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A CURRICULAR STUDY CONCERNED WITH THE PROCESS AND THE PRODUCT OF AN ENGLISH-EDUCATION COURSE AND ITS EFFECTS UPON EXPERIENCED TEACHERS' ABILITIES TO THINK CRITICALLY. INTERIM REPORT.

BY- MARY CONSTANTINE, SISTER, S.S.J.

ILLINOIS STATE-WIDE CURRICULUM STUDY CTR., URBANA

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THIS REPORT OF THE ILLINOIS STATE-WIDE CURRICULUM STUDY CENTER IN THE PREPARATION OF SECONDARY SCHOOL ENGLISH TEACHERS (ISCPET) DESCRIBES AN INSERVICE TRAINING COURSE FOR 42 TEACHERS IN 1965-66 WHICH TESTED THE HYPOTHESIS THAT SUCH A COURSE COULD IMPROVE TEACHERS' ABILITIES TO THINK CRITICALLY. GUILFORD'S INTELLECT STRUCTURE MODEL WAS USED TO STUDY THE OPERATIONS OF THE MIND AND TO PLAN INSTRUCTION. THE EXPERIMENT WAS DESIGNED TO DEMONSTRATE THAT CRITICAL THINKING DEMANDS VARIED, SPECIFIC, SEPARABLE, AND MEASURABLE ABILITIES. THE CHARACTERISTIC FEATURE WAS ALERTING TEACHERS TO THE IMPORTANCE OF TEACHING FOR THINKING, INFORMING THEM ABOUT THE OPERATIONS OF THE MIND, AND APPLYING SUCH INFORMATION TO CLASSROOM INSTRUCTION. VARIOUS LEARNING ACTIVITIES CAN BE BASED ON THE ASSUMPTIONS (1) THAT THINKING IS A PROCESS, NOT A RESULT, (2) THAT A STIMULATING SCHOOL ATMOSPHERE IS A NECESSARY FACTOR FOR THE VARIOUS SKILLS TO BE DEVELOPED, AND (3) THAT THE SKILLS OF THINKING MUST BE THE TEACHER'S IMMEDIATE AND CONTINUOUS OBJECTIVE. THE POSSIBILITY OF SETTING UP CRITICAL THINKING AS AN INTEGRATING PRINCIPLE OF INSTRUCTION WAS CONSIDERED. TESTS USED WERE THE "WATSON-GLASER CRITICAL THINKING APPRAISAL" AND AN ADAPTATION OF THE "DRESSEL-MAYHEW TEST." POSITIVE BUT STATISTICALLY NONSIGNIFICANT GAINS WERE MADE IN BOTH. (THIS DOCUMENT IS ALSO AVAILABLE (LIMITED SUPPLY, FREE) FROM ISCPET, 1210 WEST CALIFORNIA, UNIV. OF ILL., URBANA, ILL. 61801.) SEE ALSO TE 000 469. (AUTHOR)

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IN THE PREPARATION OF SECONDARY SCHOOL
ENGLISH TEACHERS (ISCPET)

A Curricular Study Concerned with the Process
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and its Effects Upon Experienced Teachers'
Abilities to Think Critically

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Abilities to Think Critically

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Chicago, Illinois

May 1968

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I. INTRODUCTION

A. Problem, Background, and Review of Related Research

The need for in-service training for elementary and secondary school teachers has always been recognized. This is especially imperative today for proper pedagogical adaptation in light of the complexities of modern living. Accounts of vast research carried on through private and public enterprise likewise suggest that teacher training needs updating. Teachers who were prepared a decade or more ago are in special need of in-service training. New developments in content areas and in the psychology of learning stimulate and challenge educators to improve their present offerings for experienced teachers. A major area needing attention today is that of developing students' abilities to think critically.

The individual teacher should be convinced that it is his inescapable responsibility to educate his students for citizenship in a democracy. He should 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, and where truth, wisdom, civic responsibility, and the good life must be considered important if democracy is to survive, education must be related in a positive manner to those priorities of value. Intelligence must be a guide for behavior.

Anyone interested in the American way of life recognizes 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 situations are valid objectives of a curriculum.

Learning how to think critically is a difficult process and it is difficult for teachers to guide students in the rigorous use of the higher mental processes. The difficulty of training 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.

Unnaturalness of the school situation and its limited materials and activities often add to the difficulty by helping to make students' activities stereotyped rather than thought provoking. 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 readaptation to new and different problems. This places obligations upon the teacher.

The present study emerged as a response in attempting to meet that obligation. It reflects, directly or indirectly, the contributions of many scholars. One of the most thorough attempts to improve critical thinking was Edward M. Glaser's study ⁽¹⁰⁾ in which high school students were taught some of the essentials of logic and the psychology of thinking with practice in the recognition of error and critical evaluation of newspaper articles. David H. Russell in the 1960 edition of the Encyclopedia of Educational Research ⁽¹⁴⁾ makes the comment that the breadth of the topic and the variety of investigations indicate the growing importance of the problem. Current interest in the topic is also reflected by the larger number of recent publications in the area. However, the volume of research in critical thinking is not commensurate with the frequency of the use of the term in statements of educational objectives and other curriculum materials. According to research reported by Russell, critical thinking in most curriculum 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.

Since 1960 serious attention has been given to cognitive abilities. Mary Jane Aschner and Charles E. Bish edited Productive Thinking in Education ⁽⁴⁾, which is the result of two Conferences on Productive Thinking, a part of the six-year program of the National Education Association Project on the Academically Talented Student. In these conferences psychologists met with educators to share new theories and findings and to translate them into suggestions for practical educational procedures. One conclusion drawn from the papers in the book is that the new curriculum movements are bound together with the new concepts of thinking abilities. The papers reveal a concern that the student should be an active learner, developing his own thinking abilities, as well as absorbing necessary content information.

Hilda Taba gives a summary of the more recent studies in thinking ⁽¹⁹⁾, describing the work of Peel (1960), Smith (1960), Guilford (1960), Vygotsky (1962), Bruner (1963), and Gallagher (1965).

The knowledge gained from research relative to the development of cognitive abilities is being made available to the practitioner by means of such books as Improving Teaching⁽²⁾ and Classroom Questions: What Kinds?⁽¹⁶⁾. Unless the results of such studies are applied in teacher education programs, the benefits of these studies will remain solely theoretical.

B. Objectives and Hypothesis

An opportunity arose during the second semester (February-May 1966) at Loyola University in Chicago to work with a group of 42 experienced teachers currently teaching in elementary and secondary schools of Chicago and vicinity. These teachers were concerned about meeting certification requirements in professional education. Loyola University was cooperative in allowing the establishment of the course and the experimental procedures described here.

While this study was being conducted with experienced teachers, another investigation was being carried on with prospective teachers of high school English enrolled in a methods course. That study is described in a report similar to this one entitled An Experimental Study of the Development of Critical Thinking Skills of High School English Teachers Enrolled in a Methods Course⁽⁸⁾. The aims of the two studies were similar. Modifications were made in view of the facts that in the study described in this report all subjects were experienced teachers, most of whom were elementary school teachers. The high school teachers of this group included other than English teachers.

Both studies were concerned basically with alerting teachers to some of the new trends in educational psychology relating to language and learning and tested the hypothesis that a conscious effort to familiarize teachers with some of the skills needed for critical thinking as applied to elementary or secondary school curricula can result in the improvement of teachers' abilities to think critically.

The course attempted to study the necessity, the possibility, and the methodology of critical thinking and other intellectual operations as they can operate in daily instruction in the language arts within the context of a usual curriculum. Attention was given to the following skills: the ability to make deductions, to make interpretations, to evaluate arguments, and to recognize inferences, assumptions, bias factors, common fallacies, and propaganda techniques. The assumption basic to this rationale is that the skills needed for productive thinking and evaluation, as defined by Guilford and others, should operate within a teacher-training program.

II. METHOD

A. The Testing Program

The WATSON-GLASER CRITICAL THINKING APPRAISAL⁽²⁰⁾ was administered to

the 42 students at the beginning and at the end of the semester, forms YM and ZM, respectively. The DRESSEL-MAYHEW TEST⁽⁹⁾ was also administered at the beginning and at the end of the semester. Since only one form is available, the same form was used for pre- and post-testing. The statistical analysis of the data was done by Dr. Samuel T. Mayo, Director of the Educational Research Center of Loyola University who is also the Director of the Measurement and Competency Project of the U.S. Office of Education which project trains researchers in educational measurement.

B. The Course

The course was taught by the investigator and comprised, but was not limited to, the following major areas:

1. Excellence in Education

This topic was studied with the help of the following filmstrips and records obtained from the National Education Association: AIM FOR EXCELLENCE
EMERGING EDUCATIONAL OPPORTUNITIES FOR ALL
THE 1965 WHITE HOUSE CONFERENCE ON EDUCATION

2. Comprehensiveness of Education

The filmstrip and record OVERVIEW OF ETS from the Educational Testing Service was used to explain the relationship of research and testing to the objectives of education.

3. The Human Mind in Reference to Language and Critical Thinking

a. The three-dimensional approach to the study of the intellect and its contents (verbal and nonverbal), its products, and its operations (cognition, memory, convergent thinking, divergent thinking, and evaluation) of J. P. Guilford⁽¹¹⁾. (See A-1, p.14.)

b. A study of the likenesses and differences of language and thought as explained by David H. Russell⁽¹⁵⁾.

c. Reading of William Shanner's A Guide to Logical Thinking⁽¹⁷⁾.

d. Study of some of the specific skills needed for critical thinking: inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments; finding the main point in a selection, information supporting the author's position, ideas and beliefs which the author takes for granted; identifying stereotypes, biased statements, and unverifiable data; and classifying kinds of terms and the forms of discourse.

4. The teacher in Reference to Language and Critical Thinking

a. A study of the art of questioning with the following Bel-Mort filmstrips⁽¹⁸⁾: THE LOGICAL DIMENSIONS OF TEACHING
EXPLAINING
ASKING QUESTIONS

b. Interaction of the contents of an English program with the activities of the learner and the effect of this interaction upon the learner's mind. (See A-2, p.15.)

The content of English is the study of language, composition, and literature. The student acquires new skills in four activities commonly referred to by rhetoricians: reading, writing, speaking, listening. These activities within the context of an English program form occasions for the operation of varied mental processes.

c. Sensitivity to teacher behavior, to student behavior, and to intellectual behavior in "Making Changes in How Teachers Teach" as explained by Daniel A. Lindley (an address delivered to the Conference of Supervisors and Consultants, National Council of Teachers of English, November 1965). (See A-3, p.16.)

d. Principles of teacher-student interaction:

(1) Teachers are their own best agents of change.

(2) Teachers are not very insightful about what they do when they teach; the more they find out about what they actually do, the more insightful they can become.

(3) What the teacher knows and what he teaches are important; what he is and how he teaches are also important.

(4) Once he learns what sort of questions there are and why he can use them, he can make a conscious effort to ask questions that encourage productive thinking.

5. Study of the theoretical and practical basis of teaching for critical thinking, especially by means of:

a. Definition, use of language, fallacies in thinking as explained in Max Black's Critical Thinking⁽⁶⁾.

b. Forms and types of discourse relating to reasoning, as found in Benedict Ashley's The Arts of Learning and Communication⁽⁵⁾.

c. The complexity of the thought processes in reading, as described in Mortimer Adler's How to Read a Book⁽¹⁾.

d. A study of the thought processes of induction and deduction.

e. An introductory study of semantics. (See A-4, p.17.) The contributions of semantics to critical thinking as explained by F. A. Philbrick in Understanding English. An Introduction to Semantics (a book now out of print) (13).

f. Techniques of teaching the anatomy of criticism in terms of:

RATINGS (opinions, preferences, acceptances, rejections)
REASONS (statements expressing reasons)
RULES (to support reasons: criteria or standards of judgments, generalizations; reasons for the reasons; product of agreement among people) (3).

g. Fallacies in thinking and propaganda techniques as violations of suspended judgment, criticalness and intellectual honesty, accuracy, and true relationship.

h. A study of advertising in terms of critical thinking.
Guest speaker: Mr. John Crawford.

i. An invitation to read a number of references, notably: Productive Thinking in Education⁽⁴⁾, Reflective Thinking: The Method of Education⁽¹²⁾, The Arts of Learning and Communication⁽⁵⁾, Education for Effective Thinking⁽⁷⁾, and current issues of Elementary English and the English Journal.

6. Application of Learning and Productive Thinking to the Classroom.

a. An examination of teachers' manuals to determine emphases on the higher mental processes.

b. Individual teachers' compilations of exercises and activities involving the skills identified in the study to be used with pupils immediately.

c. Producing lesson plans and units which emphasize intellectual operations, especially those of productive thinking.

d. Intervisitation of teachers for observation purposes: discussion with the help of an observation report form devised for this study. (See A-5, p.18.)

e. Visitation and evaluation of classes by two supervisors interested in the topic of this study as might be indicated by their theses' topics:

Sister Mary Relinette: Study of the Effects of Creative Writing of Vocabulary Development in Eighth Graders

Sister Mary Violanta: An Experiment in the Development of Critical Thinking Skills in Reading, Grades 7-8

C. Study Days

Sharing of ideas and demonstrating teaching procedures that aimed for critical and creative thinking through workshops held on August 22 and 24, 1966, under the leadership of the two supervisors and the investigator.

III. RESULTS

A. Test Results

This study tested the hypothesis that in-service training of experienced teachers emphasizing the need and procedures for developing pupils' abilities to think can improve their ability to think critically. Two procedures were used to measure the effectiveness of this experimental variable. The first was a statistical analysis of the results of two tests, summarized in the following table:

Statistic	Watson-Glaser		Dressel-Mayhew	
	pre-	post-	pre-	post-
N	39	39	36	36
Mean	60.72	66.38	46.08	49.78
Standard Deviation	12.16	11.81	11.55	15.20
Gain (pre/post)	5.66#		3.70#	

#nonsignificant.

Form YM of the WATSON-GLASER CRITICAL THINKING APPRAISAL was used as a pre-test; form ZM was used as a post-test. In the subsequent statistical analysis of the WATSON-GLASER each score was transformed to an equivalent Form AM score for comparability in assessing gains over the semester as suggested in the test manual. The gain of 5.66 points amounted to less than 1/2 standard deviation. The t value was 0.434 (df=38) which is not significant at the .05 level. This improvement was equivalent to 15 points on a percentile scale based upon norms for College Senior Women. The gain of 3.70 in the DRESSEL-MAYHEW TEST was similarly positive but nonsignificant.

B. Questionnaire Results

At the end of the course the teachers were invited to answer a questionnaire. (See A-6, p.19.) Ninety percent of the teachers responded. What these teachers did in answering this questionnaire was to give a critical evaluation of their professional preparation for teaching for thinking. They made complaints about "knowing so little on the subject," about being "inadequately prepared in the area of critical thinking," about not having such training "in the early years of college work." They emphatically expressed the desirability of scheduling this training prior to actual teaching.

The questions in the course evaluation were general in nature to encourage expression of opinion. It was possible for students to make statements about a given point in more than one place. Even though tabulating became a problem because of the nature of the questions, the amount of information received compensated for this difficulty.

Ten comments had reference to the course as being a good review of professional education making them "more sure of themselves," helping them "to feel a deeper love of their work" and to learn "more about themselves as teachers."

Fifty-six comments related to the nature of the course, referring to it as being challenging, beneficial, and informative. The emphasis on teaching for thinking gave them an insight into this "new dimension" which has practical implications for their classrooms.

Over 100 comments referred to the method in which this course was presented reflecting favorably on such aspects of the course as the varied instructional methods used. Forty-two comments referred to the desirability of the use of audio-visual material, and the profuse use of the chalkboard, especially through the use of diagrams, to clarify explanations. Twenty-four students made favorable comments about the contributions of the guest lecturers. Over 50 comments were made about the informal yet constructive, enthusiastic, but nonpressured nature of the classes. Most of the 51 unfavorable comments referred to the lack of time to study the subject in depth and to the desirability of more demonstrations, more active student participation, and more analyses of test results. Four students complained about the amount of testing.

IV. DISCUSSION

A study of the comments on the anonymous questionnaire reveals that these teachers were sincerely grateful for this exposure to the topic of teaching for critical thinking, that they regretted the fact that such training had not been offered them through their professional training much earlier in their careers, and that the presentation of materials stimulated an awareness and interest in contemporary trends in the field of education especially with regard to the topic of

intellectual operations including critical thinking. They made favorable comments about the informal and diversified nature of the course. Many regretted the lack of time for a more thorough study of the topic.

The desires for increased opportunities for sharing of ideas to which the evaluations referred were, in some measure, satisfied through two workshops held three months after the course was completed. These were devoted to the topics of critical and creative writing. The teachers who, during the school year successfully present demonstrations in helping students to think, were invited to present a summary of their work to the 50 teachers in each of the three sessions of the workshop. The investigator spoke on the topic of "An Analysis of Critical and Creative Thinking."

The complaints about using valuable class time for the purpose of testing without analyzing the test results were understandable since the teachers were not aware of the fact that they were subjects of an experimental study. Action different from that described would have been impossible without invalidating test results.

Some other factors that must be taken into consideration are the difficulty of measuring intellection and of finding tests that are truly valid. The comprehensiveness of the course, with its emphasis on the philosophy and psychology of learning and thinking did not permit a detailed study of all phases. Perhaps if more time were devoted to the direct study of the skills identified in the tests, significant test results might have been obtained. The fact that this course was offered to full-time teachers during after-school sessions did not create optimum conditions.

Added insight is gained when the modest gains of this group are interpreted in light of two other studies conducted by this investigator (8). Seniors in high school English made a gain of 2.4 points in the WATSON-GLASER CRITICAL THINKING APPRAISAL after a year's work; prospective high school English teachers in a three semester hour methods course gained 3.59 points; these experienced teachers gained 5.67 points. Their performance on the DRESSEL-MAYHEW TEST was likewise superior. However, the fact that their initial performance was inferior to the students in the methods course suggests that they had more possibility of improving themselves and, as a result, greater gains might be expected. Similar observations were made by other investigators mentioned previously.

The validity and/or reliability of the two forms of the 1952 edition of the WATSON-GLASER for the high school study was questioned because of the negative results of the control group and because of the slight gains of the experimental group in the WATSON-GLASER compared with the statistically significant gains made in the DRESSEL-MAYHEW.

V. CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS

The test results as well as the responses of the teachers to a questionnaire inviting them to evaluate the course stressing the philosophy, psychology and methodology of teaching for critical thinking, suggest that teachers desire and need knowledge about the operations of the mind and training in teaching for critical thinking. Their reactions pointed to the fact that such in-service training can be interesting and challenging. Their comments corroborated those of educators in general, namely, that the area of critical thinking is a worthy objective of the elementary and secondary curriculum and, therefore, should receive attention in a teacher-training program.

VI. SUMMARY

The Education Department of Loyola University provided an in-service training course for 42 elementary and secondary school teachers during the second semester of 1965-66 and conducted this study which tested the hypothesis that such a course can improve teachers' abilities to think critically. J. P. Guilford's model of the structure of the intellect was used in studying the contents, the products, and the operations of the mind and in planning diversified instruction accordingly.

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 alerting teachers to the importance and necessity of teaching for thinking, informing them about the various operations of the human mind, and studying the possibilities of applying such information to classroom situations. The experimental method was a distinct revolt against mere routine learning, memorization, and regurgitation; it stimulated teaching that would rise above the routine of merely having students acquire 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 familiarize teachers with the fact that numerous opportunities can be used to develop the ability to think reflectively in a wide variety of appropriate situations in a classroom. Various learning activities can be based on the assumption 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 thinking must be the immediate objective which the teacher keeps in mind continuously. The possibility of setting up critical thinking as an integrating principle of instruction was considered.

The criteria for measuring the outcomes of the course were the revised edition of the WATSON-GLASER CRITICAL THINKING APPRAISAL and an adaptation of the DRESSEL-MAYHEW TEST. Positive but statistically nonsignificant gains were made in both tests. Even these modest gains and the teachers' responses to a questionnaire suggest that the area of critical thinking and its application to an elementary and secondary curriculum is desirable, interesting, and challenging.

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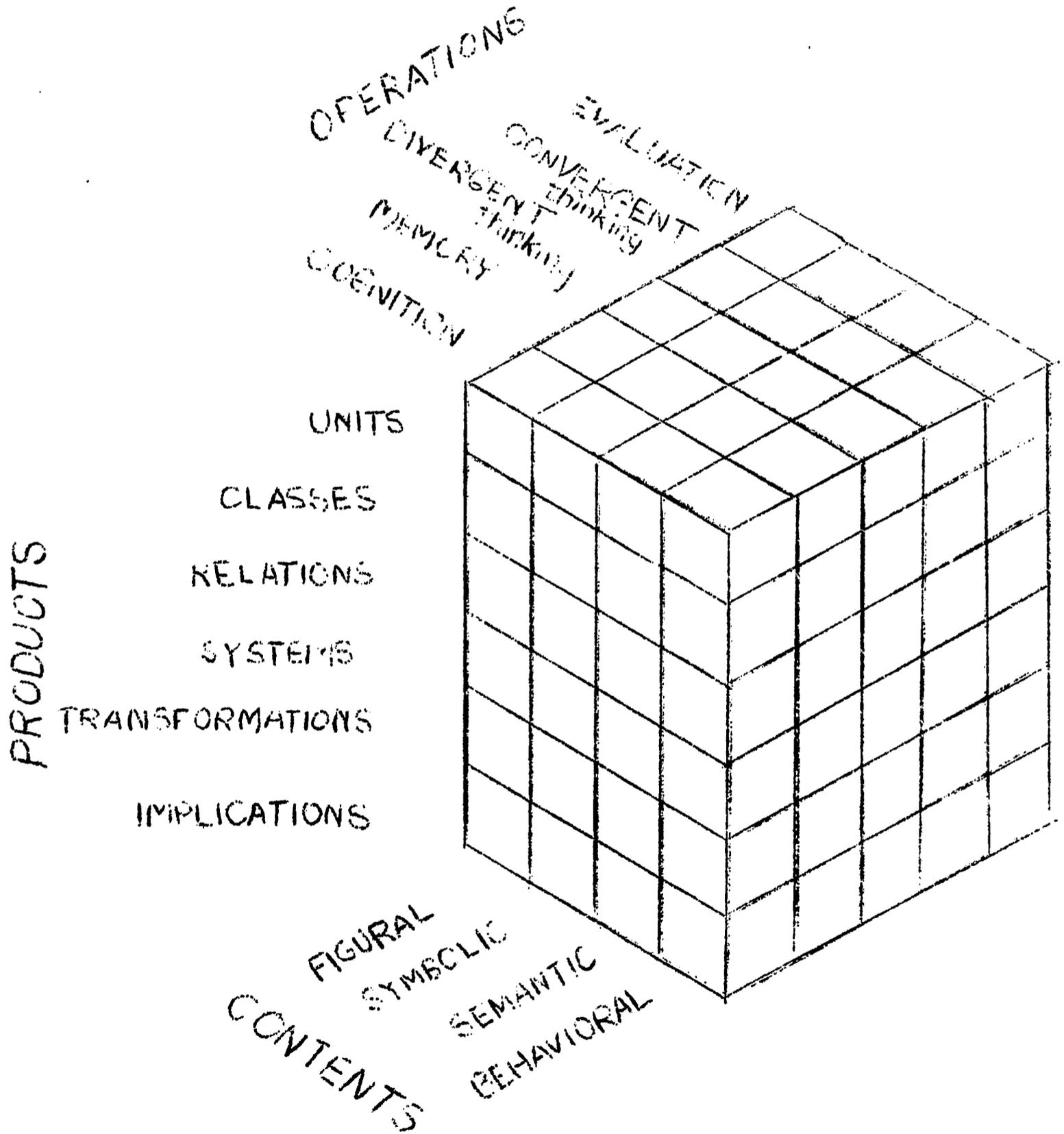
Sources of Audio-Visual Materials

1. Bel-Mort Films, 619 100 Building, 520 South W. 6th Avenue, Portland, Oregon 97204.
2. Coronet Instructional Films, 65 East South Water Street, Chicago Illinois, 60601
3. The Jam Handy Organization, 2821 East Grand Boulevard, Detroit, Michigan, 48211
4. National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036
5. Society for Visual Education, Inc. 1345 Diversey Parkway, Chicago, Illinois, 60614.

APPENDIX

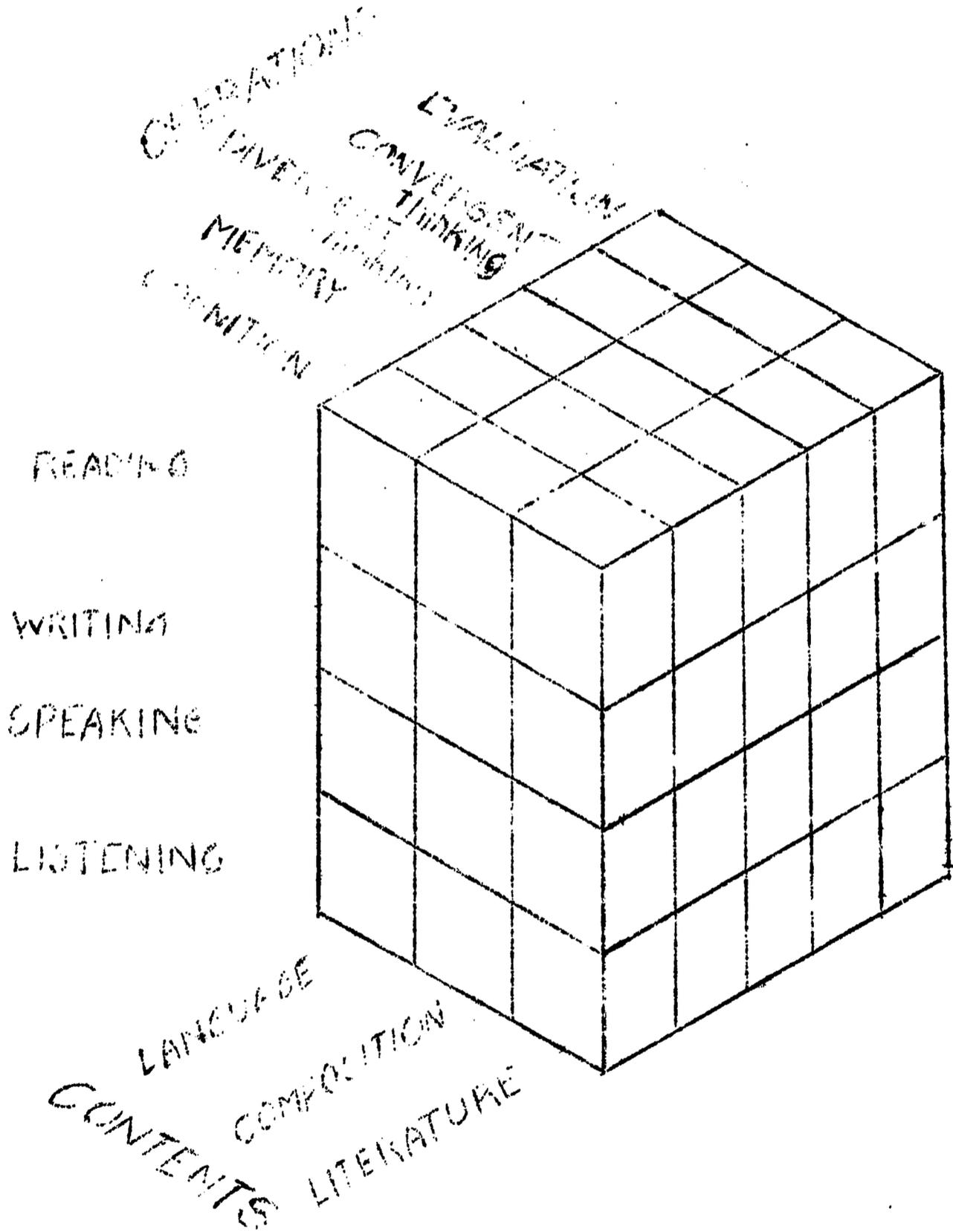
A-1

STRUCTURE OF INTELLECT MODEL



STRUCTURE OF ENGLISH TEACHERS' FELLOWSHIP PROGRAM MODEL

ACTIVITIES OF ENGLISH STUDENTS
IN RELATION TO TEACHERS' EDUCATION
OR HIGH SCHOOL INSTRUCTION



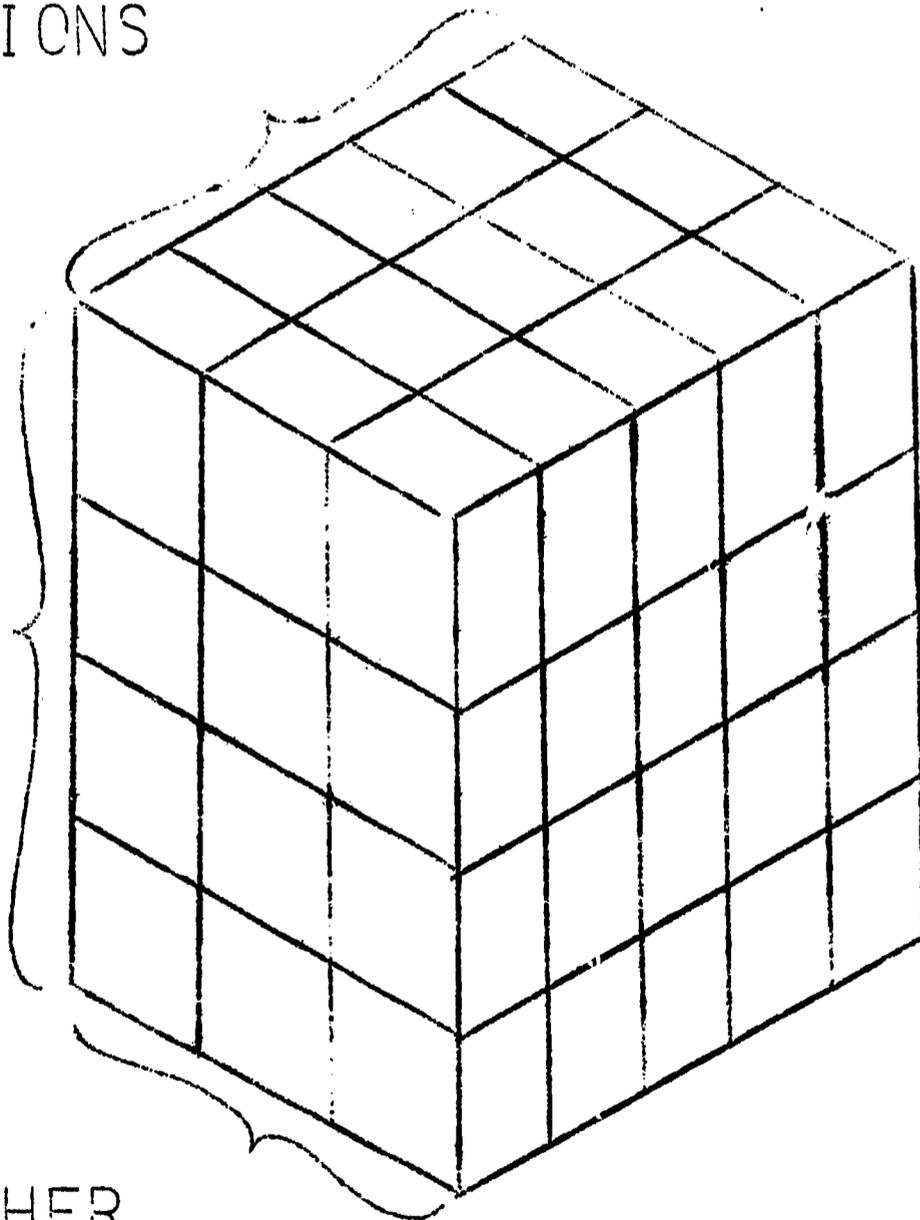
INTERACTION OF THE CONTENTS OF AN ENGLISH PROGRAM WITH THE ACTIVITIES OF THE LEARNER AND THE INFLUENCE OF THIS INTERACTION UPON THE LEARNER'S MIND

A-3

AN ADAPTION OF D.A. LINDLEY'S
GENERALIZED CLASSROOM MODEL
OF TEACHER SENSITIVITY

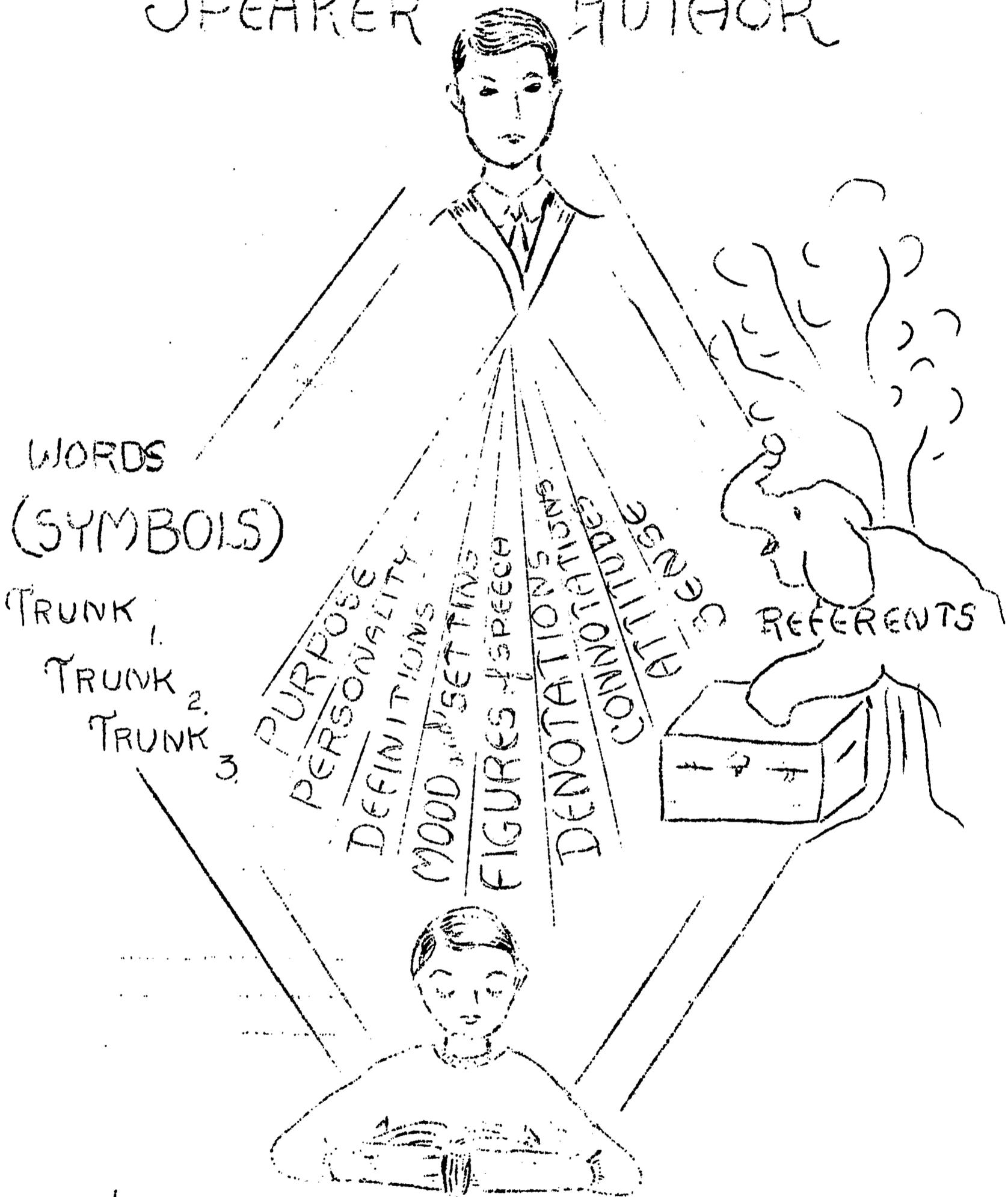
SENSITIVITY TO
INTELLECTUAL
OPERATIONS

SENSITIVITY
TO STUDENT
BEHAVIOR



SENSITIVITY
TO
TEACHER
BEHAVIOR

SPEAKER — AUTHOR



LISTENER — READER

A N OBSERVATION REPORT

LANGUAGE
T
HINKING
EACHING
ESTING

Teacher _____

Date _____

An analysis of a lesson to evaluate elements that might contribute to a realization of:

"... democracy at its best demands of its citizens' ability to think clearly, to attack problems intelligently, and to exercise critical judgments."

Commission on the English Curriculum of the National Council of Teachers of English, The Language Arts, p.45

RATING SCALE

F - Favorable - conducive to promoting thinking	N - Neutral - does not apply or "no comment"	U - Unfavorable against productive thinking
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THE CLASSROOM

Physical arrangement _____

Materials _____

Cleanliness _____

Ventilation _____

THE TEACHER

Poise _____

Art of Questioning _____

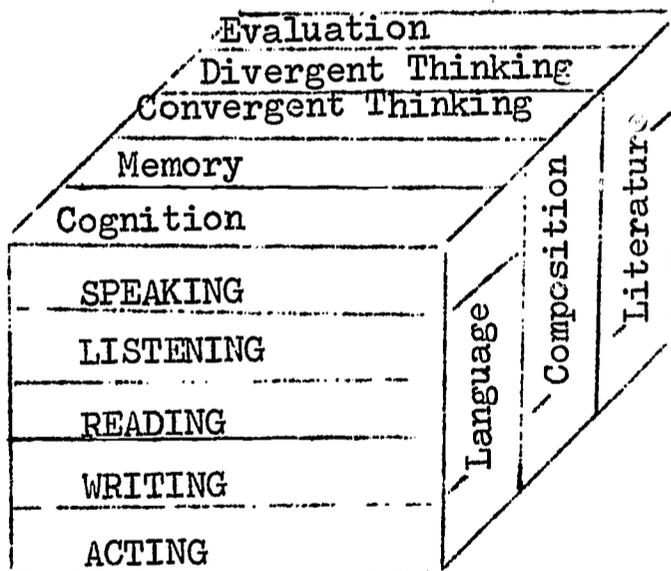
THE STUDENT

Responses _____

Learning _____

Attitudes _____

Behavior _____



COMMENTS:

Signed _____

COURSE EVALUATION

Course Number _____

Date _____

Your candid evaluation of this course may help in building a better curriculum for future classes. You need not sign this paper if you do not care to.

1. Did this course meet with your expectations? Did it exceed them? How?

2. Identify special areas, features, techniques, etc. that were valuable.

3. Identify special areas, features, techniques, etc. that were less valuable, superfluous, neglected. _____

4. Have you any suggestions for improving the course? _____

5. Please feel free to make further criticism, either positive or negative. _____
