. Bishop Sheen entitled his talk "Birth Patrol."
2. He began his talk by bemoaning that there is in today's practice an unfortunate division between love and life.
3. When he described the playing on a violin as "the hair of a dead horse being pulled over the entrails of a dead cat," he was trying to say that there are negative ways of looking at things.
4. The caterpillar had an inaccurate idea of himself when he said that he'd never be caught flying like the butterfly.
5. Picasso's man exemplifies the distortion that is possible in human beings.
6. He gave examples of frustration when he described the farmer digging up the seeds and persons walking blindfolded.

Analogies

An analogy is a form of reasoning which infers that things, conditions, processes, etc. which are alike in some ways are alike in other ways. It is a partial agreement or resemblance, or the asserting of it, between things somewhat different; as to say that food is to the body what fuel is to the engine, thus:

food: body :: fuel: engine

Can you complete the following analogies based on Bishop Sheen's address?

1. Birth control: cellular destruction: atomic explosion:
2. Birth control: grammar: atomic explosion:
3. Animals: a pushing from below: human beings:
4. Eating: personal: ____________________________ : impersonal
5. Legitimate sex pleasure: personal: ____________________________ ; impersonal
7. Tickling the throat: getting rid of food:
8. Parents: physical: Bishop Sheen:
Dear Senior,

April 17th

This year we tried to help you to learn to think critically. We gave you many concrete helps for this abstract skill. Now it is time for you to produce. This you will do by means of an assignment which will be a culminating activity of our study. It should summarize in one way or another some or most of the things that you did this
Dear Senior,

April 17th

This year we tried to help you to learn to think critically. We gave you many concrete helps for this abstract skill. Now it is time for you to produce. This you will do by means of an assignment which will be a culminating activity of our study. It should summarize in one way or another some or most of the things that you did this year to help you attain the various skills necessary for critical thinking. This assignment can be carried out in a number of ways. You might want to make a booklet including some of the following: outlines, excerpts, pictures with explanations, definitions, word studies (synonyms, antonyms, etc.), newspaper clippings exemplifying what you are explaining, explanations of advertisements. This booklet may include some of the better work that you did during the year. Annotated bibliographies (with abstracts) of the books you have read can profitably be included, i.e., books pertaining to the study of critical thinking.

A special invitation is given at this time, especially to the college bound students, to fulfill this assignment by writing a term paper, that is, a scholarly explanation of some topic using footnotes and citing the sources of information used in a bibliography. Here are some suggested topics:

- The Value of a Human Being's Ability to Abstract
- The Uses of Language
- Semantics and Communication
- What Does "Understanding" Mean?
- Symbols and Referents
- The Uses of Signs
- Language and Social Problems
- Language and Communist Propaganda
- Words, Things, and Emotions

The list of skills given to you in the first letter that we gave you might suggest some specific topic.

This work should represent much thought and study, study that you have done during the entire year and especially now during these three weeks. This project will constitute a large part of your final grade for this quarter.

Avoid plagiarism. Give credit to the author by telling the source of the information. A term paper should not consist entirely of quoted materials. At least one-third of it should be original.

Consult the list of books that was given to you at the beginning of the year. You might want to refer to some of them yet. You might also look under the topics of "thoughts and thinking" or "critical thinking" or related topics for good material.

Be alert and take note of meaningful statements, such as:

"Tolerance is the mark of the truly civilized and cultivated, mature mind."

- William Phipps

Pius XII made some significant reforms. Isn't a reformer by nature intolerant of the conditions which he reforms? Discuss this in the light of open-mindedness.


"The tricks of oratory are carried over into literature."H.R. Huse, The Illiteracy of the Literate.

The work that you submit to your teacher should be a "review" that is, "another look" at the things you have been studying in the area of critical thinking all year. May the Holy Spirit enlighten you and make this work bear results by making you a better scholar and a better member of society.
ANALYZING ARGUMENTS

Directions: On a separate sheet of paper write out what you think is wrong with each of the following passages. Use your common sense to spot weak points and fallacies in these arguments.

I. Article in Magazine for Mystics

We believe the man who has seen things through the telescope that we have never seen. Why, then, should we not believe the mystics when he reports things that to him are equally unquestionable? Why should we not believe that a man has heard voices from outer space or that he knows when the world will end?

II. Letter to editor of a Newspaper

Why do we allow murder to be practiced under the guise of medicine? Doctors and health officials tell us vaccination against smallpox is a necessity. But is this really true? The plain facts (which the government probably suppresses) are that more people have died in the last twenty-five years from the direct or indirect effects of smallpox vaccinations than have died from the actual disease.

III. Letter to the Editor of an English Newspaper

I am writing to denounce the stupid author of the letter in last week's paper which proposed that we abolish all hereditary titles. It seemed to me to be the babblings of an idiot. It is certainly not the kind of suggestion which will be seriously considered by intelligent people. The whole idea is only another step on the road along which so many are eager to hurry us: a road of which the end is not that true democracy in which duke and dustman shall be friends, but a grey uniformity in which there shall be neither duke nor dustman, only the herdman, who will be rapped sharply over the head if he tries to deviate from the dead level of thought and action prescribed for him by the bureaucracy.

As to the other reason for abolition of titles which was suggested by that idiotic letter, I see no reason to give it serious consideration. Why should we try to please the Americans by abolition of the House of Lords? Perhaps the author of that letter would be even happier if we also abolished the Crown and the Established Church to please the Russians.

I hope the editors will not insult intelligent readers again by the further publication of such claptrap. If they persist I shall be forced to cancel my subscription.

Can you give illustrations for each of the following?

1. Someone has made a guess and appeared to be unaware that it was only a guess... at least they acted as if they were unaware.
2. Not all illustrations of inference-fact confusion behavior are humorous or frivolous.
3. Some advertisers purposely use the inference-fact confusion to trick the public.
4. Not all business is shady -- sometimes the public deludes itself.
5. When it occurs in public or national affairs, it is liable to have serious results.
6. There are certain activities and occupations where the inference-fact confusion can be especially dangerous.

What advice can you suggest for avoiding the inference-fact confusion?

Report upon a situation in which some sort of trouble, confusion, conflict, disturbance, etc., occurs due to the failure to distinguish between description and inference. The incident may be one in which you personally or someone you know was involved. It may be a situation you find in newspapers, magazines, movies, plays, books, TV, etc.

Analyze the situation. Explain how descriptive-inference confusion contributed to the nonproductive behavior. (You may use some "infering" of your own here, but indicate it as such.)
Dear Senior,

(To be answered after the tests are administered)

Please answer this anonymous questionnaire sincerely. Of course, you know that the word "anonymous" tells you that you don't have to sign your name. Please don't. Try to answer every question.

1. How much reading of good material (books, magazines, newspapers, etc.) did you do
Dear Senior,

Please answer this anonymous questionnaire sincerely. Of course, you know that the word "anonymous" tells you that you don't have to sign your name. Please don't. Try to answer every question.

1. How much reading of good material (books, magazines, newspapers, etc.) did you do this year? ______ Little ______ Average ______ Much ______ Very much

2. How does this compare with the amount of reading you did in the last three years? ______ About the same ______ More this year than other years ______ Less this year than other years ______ Much more this year than other years

3. Give reasons for change in amount or lack of change. ____________________________________________________________

4. Did the work that you did in your English classes this year prompt you to familiarize yourself with the important news of the world by reading newspapers or listening to and viewing good programs? ______ No influence ______ Some influence ______ Much influence

5. Now we want you to compare the class work of this year with that of the other years of your high school. AS MUCH THIS YEAR ______ LESS THIS YEAR ______ MORE THIS YEAR

<table>
<thead>
<tr>
<th>Reading of the literature book</th>
<th>AS OTHER YEARS</th>
<th>LESS THIS YEAR THAN OTHER YEARS</th>
<th>MORE THIS YEAR THAN OTHER YEARS</th>
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<tr>
<td>Work connected with literature book</td>
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<td>Work in grammar, correct usage, punctuation</td>
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<td>Composition work</td>
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<td>No. of assignments outside of class</td>
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<td>No. of assignments or amount of work in class</td>
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<td>Interest and challenge</td>
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6. Have you any comments to make about this year's English class? ____________________________________________________________

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(To be answered after the tests are administered)
APPROVAL SHEET

The dissertation submitted by Sister Mary Constantine, Sobieszczzyk, S.S.J., has been read and approved by five members of the Department of Education.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

[Signature]
[Date: May 29, 1969]