DOCUMENT RESUME

ED 118 542 SP 009 830

TITLE	Education in the 70's and Beyond.
INSTITUTION	Pittsburgh Univ., Pa. School of Education.
PUB DATE	11 Apr 75
NOTE	196p.; Papers presented at the Annual Colloquim of the Council of Graduate Students in Education (1st, University of Pittsburg, April 11, 1975)
EDRS PRICE	MF-$0.83 HC-$10.03 Plus Postage
DESCRIPTORS	*Basic Skills; *Educational Alternatives; Educational Change; *Educational Philosophy; Educational Research; *Educational Trends; *Humanistic Education; Literacy; Reading Instruction
IDENTIFIERS	Multicultural Education

ABSTRACT

These papers focus on (1) alternatives to and within education, (2) critical issues for the 70's and beyond, and (3) affective/humanistic education. While some papers are on very specific subjects (i.e., teaching emotionally disturbed deaf children, reading readiness tests, peer influence on students, alcohol education, visual learning in literacy, and other subjects), some major themes overlap in several papers. Foremost is a concern that education not lose the momentum of some of the reforms made in the 1960's through an overemphasis on basic skills to the exclusion of concern with the affective and humanistic side of education. Another important theme is the crucial need for educational alternatives, including nonformal education in developing countries and better educational programs for the training of minority inner-city personnel. Several papers concern the problems of teaching reading and the fact that literacy is still not universal although it is fundamental to any other kind of learning. One paper criticizes the granting of academic credit in college for basic literacy courses. Various questions in educational research are also examined, including the problems of relating the understanding and knowledge of the researcher and the practitioner. (CD)

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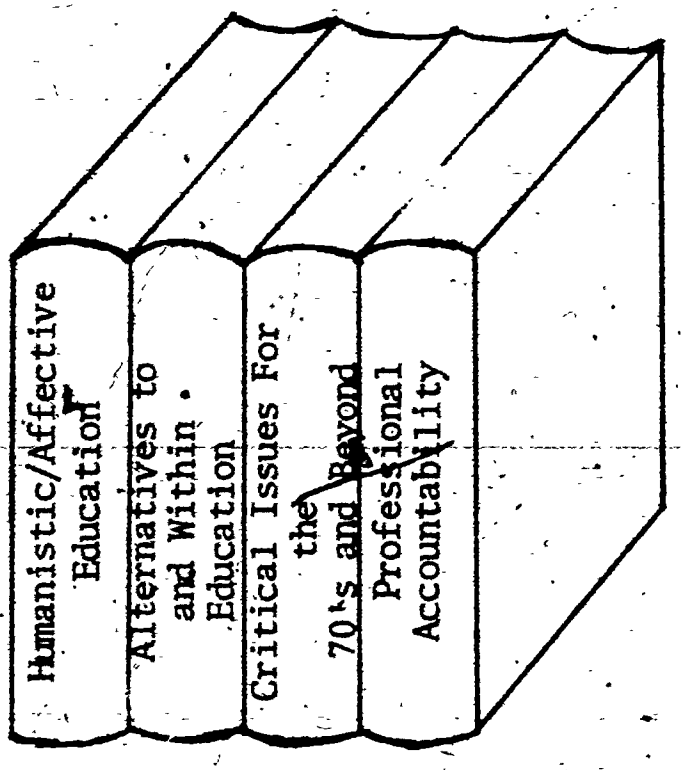
Council of Graduate Students in Education

COLLOQUIUM



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UNIVERSITY OF PITTSBURGH

EDUCATION IN THE 70's AND BEYOND

PREFACE

The papers that make up this document were presented at the first annual Colloquium of the Council of Graduate Students in Education. The theme of the Colloquium - Education in the 70's and Beyond - was particularized through the following three topics:

Alternatives To And Within Education

Critical Issues For The 70's And Beyond

Humanistic/Affective Education

University faculty served as moderators for the three sessions, namely Dr. Seth Spaulding, Professor of Education; Dr. Andrew Hughey, Assistant Professor, Counselor Education; Dr. Kathryn S. Atman, Associate Professor, Curriculum and Supervision.

The Council gratefully acknowledges the support and participation of its constituency, faculty, administration, staff and alumni of the School of Education.

INDEX TO COLLOQUIUM PAPERS

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Volume III - Affective/Humanistic Education

VOLUME I

ALTERNATIVES TO AND WITHIN EDUCATION

ALTERNATIVES TO TEACHER EDUCATION AND SCHOOL ORGANIZATION

C. Dianne W. Colbert, Ed.D.

Rationale

Historically, schools have been the agencies to preserve the social order of our industrialized society and to develop productive workers for the industrialized economy (Hummel and Nagel, 1973). However, the schools in the past decade have experienced wide spread criticism of the mono-cultural orientation of their programs and policies. During the 1960's the general population (comprised of several ethnic and racial minorities) fought quite strongly for the right to preserve their cultures in the classroom. The cry was for inclusion of cultural and historical course offerings and for an increased number of minority school personnel. Some initial efforts were launched and ethnic studies courses, multi-ethnic texts and increased minority group administrative and teaching staff were included in the school (Miller and Woock, 1973).

During this same time period, curriculum reform activity was greatly increased. Curriculum reform resulted in changed staffing patterns, and team teaching and differentiated staffing organizations were experimented with. Paraprofessionals were included on staffs to do non-teaching classroom jobs to release the teacher to have more time in diagnosing, prescribing and guiding pupil learning activities. Frequently, in inner-city minority schools, these paraprofessionals were minority residents of the school community. Thus, the paraprofessional staff was a manpower source of minority persons on the school staff.

Frank Riessman and Art Pearl in their book New Careers for the Poor (1965) tender a basic rationale for the paraprofessional staff. These authors state that educators must begin to see that members of the

"slum" community can bring to the school skills and perceptions essential to the improvement of the school's program. They support the notion that paraprofessional positions must be made permanent and incorporated into the matrix of the school oragnization table. Establishment of a continuum ranging from non-skilled entry positions, extending through intermediate sub-professional functions, and terminating ultimately in attainment of professional status changes the nature of upward mobility in our society. In the specific case of minority populated inner-city schools such a differentiated staffing procedure: 1) increases the number of minority personnel in the school; 2) includes persons of a similar cultural background as that of the pupils on staff; 3) opens the profession to those who traditionally were excluded due to socio-economic status; 4) creates a manpowery pool heretofore, that was non-existent; and 5) provides a teaching-learning laboratory for pre-service and in-service teachers in training. Therefore, the origination of paraprofessional roles has for some a broad purpose, one which responds to an apparent urban school dilemma. Upward mobility, a significant increase in minority staff participation, provision for a teaching-learning laboratory and an educational service to a population of persons who has traditionally been excluded from participation in higher education endeavors serves as primary, but unstated, goals.

In light of the representation of a multitude of racial, ethnic, religious, and national classifications in contemporary American society, who continue to maintain some vestiges of their native cultures, it appears mandatory to build upon this unique grouping to realize what America in-fact

is--a pluralistic society. It is the belief of some citizens that the school, as a recognized and valued institution of American life, should serve as one vehicle for realizing a pluralistic society. This belief is an understandable one given the notion that the establishment and maintenance of schools for every society has been for the achievement of social goals. Church schools were developed to teach the doctrine of the church, and state-controlled schools were established to educate the populace for active participation in a given political ideology. The democratic ideology is founded upon the value of the individual, and the welfare of said individual is the paramount objective in the democratic process. Although democracy is considered the highest social ideal in America, in practice it is frequently violated in the schools. School practices, therefore, must be examined as to their democratic quality for a pluralistic society. And, consequently, those personnel and administrators who service the schools must be educated in a multicultural fashion.

Goals

It is with the goal of a culturally pluralistic society in mind that multicultural education of school personnel is conceived. A notion subscribed to by many educators is one which states, we tend to teach as we have been taught. The very nature of the concept of cultrual pluralism dictates the teaching of: avoiding closed, dogmatic and ethnocentric values and encourages open exploration and investigation of diverse thought.

Therefore, the goals of any study considered within this dimension are open and continously appraised for the appropriateness of their inclusion. Nonetheless, a generic consideration can reflect in a broad

sense the purpose of this contemplation:

> School personnel at each level of formalized education will possess an awareness of, knowledge about, understanding of, competence in, and attitudinal disposition to encourage and implement the teaching-learning process such that their products perpetuate the multicultural ideal which is fundamental to a pluralistic society.

Thus the purpose is to present a set of activities, experiences and resources which may be used in developing an educative process which places major emphasis on providing teachers (and ultimately their students) with increased awareness, knowledge and sensitivity to ethnic and multicultural diversity.

Objectives

The focus of the program is to: 1) define ethnic and cultural education; 2) review various approaches previously utilized; 3) suggest new strategies and approaches; 4) review and evaluate ethnic materials and to encourage and provide opportunity to develop new ethnic units of value to each participating teacher. One focus is intended as a survey to enable participants to better cope with needs of students in a pluralistic society. Additional seminars may focus on: 1) instructional techniques and methodology; 2) learning styles and cognition; 3) cultural effects on growth and development; and 4) ethnography and the study of the school as a social system.

Specific objectives encompass the following:

1. The participant will define and utilize in communication the vocabulary associated with ethnicity.
2. The participant will verbalize a greater awareness and understanding of the cultural diversity of the children

with whom they work and demonstrate this increased awareness in their interactions with children, materials and parents in the school context.

3. The participant will discover the mythological orientation of traditional stereotypes ascribed to ethnic groups and demonstrate this through discouraging their perpetuation.

4. Participants will discuss and defend holidays and multi-ethnic traditions which are inherent to them, thereby showing ethnicity in action.

5. Participants will show respect for ethnic institutions (i.e., churches, stores, restaurants, etc.) and their relationship to general institutions (i.e., schools, law agencies, etc.)

6. Participants will evaluate the treatment of ethnic groups in textbooks and other curriculum materials.

7. Participants will determine the needs inherent to their specific school community and recommend procedures for meeting those needs.

8. Participants will develop multi-ethnic teacher-prepared materials appropriate to utilize in their own classroom.

All of these factors underline the importance of implementing teacher education and career reform such that each participant has equivalent access to grow to his/her fullest potential in servicing children. Both experienced and prospective teachers need a continuing means and renewal

reward system for acquiring those skills and knowledge that they find necessary in fulfilling their roles in the teaching-learning process.

A career ladder pattern speaks to such an approach to teacher education.

The following description explicates a career ladder approach to urban teacher education as follows: 1) the evolutionary development of a career ladder in an inner-city school; 2) staff roles; 3) skills and knowledge presented in training; and 4) inter-agency communication.

Historical Perspective

In one case a modified career ladder was attempted in response to unrest and accusations that an inner-city school building had few minority staff members to serve as models for the minority pupil populace. Another rationale for the proposed career ladder revolved around an administrative decision to implement an individualized curriculum on an experimental basis requiring paraprofessional assistance in each classroom with the program. These two phenomena seemed to compliment one another and, consequently, community residents were hired as teacher aides. The teachers and aides were trained to implement the individualized curriculum by the developers of it but continued to receive supervision from traditional school district personnel (i.e., principal, assistant principal and supervisors). As the program expanded to more classrooms, it was recognized by school district personnel and the curriculum developers that the paraprofessional staff needed child growth and development theory and some background into the teaching-learning process. This communication led to the involvement of a teacher education program which placed their pre-service

students in the school building at an assistant teacher level (i.e., a step above teacher aide because of their college education) for field-based experiences. Thus, a career ladder program came into existence with inter-agency communications involving an R&D center (curriculum developers), a public school district and a university teacher education program. The experiences this author had with this career ladder approach serves as the foundation for the following model description.

Staff Roles

Teaching competence can be said to require knowledge of man, reflection about the implications of such knowledge, and action based upon considered and informed judgement (ATE, 1973). Achievement of this competence involves the acquisition of an effective, liberal, professional education supported by a program of clinical experiences which enable students to relate educational concepts to professional action in unique situations.

Viewing any school as a social sub-system within the larger society is the basis for the differentiated career ladder spiral described herein. It is believed that the roles afford the education student an opportunity to initially view the whole school in operation in its community setting, while at the same time focusing on a planned investigation of the multitude of teaching tasks. The positions are a means of analyzing and synthesizing an understanding of the teacher's role in an urban, black school community at increasing levels of sophistication. It should also be said that if the trainee resides in the school community, they add a valuable in-put to curriculum planning efforts of the school staff due to their personal participation in the culture.

Currently there is one classroom role, teacher. Informal, inconsistent and unsystematic efforts have included non-professionals to do non-teaching tasks, but the new functions have not been integrated into the total system. A redefinition of the teaching role is needed. Through systematic steps and intervals a series of positions and learning levels are created to narrow the gap between the poor and professional and respond to the present urban dilemma in our urban black schools.

The following teaching roles are proposed for initial exploration: 1) Teacher Aide; 2) Assistant Teacher; 3) Associate Teacher; and 4) Pre-tenure Teacher. A fifth and sixth role, Supervising Teacher and Clinical Professor, are also proposed but are described apart from the initial four (see Table 1).

Skills and Knowledge Base

Those selected to participate in the career ladder experience require didactic pedagogical education as well as direct experience in the field. In this respect there are several study areas which have apparent importance for effective teaching in inner-city, minority populated schools (Williams, 1973). Education is by nature interdisciplinary. Therefore, educators require an interdisciplinary background of sociology, anthropology and psychology since these disciplines have contributed so much in the way of research about the schooling process. Study of these broad disciplines are threefold: 1) psychological anthropology with respect to child training and rearing from the point of view of instruction (formal & non-formal); 2) ethno- and sociolinguistics with reference to the use of language in cultural transmission, continuity and the role of transmission in stratification of culture-based social groups; and finally 3) comparative

Table 1

Career Ladder Role Descriptions

Position	Qualifications	Responsibilities	Education Time-Table
Teacher Aide	High School Diploma	Participator-observer Story-telling. Supervision of play/lunch Clerical functions	3 years part-time study or 2 years full-time.
Assistant Teacher	Equivalent of 2 years of college.	Materials preparation for lessons/projects in class. Correction of assignments/tests with some diagnostic interpretations. Tutoring and small group instruction in content area.	1 year for full-time student. 2 years for part-time student.
Associate Teacher	College senior in final stages of initial degree.	Interaction with students, colleagues, administrators, and parents as a professional.	Same as assistant teacher.
Pretenure Teacher	Bachelor's Degree, Teacher certification	Full-time teaching load. Developmental and experiental research projects. Limited pre-service supervision-role.	3 years (minimum).
Supervising Teacher	M.Ed. or equivalent. Minimum 3 years teaching experience with supervision background.	Coordinates, designs, implements and evaluates pre-service program in field. Supervision of field-based program personnel.	Varies
Clinical Professor	Advanced Graduate Degree(s)	Facilitation of school-college In-service training of school and college faculty. Assists and guides Supervising Teacher.	Varies

educational research which reviews strategies and techniques of various modes of instruction.

The following four study areas are suggested for a specific urban area which is predominantly black, but it can be adapted to suit the ethnic population of any region: 1) Social Science and Education; 2) Black Child Development; 3) Black Language and Communication Patterns; and 4) Multicultural Curricula.

Social Science and Education

The accusation has oft been made that traditionally the teaching and administrative staffs of urban black schools and their programs ignore the rich cultural heritage brought to school by the pupils. Consequently, this aspect seeks to survey the complex subject area of cultural minorities through an exploration of the vast amounts of pertinent data generated by anthropologists, sociologists, educational researchers and other social science disciplines. This survey includes examination of economic influences; social institutions of the family, community and the church; and an historical base of the black's contribution to the growth of America.

Black Child Development

The study of black child development is intended to acquaint participants with the overall problems of culturally different pupils who attend traditionally mono-cultural public schools. The emphasis is upon distinguishing for participants the concepts of culturally disadvantaged, culturally different and bicultural and to explore the manner in which the mono-cultural

schools have needlessly created educational disadvantages for the culturally different. Study focuses upon child-rearing practices and the implications of contradictions between school and home as educational institutions, learning style and cognition, ego development and the cyclical effects of segregation and economic disadvantagement.

Black Language and Communication Patterns

The study constitutes a systematic introduction to sociolinguistics. The purpose is to provide participants with a framework for interpreting linguistic variations, a linguistic understanding of expression and communication of black students and strategies for teaching the communication skills necessary for reading, writing and oral expression. Attention is afforded to educational problems and the structure and function of language, the relation between concept formation and dialect differences, and reading failure and political, cultural conflict.

Multicultural Curricula

This topic is designed to organize a general framework for teachers and other educational specialists toward the design, implementation, evaluation and refinement of instructional strategies for the creation of pluralistic society. Attention is given to adaptation of existing curricula to meet the unique group and individual needs of certain minorities, interpretation of psycho-emotional data for developing a supportive emotional climate, and operationalizing parent-community involvement in the decision making mechanism of the public school.

Inter-agency Communication

Obviously, for such a career ladder as this to be realized, extensive positive inter-agency communication is a necessity. Who should determine and define the goals of education has since the initial stages of the public school concept been a concern of many aspects of our society. Nonetheless, social agencies and interest groups collectively must take responsibility for educating each generation. This does not, however, suggest that each agency has equal responsibility for each aspect of the effort. A definition of function at the outset should delimit role specifications and responsibilities recognizing that the primary responsibility for educating teachers rests with the university, just as primary responsibility for educating the young rests with the public schools.

Special emphasis must be placed on the prefix "co" of the concepts cooperation, coordination and collaboration. Two ingredients are necessary for this state of co-agency design: 1) advanced planning wherein major phases or steps of planning are discussed with all involved or their representatives to allow consultation time needed; and 2) group (inter-agency) decision making on issues which affect each agency serves to create an important attitudinal set and atmosphere for a collaborative operation.

In addition, each agency needs to examine their intra-structure processes to identify means of arriving at an amenable, functioning organizational structure which allows for sharing, consensus, compromise, etc. These elements are a necessity before agencies can combine to identify individual role functions, time tables, ongoing program strategies and/or funding.

Thus, schools, colleges and related organizations are obligated to pre-plan their arrangement considering the collective structure, operation procedures, program administration and program evaluation.

Summary

That there has been overwhelming criticism of the education of inner-city teaching personnel hardly requires further documentation. An impressive list of authors, Clark (1965), Kozol (1968), Sarason (1969), and others have exposed the conditions of inner-city schools. And, in the ten years since the Pearl and Riessman (1965) book few efforts have tendered conclusive evaluations of comprehensive models for educational programming for improving inner-city pupil achievement. Piecemeal efforts have yielded piecemeal conclusions. Programmatic studies which have attempted comprehensive efforts (Reddick, 1967; Clothier, 1969; Krosky, 1970) suggest the worth of such pursuits, but have suffered from lack of funding recently. No longer can school districts or teacher education institutions ignore the need for such efforts nor the necessity of integrating them into the permanent matrix of their structures. The concern is not a specially funded short-term program but the development and maintenance of a total pluralistic social ideal.

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AN INVESTIGATION OF THE RELATIONSHIP BETWEEN THE SUBTESTS OF THE METROPOLITAN READINESS TEST AND READING ACHIEVEMENT AMONG BLACK INNER-CITY CHILDREN

Susan Mann

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Introduction

"Reading is one of the most important functions in life, since virtually all learning is based on the ability to read" (Frost, 1967). According to Johnson and Myklebust (1971), the child who learns the skill of reading not only experiences academic success in school, but also develops a certain degree of social maturity, the ability to develop relationships and is able to assume important aspects of responsibility. Johnson and Myklebust also indicate that when a child does not acquire the skill of reading, not only is his academic success in school affected, but there are definite restrictions placed upon his everyday activities and total adjustment.

Some children appear to be able to acquire the skill of reading without much effort, while other children experience much difficulty. What specific skills do children who appear to learn reading easily possess? What specific skills do children who have difficulty in learning to read lack? This study will examine six specific skill areas that are routinely measured in kindergarten children. It is hoped that from this investigation certain areas of strengths and weaknesses will become evident in the two groups of children mentioned above. This investigation will try to identify some component skills that are important to beginning reading. It is further hoped that certain educational and instructional implications and discoveries will be made that could prove to be useful in the early education of teaching children the process of reading.

Review of the Literature

The majority of the literature regarding the reliability, construct validity and predictive validity of the Metropolitan Readiness Test (MRT) appears to have been done by and/or for the Test Department of Harcourt Brace Jovanovich, Inc., the publishing company of the MRT. The authors of the MRT (Hildreth, Griffiths and McGauvran) report that they intended to measure the characteristics most important for success in first grade. Their list of the most important components of first grade readiness includes the following:

a. comprehension and use of oral language

b. visual perception and discrimination

c. auditory discrimination

d. richness of verbal concepts

e. general mental ability; capacity to infer and to reason

f. knowledge of numerical and quantitative relationships

g. sensori-motor ability of the kind required in handwriting, writing of numerals and drawing

h. adequate attentiveness; the ability to sit quietly, to listen to and follow directions

The authors of the MRT (Hildreth et al.) indicate that the content of the MRT subtests do measure the components of readiness listed above. Below are listed the six subtests and a brief description (Administrative Manual MRT) of what they seek to measure.

Test 1: Word Meaning measures the child's store of verbal concepts. "It is believed that the word meaning test provides for a representation of this general mental maturity in the total readiness score."

Test 2: Listening taps the child's knowledge of the world about him and his ability to comprehend sentences and paragraphs.

Test 3: Matching seeks to get at visual perceptual skills. This test has consistently correlated well with beginning reading skills.

Test 4: Alphabet gets at the child's ability to recognize letters of the alphabet when these are spoken by the examiner.

Test 5: Numbers is an inventory of the child's stock of number concepts, number knowledge, ability to manipulate quantitive relationships, recognition of and the ability to produce number symbols and related knowledge.

Test 6: Copying is a test in which the child manifests a combination of visual perception and motor control similar to what is called for learning handwriting.

Construct validity studies (from the information supplied by Harcourt Brace Jovanovich, Inc.) indicated that there is a strong relationship between other readiness tests (.80 with the Murphy-Durrel and .70 for the Lee-Clark Reading Readiness Test) and the MRT. The publishers also provide evidence that there is a high correlation between certain intelligence tests (.74 with the Pintner-Cunningham, .72 with the Otis-Lennon and .67 with the Stanford Binet) and the MRT. There are also numerous studies (Mitchell, 1967) indicating that the MRT has as good as predictive validity for white children as for black children. It

should be noted that all of the subjects (both black and white) used in the predictive validity studies (done by the MRT publishers) were from the South. (See Appendix B.) Upon consulting Burros Mental Measurements, one would find that it appears that the predictive validity of the MRT is similar for black and white children.

Calfee and Venezsky (1968) indicated that the makeup of the items in the MRT is such that the ability to follow instructions and general language competence are common factors which enter signficantly into the performance on all subtests. Russell and Fea (1965) report that readiness tests such as the MRT measure general language competence appropriate to middle-class Caucasian families and the effects of other pre-school training. Matuszek and Oakland (1972) did research on the factor analysis of several reading readiness measures for different socioeconomic and ethnic groups. They concluded that readiness tests do not assess common abilities among children who differ in terms of SES or ethnicity. Matuszek and Oakland also indicated that readiness tests cannot be used interchangeably with children from different racial-ethnic and SES backgrounds.

Summary of the Literature. It appears on the surface the MRT is a valid and reliable instrument. Although there seems to be some strong critics of the MRT, there appears to be a lack of concrete evidence to support their views regarding the validity of the MRT for different SES and ethnic groups.

Problem Statement

Does a relationship exist between the subtests of the Metropolitan Readiness Test (MRT) and reading achievement among black children educated in an inner-city public elementary school?

Hypotheses

(a) a significant relationship exists between certain subtests of the Metropolitan Readiness Test (MRT) and reading achievement among black children educated in an inner-city public elementary school.

(b) the makeup of the items in the MRT is such that the ability to follow instructions and general language competence are common factors which enter significantly into the performance on all subtests (Calfee & Venezsky, 1968).

(c) the MRT is inefficient in that several subtests seem to measure the same factors: general language competence and following instructions (Matuszek & Oakland, 1972).

(d) the MRT cannot be used interchangeably with children from different racial-ethnic and socioeconomic backgrounds (Matuszek and Oakland, 1972).

(e) predictive validity increases between the MRT and reading achievement, as the language competence level of the subjects moves closer to resembling the language competence level of the normed population.

Method

Subjects

The subjects were forty-seven black children who attended an inner-city public elementary school located in a large metropolitan area of Pennsylvania. The school that the subjects attended has been designated by the U. S. Commissioner of Education as having a high concentration of low-income families. All of the subjects (for the duration of the study) were enrolled in regular mainstream kindergarten, first and second grade classes.

Tasks

The subjects were required to take the Metropolitan Readiness Test (MRT) that is routinely administered to all children in that city's public school system, at the end of kindergarten (May, 1972). The subjects (those who took the MRT in May, 1972) were also required to take a routinely administered achievement test (Metropolitan Achievement Test) that is given to all children in that city's school system at the beginning of second grade (October, 1973).

Predictor Variable

The MRT was administered and scored by the individual classroom teachers. The readiness test consists of six subtests. The six subtests are: word meaning, listening, matching, alphabet, numbers and copying.

Criterion Variable

The reading achievement criteria were stanine scores of total reading obtained on the Metropolitan Achievement Tests. The test was

administered by the subjects' individual classroom teachers and machine scored by Harcourt Brace Jovanovich, Inc. Scoring Service.

Procedures

The six subtest readiness scores were obtained from the records made available to the investigator by the administration at the elementary school involved in the study. The reading achievement stanine scores were obtained from the subjects' personal data cards, made available to the investigator by the subjects' classroom teachers. All stanine scores were then listed along with each subtest score of every individual subject. The information (the six subtest scores and reading stanine score) was then programmed so that a Pearson Product Moment Correlation Coefficient could be obtained between each subtest score and the reading stanine score.

Data Analysis

Pearson Product Moment Correlation

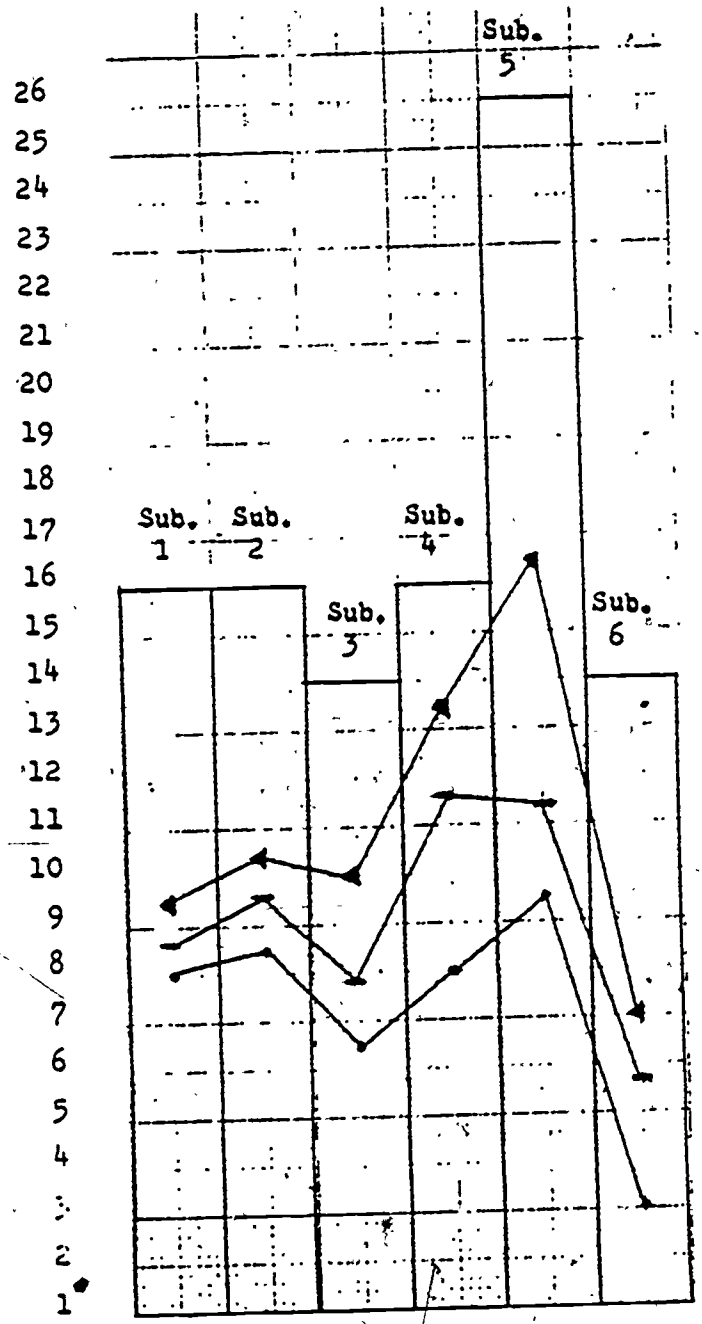
Limitation of the Investigation

The investigator was not involved in the administration and scoring of the tests. Since some teachers might view the test results as a reflection upon their teaching competence, they could have based the results during the administration and/or scoring.

Results

No one subtest of the Metropolitan Readiness Test emerged as being able to show specific skill deficiencies or strengths in low, middle or high achieving readers.

Mean Scores of the MRT Subtests for High, Middle and Low Achieving Readers



low, stanine total MAT rdg. 1, 2 & 3

med., stanine total MAT rdg. 4, 5 & 6

high, stanine total MAT rdg. 7, 8 & 9

mean score for each group

The following correlation coefficients were obtained ($p < .05$).

Word Meaning	.10
Listening	.12
Matching	.32
Alphabet	.50
Numbers	.38
Copying	.45
Total	.42

Alphabet was the highest (.50) correlation obtained. Both copying and alphabet correlated higher than the total test. The two lowest correlations, occurred in word meaning and listening. All of the subtests (except word meaning and listening) correlated above the level (.24) of significance.

Discussion

From the correlations obtained, two subtests, alphabet (.50) and copying (.45) emerged as being the best predictors (even better than the total test whose correlation was (.42) of beginning reading achievement on the MRT. Two other subtests, word meaning (.10) and listening (.12) emerged as being poor predictors of reading achievement on the MRT. The authors of the MRT indicated the word meaning subtest measures the child's store of verbal concepts. They also stated that the word meaning subtest provides a representation of general mental maturity in the total readiness score. If one believes that sufficient language facility is a prerequisite for reading (Frost, 1967), then one would have to conclude (based on the low correlations obtained on the word meaning and listening subtests) that the MRT does not adequately measure language skills (word meaning and listening being the most obvious ones) on the subjects that were studied. Arnold (1971) found that reading problems were directly related to limited language development. He also found that reading and language problems tend to be associated with low socio-economic status. If Arnold is correct, this further indicates that the MRT does a poor job in predicating beginning reading achievement among the subjects that were studied. Calfee and Venezsky (1968) reported that the choice of vocabulary items on the word meaning and listening subtests of the MRT appears singularly inappropriate for urban children, especially those from lower socio-economic backgrounds. The children who were studied basically used nonstandard urban Negro speech. It would seem

(Stewart, 1965) that nonstandard urban speech is derived from rural southern dialects. Because of migration patterns within the nation, these dialects were brought into the Metropolitan areas of the North and West Coast. Although such dialects (they closely resemble the dialects of the White Southerns) may have been generally accepted as natural in their general region, they often turn out to be quite deviant in the Northern urban dialect context. When one examines the normed population of the MRT (See Appendix A), one concludes that the language of the normed population was very different from the language of black children who were studied. One wonders if it was these dialectical differences that resulted in the MRT publishers choosing Southern subjects (white and black) for their predictive validity studies. Kurath's Linguistic Atlas points out that by and large the Southern Negro speaks the language of the white man of his locality or area and of his education (Wolfram, 1971). If the word meaning subtest is supposed to measure general mental maturity that is reflected in the total readiness score, perhaps it also lowers the predictive validity correlation of the black children's (who were studied) total readiness score.

The alphabet subtest of the MRT correlated the highest (.50) with beginning reading achievement. Olson (1958) found that while a knowledge of letter names does not always assure high reading achievement, the lack of that knowledge assures low reading achievement. Letter naming at the beginning of first grade reflects a variety of factors

which themselves are important for learning to read; e.g., level of cognitive development, emotional stability, attention span and proper interaction with adults outside the school (Venezsky, 1971). Downing (1971) also found that letter naming is the best single predictor on a reading readiness test. However, both Venezsky and Downing agreed that concentrated drilling and teaching of letter names will not help a child learn to read. Copying also appeared as a good predictor of beginning reading. Jensen (1970) found that copying tests are one of the least culture-loaded tests available. Successful performance on the Figure Copying Test (developed at the Gesell Institute) is known to be significantly related to readiness for scholastic tasks of the primary grades, especially reading readiness. Jensen also found that copying is a measure of cognitive development. Normal children are not usually able to draw figures beyond their mental age and the test is not susceptible to training measures (Jensen 1970).

Williams (1970) feels that the legal and constitutional rights of the black child are being seriously violated when they are required to take tests that did not include a fair percentage of black children in the original normative sample. Williams points out that black children show a "readiness" for different sets of learning materials than white children during the elementary school, largely due to differences in cultural backgrounds and exposures. Originally, as stated in the introduction, this investigation intended to look at six specific skill areas (as measured on the MRT) and attempted to establish

areas of weaknesses and strengths found among poor and good readers. This investigator found the MRT to be a poor instrument (due to low predictive validity) for usage in locating specific areas of weaknesses and strengths in the subjects that were investigated (black urban children).

Summary of Discussion

There is a need to explore the various reading readiness constructs with a goal of further isolating those factors which seem most critical to specific reading behavior at particular points in time in the developmental sequence (Olson & Rosen, 1971). The alphabet and copying subtests of the MRT appear to be much better predictors (for the children studied) of future reading achievement than any other subtest or the total MRT. The low predictive validity correlations of the word meaning and listening subtests of the MRT appears to lower the entire validity of the MRT. There is a strong need to develop a readiness that will have good predictive validity and "cultural fairness" for urban black children.

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Appendix A

Norm Pop. by Region, State and School System

METROPOLITAN READINESS TESTS

1965 Revision

Norm Population By Region, State and School System

Region	State	School System (City)	Number of Schools	Number of Pupils
1	Vermont	Barre	1	20
		Burlington	2	56
		Cuttingsville	1	7
		Johnson	1	37
		Lowell	1	19
		Ludlow	1	27
		Middlebury	1	38
		North Barre	1	20
		Rutland	1	63
		St. Johnsbury	1	20
		South Troy	1	5
		Springfield	3	98
		Wallingford	1	40
		Waterbury Center	1	15
		Waterville	1	6
		STATE TOTAL	18	471
	Massachusetts	Chelsea	3	300
		Lynn	7	278
		Waltham	6	218
		STATE TOTAL	16	796
	Connecticut	Wallingford	10	775
		STATE TOTAL	10	775
		REGION NO. 1 TOTAL	44	2042
2	Pennsylvania	Bethlehem	26	1165
		New Castle	10	454
		Philadelphia	24	746
		Williamsport	14	743
		STATE TOTAL	74	3108
	New Jersey	Highland Park	2	43
		Piscataway Twp.	7	266
		South Brunswick	3	122
		STATE TOTAL	12	431

Region	State	School System (City)	Number of Schools	Number of Pupils
2 (Cont)	New York	Carle Place	1	177
		Dewitt	2	57
		East Meadow	4	194
		East Syracuse	4	96
		Jamesville	2	91
		Kirkville	1	18
		Minon	1	50
		Syracuse	7	185
		Uniondale	5	247
		STATE TOTAL	27	1115
	Delaware	Georgetown	1	123
		Harrington	1	112
		Seaford	3	263
		STATE TOTAL	5	498
		REGION NO. 2 TOTAL	118	5152
3	North Carolina	Goldsboro	7	710
		STATE TOTAL	7	710
		REGION NO. 3 TOTAL	7	710
4	Michigan	Birmingham	3	74
		Bloomfield Hills	3	57
		Clarenceville	1	24
		Farmington	4	135
		Hazel Park	2	57
		Livonia	1	25
		Madison Heights	4	93
		Oak Park	3	80
		Pontiac	3	81
		Royal Oak	3	86
		Troy	3	73
		Walled Lake	3	76
		Waterford	3	69
		STATE TOTAL	36	930
	Wisconsin	Franklin	2	51
		Greendale	2	104
		Hales Corners	3	188
		Oak Creek	5	222
		West Allis	8	239
		STATE TOTAL	20	804
		REGION NO. 4 TOTAL	56	1734

Region	State	School System (City)	Number of Schools	Number of Pupils
5	Kansas	Lawrence	7	218
		Mission	2	81
		Overland	6	264
		Prairie Village	2	118
		STATE TOTAL	17	681
		REGION NO. 5 TOTAL	17	681
6	California	Oakland	16	548
		San Diego	41	1364
		STATE TOTAL	57	1912
		REGION NO. 6 TOTAL	57	1912
GRAND TOTAL	63 cities or systems	299 schools	12,231 pupils	

Test Department
Harourt Brace Jovanovich, Inc.

* Investigator's note

Only two cities, Oakland, California and Philadelphia, Pennsylvania had black populations of over one hundred thousand.

Appendix B

Predictive Validity Studies

METROPOLITAN READINESS TESTS
1965 Revision

The following tables are reproduced from an article in the Winter 1967 issue of Educational and Psychological Measurement. (Part II, pp. 1047-1054)

TABLE 1

Product-Moment Correlations between First-Graders' October Scores on Metropolitan Readiness Tests and Their Scores on Reading and Spelling Tests at the End of the Year, for 7310 White and 618 Negro Pupils in the 1964-65 USOE First-Grade Reading Study

Predictor	Group	Criterion: Stanford Achievement Test, Primary I, Form X					Standard Deviation of *Readiness Tests* Scores
		Word Reading	Paragraph Meaning	Vocabulary	Word Study Skills	Spelling	
Metropolitan							
1. Word Meaning	White	.38	.34	.50	.38	.32	2.9
	Negro	.34	.31	.36**	.36	.29	2.3
2. Listening	White	.28	.29	.40	.31	.28	2.7
	Negro	.38**	.32	.34	.39*	.32	2.9
3. Matching	White	.40	.40	.39	.42	.38	3.8
	Negro	.53**	.51**	.44	.51**	.50**	3.9
4. Alphabet	White	.53	.51	.44	.50	.52	4.4
	Negro	.52	.50	.45	.52	.52	4.9
5. Numbers	White	.50	.49	.51	.52	.47	4.5
	Negro	.51	.47	.47	.52	.48	4.2
6. Copying	White	.33	.32	.30	.35	.31	3.5
	Negro	.40	.35	.28	.39	.35	3.1
Total, Tests 1-6	White	.58	.56	.59	.59	.54	15.8
	Negro	.60	.55	.52*	.60	.56	16.6

*Difference between White and Negro coefficients is significant at the .05 level.
**Difference is significant at the .01 level.

Investigator's note

This study was done in an urban area (not named in study) located in North Carolina.

From paper by Thomas M. Goolsby Jr., University of Georgia, and Robert B. Frary, University of Miami. "Validity of the Metropolitan Readiness Test for White and Negro Students in a Southern City."

TABLE 1

Correlations Between Scores on the Metropolitan Readiness Test and Various Achievement Tests
White N = 334, Negro N = 113

Criterion Tests		Race	Metropolitan Readiness Test: Total Score	Word Mean.	Listening	Matching	Alphabet	Numbers	Copying	Criterion Score Std. Deviations
Metropolitan Achievement First Administration (February)	Word Know.	White	.550	.237	.375	.340	.555	.502	.389	7.26
		Negro	.476	.421	.285	.282	.392	.416	.327	7.04
	Word Disc.	White	.549	.302	.343	.330	.538	.512	.357	7.15
		Negro	.583	.400	.211	.433	.487	.524	.476	6.28
	Reading	White	.262	.108	.208	.117	.240	.282	.197	7.16
		Negro	.404	.179	.144	.248	.339	.385	.417	6.41
	Arithmetic	White	.631	.333	.412	.422	.542	.642	.424	13.0
		Negro	.725	.271	.220	.580	.658	.696	.621	15.7
Metropolitan Achievement Second Administration (May)	Word Know.	White	.550	.242	.386	.364	.491	.557	.350	7.23
		Negro	.657	.327	.181	.532	.591	.608	.567	8.37
	Word Disc.	White	.538	.238	.325	.382	.503	.553	.328	7.43
		Negro	.620	.290	.173	.471	.585	.544	.557	8.67
	Reading	White	.542	.247	.375	.342	.459	.550	.374	10.5
		Negro	.687	.329	.185	.570	.657	.605	.540	9.52
	Arithmetic	White	.461	.302	.309	.281	.398	.484	.289	10.2
		Negro	.599	.236	.192	.419	.563	.566	.524	16.1
Botel Instructional Level		White	.509	.202	.323	.278	.475	.515	.348	1.10
		Negro	.591	.248	.103	.513	.593	.502	.526	.82
Botel Potential Level		White	.551	.347	.337	.407	.494	.522	.327	2.41
		Negro	.467	.242	.041	.414	.418	.467	.400	1.39
Standard Deviations of Readiness Scores		White	18.1	3.02	2.87	3.91	4.86	4.49	5.31	
		Negro	16.6	2.55	2.86	2.93	4.87	4.31	3.97	

METROPOLITAN READINESS TESTS
1965 Revision

From the July 1969 Report of a Title III ESEA Project in
Gulfport Municipal Separate School District, Gulfport, Mississippi

"Enhancement of Educational Effect
Through Extensive and Intensive Intervention"

Thomas M. Goolsby, Jr. and Robert B. Frary

Correlation between total score on Metropolitan Readiness Tests,
Form A, administered in September of first grade
and
score on Metropolitan Achievement Tests Reading
subtest given the following May

	r
80 White pupils	.54
59 Negro pupils	.68

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A COMPARISON OF THE EFFECTS OF THE LEARNING ACTIVITY PACKAGE AND TRADITIONAL TEACHING METHODS UPON ACHIEVEMENT IN MATHEMATICS

Richard D. Gutkind, M. Ed.

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CHAPTER I

INTRODUCTION

The purpose of this study was to investigate the effect of a form of individualized instruction, the Learning Activity Package (LAP), on mathematics learning. These LAPs were written during the month of July, 1974 by a team of middle school teachers for the Pittsburgh Board of Education. They were designed to meet the unique and varied learning needs of middle school-aged students.

Students who have used LAPs thus far during the 1974-1975 academic year have expressed positive comment concerning this type of learning. They are able to freely move around the room at their will, can progress in their studies at their own pace, and may use a variety of learning materials. In general, a more open atmosphere exists than in that of the "traditional" classroom.

No study has been done, however, to determine whether there is any difference in learning as the result of using the LAPs. In addition, the use of the LAPs is dependent upon the student's ability to read with a reasonable speed and accuracy, to understand basic vocabulary, and to comprehend various directions and explanations.

The question to be investigated was stated as follows: Will students who have used the Learning Activity Package score differently on a unit test than students who have not used it, and what effect, if any, will reading ability have upon their achievement?

Two hypotheses were considered in this study:

H_0: There is no significant difference in mathematics achievement between good readers and poor readers. There is no significant difference in mathematics achievement between students who use the Learning Activity Package and those who learn by traditional methods. The interaction effect between reading ability and teaching method is not significant.

H_1: There is a significant difference in mathematics achievement between good readers and poor readers. There is a significant difference in mathematics achievement between students who use the Learning Activity Package and those who learn by traditional methods. The interaction effect between reading ability and teaching method is significant.

Definitions of Terms

The Learning Activity Package or LAP is best defined as a form of communication between the student and the teacher that contains specific instructions for student activities leading toward specific performance outcomes. The purpose of a LAP is to serve as a means to individualize instruction. There are nine categories in each LAP:

(1) Rationale--This is a short paragraph, written to the student, briefly stating the purpose and subject matter of the particular LAP.

(2) Performance Objectives--This is a verbal picture, stated behaviorally, telling the student exactly what he is to accomplish.

(3) Pretest--This test is keyed to the performance objectives.

(4) Pretest Analysis--After completing the pretest, the student examines his results and determines which learning activities he must complete and which ones he may exempt.

(5) Learning Activities--The student works individually or in small groups.

(6) Posttest--This test is also keyed to the performance objectives and might even be the same test as the pretest.

(7) Posttest Analysis--The student examines the results of his posttest and determines whether he has successfully completed the LAP or whether he should be recycled to the Activities section.

(8) Appendix--This section may contain book references, supplementary information, and/or a glossary.

(9) Quest--This section contains additional activities for those students who wish to continue their studies in this particular subject matter. The Quest section is particularly meant to meet the needs of advanced students.

For the purpose of this study, a "good" reader will be defined as one who receives a grade equivalent score of 5.5 or higher on a reading test, to be described later in this paper. A "poor" reader will be defined as one who receives a grade equivalent score less than 5.5.

CHAPTER II

REVIEW OF RELATED RESEARCH AND LITERATURE

Individualized Instruction

Much has been written about the use of individualized instruction in the classroom, and yet, no definite conclusions can be reached about it. The following section is devoted to the theory of individualized instruction and contains both supportive and non-supportive material.

Glaser (1972) defines two distinct modes of education: (1) selective, in which there is only a minimal variation in conditions under which students are expected to learn; and (2) adaptive, which assumes that the educational environment can provide for a wide range and variety of instructional methods and opportunities for success. The selective educational mode operates in what he calls a "Darwinian framework" in that the students must adapt to and survive in, the world as it is. However, early experiences in a particular cultural environment provide the child with his particular values and skills for processing information. While the traditional school requires immediate acceptance of an achievement ethic, a middle class value, the adaptive educational mode assumes that the particular values, styles, and learning

experiences the child brings to school are of intrinsic worth. Glaser concludes by calling for "more 'modular' organization of instructional units."

White (1972) defines individualized instruction to mean that "the student has been matched to an instructional system such that he is working at his own speed, learning style, and ability level on appropriate materials in keeping with the goals, supported by adequate assistance in a suitable learning environment". The instructional system referred to includes the various strategies and methods available to the student, as well as varying educational spaces, group sizes appropriate to the particular teaching method, people necessary to support the learning such as teacher, instructional aide, or student tutor, and a system of evaluation. The overall strategy of individualized instruction consists of a continuous system of diagnosis and prescription in which "study agreements" are formulated for each particular student.

Trafton (1972) provides a clear and concise view of the scope of individualized instruction. He specifies ways of providing for individualized instruction at three levels: (1) The group development approach is effective for the initial developing of ideas and skills. It involves the use of a variety of materials, the effective use of both directed and open-ended questions which are directed to

particular students, written work, and pupil-teacher dialogue. (2) The second level involves ways in which whole group instruction may be modified. These methods include the use of independent progress for particular students for limited periods of time; ability grouping of classes; flexible grouping of classes into smaller groups for short periods of time; and the use of testing to determine student needs. (3) The third and highest level modifies whole group instruction to include independent, self-selected activities. Pupils select learning experiences that are of interest to them.

According to Indelicato (1972), four guiding principles are inherent in individualized instruction: (1) All learning takes place in the learner; (2) Each person learns at a different rate; (3) Because of the sequential nature of most of mathematics, a student must attain a certain level of mastery before he can move to the next unit; (4) Students have different interests. The basic ingredient he names for this type of program is a modular, flexible schedule, which can accomodate Large group meetings, small groups, and independent study. In addition, the student learns responsibility and experiences a sense of accomplishment.

Henderson (1972), however, points out that individualized instruction can become an inflexible system. While many individualized programs are being advocated as innovative panaceas, these teacherless management systems result in

"individualized indoctrination" rather than individual learning. He states, "Mathematical learning involves personal thought and contemplation as well as experimental trial and error. Thought and contemplation can best be motivated through group discussion and exposure to knowledgeable teachers."

While Graham (1972) calls individualized instruction "one of the most successful endeavors available to education," she does caution against allowing students to work entirely alone for any extended periods of time. She says, "At a time when people are having more and more difficulty relating to one another, education should be fostering interchange between students and the bridging of communication gaps, not eliminating what little student verbalization does exist in the classroom."

Lipson (1970) points out two possible problems of individualized instruction. First, the classroom can become a "three-ring circus" if not planned properly, and, secondly, the student may lose his sense of belonging to a group, so that some group activity should be retained.

Individualized Instruction Programs

The following section is devoted to an analysis of some of the individualized instruction programs in mathematics that have been implemented. Research data is supplied when available.

Sinks (1968) analyzed the overall effects of changing the educational environment in several ways to achieve an individually prescribed curriculum for each student at a junior high in Illinois. The study consisted of two control groups and two experimental groups of seventh graders studying science, mathematics, language arts, and social studies. Results compiled from the Sequential Tests of Educational Progress indicated increased gains in achievement scores for the experimental groups in all four disciplines. A combination of surveys, interviews, questionnaires, and observations indicated desirable changes in behavior, attitude, and learning strategies of the seventh graders.

Another program, which attempted to eliminate some disadvantages of a small school mathematics program, was established at Dora High School in New Mexico. Each student worked individually through SRA Modern Mathematics, Course I and had to complete at least 36 of the 73 chapters to receive credit. Independent work was supplemented by occasional lectures. Students showed an average gain in achievement score of 48 points from pretest to posttest, which is significant beyond the .01 level.

Noddings (1969) describes an individualized program designed for eleventh grade students whose learning, he claims, is affected by a variety of external factors. Students were to read the text, to work through sample

exercises, and to solve recommended problems. No student was permitted to begin a new chapter until he had passed a test on the preceding one. Classes were structured as informally as possible with two large sections of sixty to seventy students and three or four teachers. Final tests given at the end of the year for each of the four years the program had been in operation indicated significantly better results in eleventh year mathematics than for any other year of mathematics instruction.

Baley and Benesch (1969) conducted an experiment at a high school in Watts, California. They demonstrated that multilevel team teaching and individualized instruction produced significantly higher student achievement in computational skills than traditional methods, and at no increase in cost. The multilevel team consisted of a teacher, a teaching assistant, and a student assistant. Final posttest scores showed an average improvement of 2.16 points over the control group, a statistically significant improvement.

Sumner (1971) demonstrated the value of performance contracting for introducing instructional innovations. Pupils in an inner city middle school used materials supplied by the Combined Motivation Education System. Students scored significant gains in both reading and math scores.

Wilson (1973) designed a series of compensatory education programs that raised the performance levels for low achieving

students to reflect a normal distribution of achievement. Students were grouped heterogenously and worked either in small groups of two or three, or individually in a learning laboratory. Curriculum was developed and prescribed as needed, based upon a careful diagnosis of learning disabilities. An emphasis on success was the key to the program.

Lochner, Mrochek, and Lackore (1973) used unipacs, self-contained activity units, each covering one basic concept, in teaching a second year algebra course. During each week, students attended large group, small group, and open lab sessions. Although most of the students made acceptable progress in learning algebra, final test results showed significant gains for self-directed students but little progress for marginally motivated students who were primarily dependent teacher-imposed structure.

An investigation of seventh grade mathematics students, conducted by Sutton (1967), pointed out some of the difficulties of individualized instruction. The control classes achieved significantly higher gains than did the experimental classes, both in reasoning and fundamentals. The poor showing of the experimental method was attributed in part to the heavy demands placed upon teachers and in part to the difficulty of the experimental materials.

Matthews and Rahmlow (1970) describe Project PLAN (Program for Learning in Accordance with Needs), a program

which has been used in various school districts throughout the country. The project uses a variety of sources to define the students' mathematical needs, develops individualized programs of study that vary both the content and amount of content to be studied, and provides alternate methods for learning this content. Each student is finally given his own Teaching Learning Unit, which contains performance objectives, activities related to these objectives, and evaluation exercises to determine whether or not he has achieved his particular objectives.

Similar to PLAN is the Caledonia Individualized Mathematics Project as described by Ogilvie (1972). Students also work on self-contained units called contracts. Features of the program are a variety of learning materials, day to day diagnosis of students, and team teaching. Although reaction has been favorable and most students are passing tests with scores of 90% or better, no statistics are as yet available to evaluate the project.

Another type of individualized instruction is computer-assisted drill instruction. While Jerman (1972) admits that several studies have shown no significant differences in achievement test scores between students who used computer-assisted instruction as a part of their learning and those who did not, he claims that students have made significantly greater gains in cases where teachers were given an adequate

workshop in using computer-assisted instruction. Gipson (1971), also, did not note any significant gains in learning, but there did seem to be evidence that students' interest in mathematics had increased.

CHAPTER III

DESIGN OF THE STUDY

The experiment was conducted by using four seventh grade mathematics classes at Columbus Middle School. Because of the uniqueness of the block schedule at Columbus, students were permitted to be randomly grouped into four classes of approximately twenty students, each class lasting approximately forty-five minutes.

Prior to instruction, all four groups were tested to determine reading abilities. The tests used were the Gates-MacGinitie Reading Tests, which are divided into two sections, Vocabulary and Comprehension. Each test provided a grade equivalent score for that particular skill. The two scores were then averaged to determine an overall grade equivalency. Students who achieved a score of 5.5 or greater were considered "good" readers, and those who achieved a score less than 5.5 were considered "poor" readers for the purposes of this study.

A unit on fractions was taught for this experiment. The topics to be studied included the defining of fractions and related vocabulary words, reducing fractions to lowest terms, writing improper fractions as mixed or whole numbers

and vice-versa, and adding and subtracting fractions and mixed numbers. This topic was deemed to be an appropriate one, for it is traditionally a troublesome one for most students. This topic of study lasted approximately five weeks.

Two classes were randomly selected to serve as the control group for the experiment. Every attempt was made to maintain "traditional" classroom techniques with this group. Prior to each subtopic, a short lecture-recitation lesson was presented. Subsequent learning activities included solving exercises from the textbook, additional worksheets as they were needed, student demonstration at the blackboard, occasional homework assignments, and any mathematics games which reinforced the concept of fractions. All students in the control classes were expected to work on the same assignments at the same time.

The other two classes served as the experimental group. These two classes were given short lecture-recitation introductions to the various subtopics included within this unit. These lessons were analagous to the ones given the two control groups.

All other learning in the experimental groups came from the use of the LAPs. Each student was expected to complete four LAPs. The first LAP, entitled "What is a Fraction?", introduced the concept of a fraction and the

reducing of fractions to lowest terms. The second LAP, "Fractured Fractions", dealt with changing improper fractions to whole and mixed numbers and vice-versa. The third LAP, "Fraction Facts-Part I", taught addition and subtraction of fractions with like denominators and was followed by "Fraction Facts-Part II", the fourth LAP, which was concerned with adding and subtracting when a least common denominator must be computed.

At the end of this unit, a posttest was administered to all classes. Actually, two tests were administered to correspond to chapters 12 and 13 from the textbook, Key Ideas in Mathematics I. The first test was administered after the concepts from chapter 12 had been covered and the second test was given at the end of the unit. Each student's scores were summed to obtain a total posttest score. The particular tests used were "Mastery Test 9, Part III" and "Mastery Test 9, Part IV", taken from the accompanying publication, Key Ideas in Mathematics I, Testing Program. Reliability coeffecients for these tests were not available.

Analysis of variance was used to analyze the data from the experiment. The factorial design for the analysis consisted of two independent variables: teaching method (either LAP or traditional) and reading ability (either good or poor), and one dependent variable (final test score).

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

A total of ninety students were initially tested to participate in this study. However, due to a variety of factors, such as schedule changes, chronic absenteeism, and several students moving out of the school district, only seventy-six students actually participated in the study to its conclusion.

The results of the analysis of variance for the total change in achievement test score between good readers and poor readers resulted in an F value of 24.01 with one degree of freedom. This value is significant at both the .05 and .01 levels. Thus, the null hypothesis that there is no significant difference in achievement between good readers and poor readers was rejected.

The analysis of variance comparing the factor of teaching method upon achievement test scores showed F = .01 with one degree of freedom. This value was not significant at the .05 level. Consequently, the null hypothesis that there is no difference in achievement between the use of the Learning Activity Package and traditional teaching methods failed to be rejected.

Concerning the interaction effect between reading reading ability and teaching method, the analysis of variance resulted in a value of F = .56 with one degree of freedom, which was not significant at the .05 level. The null hypothesis that the combined effects of reading ability and teaching method were related to mathematics achievement in this study also failed to be rejected.

TABLE 1

ANALYSIS OF VARIANCE FOR MATHEMATICS ACHIEVEMENT TEST SCORES

Source of Variation	df	SS	MS	F
Withim	72	6314.4	87.70	
Between	(3)			
Factor 1	1	2105.3	2105.30	24.01**
Factor 2	1	1.3	1.30	.01
Interaction 1 x 2	1	48.7	48.70	.56
Total	75	8469.7		

CHAPTER V

SUMMARY AND CONCLUSIONS

This study was concerned with a comparison of the effects of two teaching methods, the Learning Activity Package (LAP) vs. traditional, large group instruction. In addition, the factor of reading ability was considered both in relation to its effect upon mathematics achievement and to a possible interaction effect between reading ability and teaching method.

The Learning Activity Package is a form of individualized instruction that has been used before by many school systems, either in its present form, or with various modifications. Its use is currently being encouraged by the Pittsburgh Board of Education in the present middle schools. The LAPs used in this study were written during the summer of 1974 by a team of middle school teachers. Since these LAPs were relatively new to both teachers and students, they were deemed an appropriate topic for study.

The effective use of LAPs are dependent upon the student's ability to work independently. Upon beginning a new LAP, the student reads the "Rationale" to learn the purpose of the LAP and the "Performance Objectives" to discover the

particular behaviors he must demonstrate to indicate completion of the Package. He then takes a "Pretest". After the teacher has corrected the Pretest, the student uses the "Pretest Analysis" to determine which "Activities" are appropriate for him. The "Posttest" and "Posttest Analysis" determine whether the student has finished the LAP or whether he should perform additional activities. Supplementary information, such as a glossary or book references, can be found in the "Appendix", and enrichment activities are available in the "Quest" section.

This study was carried out for approximately five weeks from December, 1974 through January, 1975 at Columbus Middle School in Pittsburgh. Seventh grade students were randomly grouped into four classes of approximately twenty students. Prior to the study, each student was administered the Gates-MacGinitie Reading Tests to determine a grade equivalent score in reading ability. Students who achieved scores of 5.5 or higher were considered "good" readers and those who scored below that level were considered "poor" readers for this study.

Every attempt was made to keep all conditions equal in the classes except for teaching method. Students in the two traditional classes were expected to work together as one large group. The teacher used principally expository techniques in teaching a unit on fractions. Students in

the other two classes were expected to learn by the use of LAPs, with an occasional large group meeting. This meeting was always an identical one for all four classes. A final test was administered to each class at the completion of the unit. Analysis of variance was used to analyze the data from the experiment.

The findings in this study may be summarized as follows. Students who were considered good readers showed a significant difference in mathematics achievement than those considered poor readers. Secondly, there was no significant difference in achievement as a result of teaching method, and, finally, no significant interaction effect between reading ability and teaching method could be found.

Thus, on the basis of the data collected in this experiment, there is no reason to believe that either of the two teaching methods, LAP or traditional, is any more effective for the students at Columbus Middle School. As might be expected, good readers learned more mathematics than poor readers, regardless of the teaching method.

Perhaps, a logical question that might be asked would be as follows: Is there any justifiable reason for the classroom teacher to spend extra time preparing LAPs, if as the results of this study indicate, there will be no significant increase in learning? The experimenter's answer to this question is "yes" and is based purely upon his own

empirical observations of his students during the course of this study.

First, the experimenter noticed that many students showed a distinct preference for the use of the Learning Activity Package and improved attitudes in general towards mathematics class. Students who used the LAPs were able to function in a relatively open environment. They were allowed the freedom to move around the classroom at will; they handled a variety of materials that the traditional classes did not use; they were permitted to progress through the LAPs at their individual learning rates, without being forced to "keep up with" or to "wait for" the rest of the class; and, finally, grades were deemphasized in favor of achieving behavioral objectives. Every student who made a sincere effort at completing a LAP could point to specific learning accomplishments. Oftentimes, in a traditional classroom, only the "A" and "B" students can be proud of their achievements.

Secondly, in the LAP classes, a considerable responsibility for managing the learning environment was taken away from the teacher in favor of the student. The burden of pacing one's learning, obtaining learning materials, and diagnosing and prescribing learning activities was placed upon the student. The teacher served mainly as a resource person and was no longer the dominant personality in the

classroom.

Thus the lack of any difference in achievement between the two teaching methods might really be a recommendation to make increased use of LAPs in the classroom. The LAPs appeared to produce more positive student attitudes toward mathematics class and to make some progress toward the goal of producing an independent learner. Perhaps these effects are more significant and will have more of a long term effect upon the student than the actual knowledge gained in the unit.

Several possibilities may be suggested for the future use of LAPs. One idea would be to teach various units, switching teaching methods from time to time from LAPs to traditional techniques. A second possibility would be to teach each unit, using a combination of LAPs and traditional methods. This alternative would truly individualize the instruction. It would satisfy Glaser's "adaptive" educational mode, which calls for a variety of educational methods and permits the child to make use of his own particular values, styles, and learning experiences.

Recommendations for Further Research

This study represents only an initial attempt to evaluate the Learning Activity Package and contains many implications for further study. Following the completion of the unit on fractions, an interesting study would have one of the

control groups and one of the experimental groups switching roles. The data obtained from teaching a second unit would be compared to the data on the first unit to determine if the data obtained in the experiments were consistent. Switching only one of the experimental groups would help to determine whether the different results in any one experiment were due to a better applicability of a certain unit to a particular method.

To support the experimenter's contention that the use of the LAP produced more favorable student attitudes, another suggestion would be to conduct a similar study to measure attitude change. An attitude survey would be constructed to determine student attitudes toward mathematics class. An identical survey would be administered at the end of the unit. A statistical analysis would be performed to determine if any significant attitude changes occurred as a result of using the LAPs.

A final suggestion for further study would be to compare achievement on the unit test with other variables besides reading ability, i.e. sex, past achievement in math, student interest in math as indicated on an interest inventory, etc.

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APPENDIX

TABLE 2

RAW DATA

GRADE EQUIVALENT SCORES FROM GAITES-MACGINITIE READING TESTS AND RAW SCORES FROM MATHEMATICS ACHIEVEMENT POSTTEST

Experimental Group		Control Group	
Gaites-MacGinitie	Math Posttest	Gaites-MacGinitie	Math Posttest
7.60	40	5.70	21
6.00	42	7.75	41
11.50	41	6.00	21
6.50	36	5.85	38
8.55	40	8.00	32
5.80	36	7.15	30
12.15	43	5.55	17
6.25	19	5.50	39
5.50	14	8.20	34
7.75	43	6.90	39
5.95	28	7.90	39
6.90	22	6.60	34
6.00	18	5.85	23
7.30	41	7.35	27
7.95	34	9.55	39
7.65	43	9.50	42
6.80	40	5.55	37

Experimental Group		Control Group	
Gaites-MacGinitie	Math Posttest	Gaites-MacGinitie	Math Posttest
6.50	41	8.60	42
7.70	41	4.50	24
5.05	28	3.25	14
2.70	19	4.10	36
2.70	8	5.20	25
4.10	21	3.90	18
3.65	17	4.90	35
3.10	7	3.00	13
4.10	17	3.80	42
3.75	38	5.20	41
5.05	23	4.85	37
3.90	37	3.70	30
5.50	43	5.30	30
3.90	36	4.80	16
4.45	19	4.70	37
5.35	22	3.95	17
4.20	25	5.05	23
3.20	34	3.65	11
5.05	8	4.50	20
4.20	29	3.40	11
3.60	28	3.20	20

NON-FORMAL EDUCATION FOR NATIONAL DEVELOPMENT: A DEFINITIONAL ESSAY, WITH SOME RESEARCH PRIORITIES FOR THE '70's.

Gregory A. LeRoy

INTRODUCTION

In the course of the last half-decade, scholars, international development agency planners, and politicians in the so-called "less developed countries" have looked toward something called "non-formal education" as an important component of a new general strategy designed to bring about economic and social development.

Non-formal education, defined below, has, in fact, assumed such a critical role in social and economic policy, that in some quarters it has come to be viewed as a kind of development panacea, with many of the same expectations that surrounded and reinforced the rapid quantitative growth of formal schooling in developing nations in the late 1950's and 60's.

This paper will attempt to cast the concept of non-formal education, and its attendant expectations, in a more objective perspective. Specifically, my objectives will be: 1) to define and explicate the concept of non-formal education, and to contrast it with two related concepts - "formal education", and "informal education"; 2) to provide a brief historical review of the development of the non-formal education concept, and to show why it has become an essential component of development schemes; and 3) to develop an inventory of what I believe to be some important research priorities for non-formal education in the present and in the immediate future.

Non-formal education is a universal phenomenon - important to industrialized and developing countries alike. However, since the concept has been applied as part of national integrated development policy chiefly in the latter, my emphasis shall be upon these.

DEFINITION AND CONCEPTUALIZATION

For the purposes at hand, I shall define non-formal education, following Coombs, as "any organized, systematic educational activity outside the framework of the formal (school) system, (designed) to provide selective types of learning to particular sub-groups in the population - adults as well as children..." Non-formal education is to be distinguished both from formal, and informal, education. "Formal education" is synonymous with what we commonly call schooling; that is, "the highly institutionalized, chronologically graded, and hierarchically structured 'education system' spanning lower primary school and the upper reaches of the university" -- while "informal education" is a residual category which would include all learning not associated with either formal or non-formal educational activities. It is "the lifelong

process by which every person acquires and accumulates skills, attitudes, and insights from daily experiences and exposure to the environment... Generally, informal education is unorganized and unsystematic; yet it accounts for the great bulk of any person's lifetime learning -- including that of even a highly 'schooled' person."

Non-formal education as an "ideal type" differs from both formal and informal education on a number of important dimensions. These include, but are not limited to, costs, structure, instructional methods employed, linkages with the occupational structure, and nature of rewards. The growing interest in non-formal educational projects and programs among educators, social scientists, and especially bilateral and mulitlateral development agencies, derives largely from these modal differences. Increasingly, scholars and practicioners have come to view the characteristics of non-formal education as rendering it a practical means of overcoming a variety of obstacles to economic and social development. While it is not my purpose to enumerate these obstacles here, a brief summary of them in terms of their origins will help explain why non-formal education is viewed as being of such paramount importance to contemporary development schemes.

RATIONALE FOR IMPORTANCE

The obstacles to development which non-formal educational programs have attempted to overcome can be subsumed roughly under three general sources. The first two of these relate directly to shortcomings in formal schooling, and may be termed "functional" and "logistical" problems respectively. The third relates to fundamental changes in the concept of "national development" which have taken place foughly in the last five years.

"Functional" problems are those resulting from the ways in which schools actually operate in the total social and cultural milieu in which they exist. The traditional liberal mythology surrounding schools -- which holds that they are liberating, egalitarian institutions capable of uplifting depressed groups and spearheading change and development -- has been sharply criticised both philosophically -- through the work of such writers as Illich and Carnoy -- and empirically -- largely through the application of ethnographic techniques to schools as institutions operating in the context of a wider community.

"Logistical" problems associated with the provision of schooling in developing nations have been graphically documented by Coombs in his 1968 work, The World Educational Crisis. Governmental attempts to provide massive quantitative increases in formal

schooling have been counterbalanced by rapidly increasing school-age populations and skyrocketing costs. It is not unusual today for developing nations to devote 25% and more of their annual budgets to the formal education system. Such budgets are strained to the point where all available resources capable of being allocated to schooling are being used. Yet in spite of this effort, school systems continue to accomodate, with moderate increases, roughly the same percentage of the school-age population which has been served in the past, while the distribution of schooling continues to favor the urban population, and the well-to-do.

In addition to the functional and logistical crises associated with the provision of formal schooling, changes in our conception of "national development" - what it should aim at and how the necessary changes should take place -- have added a growing sense of urgency to the search for low-cost educational supplements and alternatives to formal schools.

Until quite recently, "development" has been viewed almost exclusively as an economic phenomenon. A nation was thought to be "progressing" if its gross national product was increasing at a "satisfactory" rate. The cardinal objective of development was maximizing the GNP. When this goal was operationalized in national development plans, it usually meant that priority in resource allocation was given to the rapid development of a narrow, urban-industrial, capital-intensive exchange economy, and to the expansion of enterprises which would support it, such as mining and the mechanized cultivation of export crops. The educational sector, simultaneously, was geared-up to provide the middle-and-high-level manpower to sustain industrial growth. School curricula, traditionally, have been "academic", with a recent trend, reflecting the above-noted development priorities, toward "polytechnic" offerings. Everywhere, the lower levels of th educational ladder have been designed to produce graduates capable of meeting the requirements of the next-highest level. Thus, university and secondary-school curricula have been linked to the needs of the narrow industrial-exchange economy, while the primary-school offerings have reflected the requirements of the secondary school. The resulting esoteric nature of the primary-school curriculum has thus proven dysfunctional for the vast majority of students who are deselected from the system without proceeding to some form of post-primary schooling.

Recently, however, a notable and growing discrepency in many developing countries between the narrow elite which has benefited from this strategy of development, and the mass which has not, coupled with the popularization of the "systems approach" to planning & evaluation in the last decade, have helped to liberate our goal-and-process prescriptions for development from the GNP bogey.

Recently proposed development schemes have centered upon increasing the productivity of the mass, particularly the rural mass engaged in agriculture and agricultural support activities, and upon providing the social, economic, and physical amenities (such as clinics, markets, credit, and land reform) which would make greater productivity possible. By enabling the great mass of people to participate more fully in generating the national wealth, it is believed that they will also be enabled to partake more equitably in its consumption. Such schemes are still primarily economic in focus; but the key priorities have been reversed. It is no longer assumed that the benefits of urban-industrialization will automatically radiate outward from the cities to "capture" the rural mass - a major fallacy of GNP-centered growth schemes. Rather, it is now believed that by developing a nation's "human resource" base -- by making the masses more effective producers and by raising their powers of consumption -- the GNP will grow as a natural consequence, while many of the inequities attendant upon the former approach will be eliminated.

I shall refer to development policies -- general or specific -- which share these characteristics as "ecological" approaches. They are ecological to the extent that they view "development" as a process which results from: (1) the upgrading and harmonious interaction of all production sectors, from the subsistence level to the industrial (which implies the maximum utilization of all "human resources" in production) and (2) the enforcement of structural changes in other, non-economic sectors of the politic economy, <u>including</u> education, which will enable the desired production increases to take place.

The educational component of ecological conceptions of development characteristically moves beyond mere exhortation for expansion or change in the formal school system. Typically, ecological approaches recognize the functional and logistical crises which have beset the formal system. A "sector" approach to education is thus employed, which encompasses and recognizes the importance not only of "schooling", but of non-formal and informal educational activities as well. Some ecological approaches to development advocate qualitative changes in school curricula, particularly at the primary level -- changes aimed at making the curriculum more useful to the large majority of children who will terminate their formal schooling during, or upon graduation from, the primary level. Almost all ecological schemes I have reviewed place great emphasis on the need to develop an integrated network of non-formal educational projects and programs; these, it is said, would meet a number of critical needs: They would serve as a substitute to schooling for those who do not have access to the formal system; they would supplement the limited formal education of those who have been pushed out of the system before gaining a functional command of the skills taught in school; and

(perhaps most important to advocates of an ecological-development approach) they could reach millions of underproductive adults and youths with a broad spectrum of skills geared to increasing their job productivity -- skills incapable of being taught effectively in formal classroom settings.

To summarize, then, I have pointed, in this section, to three basic reasons for the current emphasis on non-formal education in the social and economic programs of many developing nations. I believe that the "currency" of non-formal education will continue to increase in value as these three factors become more predominant -- that is, as the ecological approach to development becomes more widely accepted, and as the "functional" and "logistical" crises of formal schooling become more acute.

RESEARCH PRIORITIES FOR NON-FORMAL EDUCATION

The state of the art today:

Non-formal education is, of course, not a new phenomenon. While the concept has been in use for less than a decade, non-formal educational activities - often called "adult education" in the past - have existed since the emergence of formal schools necessitated a distinction between "school learning" and other structured learning experiences. Nevertheless, widespread scholarly interest in non-formal education as a distinct "genre" dates back only a few years.

Predictably, research related to non-formal education since then has been chiefly descriptive in nature. The principal research questions have been definitional and classificatory in scope. Questions such as "What are the modal characteristics of non-formal education which define the concept and set it apart from other forms of education?", and "What kinds of activities fit into this definition, and how can they be most usefully classified?" have predominated. In addition to scholarly research - of which there has been relatively little - the literature on non-formal education contains large numbers of case descriptions, and a small body of what I shall call "prescriptive" material, dealing largely with how non-formal education should be planned, implemented, financed, and evaluated. Most of this prescriptive literature is based upon ad hoc or working assumptions borrowed from other disciplines and professional areas, rather than upon scientifically generated knowledge about how non-formal education operates in a variety of contexts.

Immediate and future priorities

Research priorities can be articulated at several levels of analysis, ranging from general recommendations to specific action programs. The following suggestions lean toward the general end of the spectrum, largely because the diversity of applications of non-formal education to development is so great as to make specificity a practical

impossibility in a paper of this sort.

Research into non-formal education has reached a level of maturity which should enable scholars to move beyond description and classification, and to begin to ask "relational" kinds of research questions -- that is, questions which seek to develop correlational and causal relationships. There are hundreds of relational kinds of questions which might be asked. Among the first which should be asked are those which seek to determine the relationship between 1) the various components of non-formal educational programs (organization, management, teaching staff, etc.), 2) the social/cultural/economic milieu in which programs are implemented, and 3) results - the extent to which programs meet, or fail to meet, their objectives. Research of this kind, which attempts to link program character with relative success, is of paramount importance precisely because of its "practical" bias. Non-formal education has been linked into development schemes largely because of its "immediate payoff" value. Moreso than with formal schooling, non-formal programs have rather narrowly defined, usually economic, objectives. It is imperative, therefore, that planners know whether or not program objectives are being met, and if possible, the reasons for a program's relative success or failure.

An example of research in non-formal education which applies this general focus comes from the University of Pittsburgh. Dr. Rolland Paulston has attempted to link one variable in non-formal educational programming -- namely, the locus of program origin and control -- with relative program success. He has utilized a comparative approach to the problem, contrasting non-formal educational programs which have been developed in the context of social movements, on the one hand, with the more commonplace type of program which is sanctioned and implemented by forces representing a society's dominant ideology.

It has become increasingly clear that non-formal educational programs which are developed by dominant political/ideological forces embody the same set of values which will be found in the society's formal schools. Such programs, therefore, cannot be expected to be "subversive" of the prevailing social structure. Change resulting from this kind of non-formal education will be "change from above", and may be viewed, like formal schooling, as a form of social control.

Non-formal educational programs developed in the context of various kinds of "liberating" social movements, however, are typically engineered by movement leaders who represent an alternative ideology - usually one which seeks a radical reconstruction of social-structural relationships. Nationalist movements in colonial areas, the labor and civil rights movements, and more recently the American Indian and Appalachia movements have all utilized non-formal education to help achieve their aims.

This much simplified example does justice neither to the complexity of the problem nor to the sophistication of Paulston's work. Nevertheless, it suffices to illustrate the kinds of relational questions which researchers in the area should be asking.

A second area to which researchers should be turning their attention relates to methods of evaluation of non-formal education. This imperative is, of course, closely linked to the one just discussed.

It is clear that the evaluation of non-formal educational programs must move beyond a strict "psychological" perspective - that is, the measurement of "learner achievement" through the application of the tools and methods of the psychometrician. I noted that the goals of most non-formal educational schemes almost always involve the application of new knowledge, skills, and values to particular development ends. This is true irrespective of whether the program originates as part of - or as an alternative to - government-sanctioned development priorities. New strategies and techniques of evaluation - new evaluation "paradigms" - must be designed which will: 1) measure the extent to which application of newly acquired knowledge and skills is, in fact, made; 2) measure the impact which the application of new knowledge and skills has upon development, and; 3) determine what unintended consequences have been precipitated directly or indirectly by the non-formal programs. Where shortcomings are observed, evaluation techniques must be sensitive enough to tease out the reasons why.

Evaluation must, in short, become an integral component of non-formal educational programs - preferably written into a program's "plan of operations" well in advance of program implementation. In many cases, evaluation specialists should begin their work before implementation takes place; for where limited resources dictate that a program be restricted to a small sub-section of the potential "target population", some judgement must be made regarding which groups will be likely to benefit most from the program.

While it is not my intention to describe the nature of the new evaluation paradigms required for the effective assessment of non-formal educational programs, it is certain that key concepts and methods from a number of social sciences in addition to psychology will have to be employed. Sociology, economics, and - I suggest - especially cultural anthropology, could make valuable contributions.

In conclusion, I have tried to introduce the concept of non-formal education in a manner which reflects both its complexity, and its critical importance to educators, social scientists, and political figures alike. I have examined two research priorities in an admittedly global, superficial fashion; but my task has not been to offer solutions, but to provoke further questions and interest.

Non-formal education will continue to be applied in national development schemes as the "World Educational Crisis" intensifies. Its widespread use in programs which, collectively, are designed to change the lives of millions, renders it a worthy - indeed, an essential - object of study.

VOLUME II

CRITICAL ISSUES FOR THE 70's AND BEYOND

BRIDGING THE GAP:
IN SEARCH OF QULAITY EDUCATION

Charles W. Armstrong
Frederic F. Andres

BRIDGING THE GAP: IN SEARCH OF QUALITY EDUCATION

Each year industry spends a significant portion of its budget on pure research with an eye on the development of a better mousetrap; hoping the world will pave a golden path to its door. Corporations exist on their ability to discover and develop new products that serve society's practical needs or desires. Because of this, they are acutely aware of the necessity for making practical application of research findings.

The situation in education is much different. For years, researchers and practitioners have chosen to ignore the relationship between research and application and have gone their separate ways. The reasons for this lack of awareness are obscure, but the results are ~~quite~~ evident. In spite of the various findings that daily shed new light on the educational process, many educators still teach as did their counterparts of twenty years ago.

Theories have been presented as to why this research-application gap exists. It may be that the subtle changes that occur as a result of educational innovation are not readily accessible for observation. Consequently, they either go undetected, or are often simply attributed to the student's interaction with the changing social environment. The result is that the practitioner chooses to ignore the findings of the researcher as they see little to be gained from his work.

Another possible explanation may lie in the fact that many of the decision-makers in our society regard education as of secondary importance. Unlike medicine, new discoveries in education do not lessen suffering or save lives immediately upon implementation. An educational discovery cannot be administered

as a drug which cures the reading problems of every child. Therefore, those individuals who determine the areas of research upon which emphasis is to be placed tend to ignore long-term educational research for that which may have immediate benefits.

A third explanation may be that there is relatively little tangible reward or profit to be gained from developing educational theories into solutions for practical problems. In industry the junior executive who develops a new way to reduce production costs receives a handsome bonus or promotion. The teacher who develops a successful instructional strategy may bask in the self-satisfaction of improved student achievement and a job well done, but his paycheck will never reflect his creative abilities. Even the formidable task of publishing a textbook often becomes a labor of love rather than a financially rewarding venture.

There are certainly many plausible explanations as to why education has failed to bridge its research-application gap. The purpose of this paper is not to enumerate all of them, but to focus attention on the existence of the problem and suggest some possible solutions.

In its most simplistic form the problem seems to center on the lack of awareness by researchers and practitioners of the role played by each in the total educational process. It follows then that the most logical approach to solving this problem would be to make each party more sensitive to the needs and interests of the other. Ideally, the practitioner would submit problems to the researcher for investigation. In turn, the researcher would present his findings to the practitioner in a meaningful and applicable format. Thus the needs of both could be met. This would not preclude the researcher from creative pursuit, but rather channel some of his expertise toward more practical problems. This would also provide the practitioner with a readily available source of potential answers for his questions.

Unfortunately, in education this procedure is the exception rather than the rule. At present, it seems more realistic to assume that the practioner with his limited ability to find practical application in theoretical research will continue to question the maze of information being generated by the researcher. The researcher conversely, will continue to question the intellect-credibility of the practitioner for not being able to understand or interpret his findings.

The ultimate solution to the problem may be in the development of individuals who function as intermedaries between the researcher and the practitioner. It would be the responsibility of the developers to interpret the findings of research and disseminate this information to the everyday practitioner. By writing text-books, presenting articles in less esoteric journals, and conducting in-service training they would seek to communicate the most recent edcational developments. Through constant interaction with practitioners, the developers would become familiar with his problems and sensitive to his needs. This information could then berelayed back to the researcher, who would formulate and test new hypotheses.

At present there are too few individuals who have the essential skills necessary for competence in the role of a developer. Many quasi-developers, former teachers or researchers who are presently writing texts and conducting seminars, are speaking not from a firm knowledge base but only from their subjective recollections or opinions. For a researcher to reflect with an appreciation for application or a practitioner to base his feelings on scientific investigation is a very difficult task. Consequently, much of the work that has been done lacks either practical applicability or scientific objectivity.

For these reasons, the developer must be an individual with a very special combination of skills. It would seem that he should be someone who has participated in educational development at the experimental level and who has a firm grasp of its intricacies. He should also have a repertoire of experiences at the

practical level of education that would permit him to understand and be sensitive to the needs of the practitioner. Individuals that posses these particular characteristics are rare indeed. However in instances where they exist, for example, at the Learning Research and Development Center of the University of Pittsburgh, remarkable strides towards bridging the gap between research and application have been made.

It would be a worthy objective for our teacher training institutions to establish graduate programs that would provide individuals with an opportunity to develop the appropriate skills. Unfortunately, few programs exist that allow an individual the freedom to gain the kinds of experiences and expertise necessary to assume the role of a developer. Some program administrators seem to resist any movement from either end of the research-application continuum. Consequently, it appears that until developers exist in sufficient numbers to lobby for their cause there must be other alternatives.

For the researcher who is dedicated to the importance of his work, one alternative would be to begin to publish the results of his investigations in more popular journals. The obscure journals that fill our library shelves are infrequently read or understood by the average practitioner. Although the composition of an article for a less scholarly journal may initially seem distasteful, the presentation of quality research in a readily understandable form is a prize worth seeking.

The practitioners also have several alternatives. The first deals with the responsibility of our teacher education programs to provide suitable models for future teachers to emulate. A college or university faculty teaches by example as much as by word. Unfortunately many college educators fail to utilize the comcepts that they espouse. Teacher education becomes a case of "Do as I say, not as I do." Teacher education faculties should strive to exemplify the epitome

of modern educational innovation. This presents a formidable challenge to those of us who are potential teacher educators. However, it is in teacher training where education by example must begin.

A second alternative involves the practitioners at every level becoming better acquainted with scientific methodology. They should attempt to use the research tools acquired in the educational research courses to critically and objectively evaluate their own teaching methods and materials. Although the practitioner has neither the time nor the interest to conduct extensive independent research, the experience gained from these individual attempts would enable him to more readily interpret the literature that is available. Furthermore, such attempts could drastically improve the quality of education at the grass roots level.

The gap between research and application represents a major challenge for education in the 70's and beyond. Before quality education can become a reality, the information presently available must receive more universal application. These new methods and those presently in vogue must be carefully evaluated utilizing the presently available technology. Only from knowing the effectiveness of what is presently being done can educators descover in which directions to proceed.

A further challenge is to encourage individuals with the desire to become educational developers by expanding graduate programs and providing interdisciplinary course work which will give them the needed expertise.

Lastly, each of us is individually challenged to make a concerted effort to improve through scientific inquiry the quality of our own teaching. Through this effort we can hopefully encourage those who seek our wisdom to follow our lead.

A THEORY OF STRATEGIC FORECASTING FOR PROGRAM ADAPTATION WITHIN FUTURE TIMES IN EDUCATIONAL ADMINISTRATION

Haruna Mallum

In general, stratigic forecasting has to do with the prevision of future stategic configurations and contexts. The techniques and analysis presently, employed for this purpose seem unlikely to dissipate the uncertainty inherent in the historicity and circumstantiality characteristic of the entire aspect of strategic forecasting. My purpose here therefore is to briefly analyze in the contects of education, the science, state, and nature of strategic forecasting; identify some futuristic planning proceedures, and suggest for school administrators, some approach for educational forecasting for future schools; finally point out some alternative forcast stratigies of program adaptation within future time in educational administration.

Before analyzing forecasting methodologies, it may be helpful at the outset to distinguish among three basic types of outlook statement - predictions, projections, and forecasts. Predictions and projections may commonly be regarded as synonymous, particularly when they are prepared by means of rigorous quantitative proceedures involving expressions in the form of equations. Nevertheless, a prediction can be differentiated from a projection by virtue of the degree of confidence associated with the governing law which permits a prediction to be made in the first place. The act of prediction is commonly viewed as analogous that of explanation. A phenomenon is explained when one has identified a governing principle - or a governing law - and a set of initial conditions which jointly give rise to its occurance. By the same token, a phenomenon may be predicted when the initial conditions and governing principle which jointly entail it are found to exist.

A projection, like a prediction, usually involves the application of some governing principle - or governing law-together with some specified

set of initial conditions, from which may be derived future values of the phenomenon in question. Unlike prediction, however, a projection involves the explicit assumption that some governing principle or observed regulirity will continue to operate over the projection period. The typical expression of a projection in the form of an "If....., then....." statement emphasizes its conditioning nature. In fact, a projection may be, and often is, developed to reflect the hypothetical interaction of postulated conditions for which there is little supportive evidence, or which have a low probability of occurrence, or which are deliberately counter-factual. In short, one may rely upon projections in dealing with phenomena whose determinants are insufficiently understood, or inadequately controlled, to permit valid prediction. However, in addition, one may utilize projections as exporatory or heuristic devices whereby he can consider the potential effects of conditions which lie outside the range of observed experience.

Finally, the basic distinction between a projection and forecast primarily reflects the different purposes they are designed to serve. Thus a forecast may be defined as a projection which has been selected from some set of alternative projections as representing the most likely outcome. Its distinguishing characteristics is the judgment, or decision, which underlies such a selection. The need for a forecast is, of course, the usual reason for the support given to projection exercises. One's commitment to any definite plan of action extending into the future implies one's commitment to some forecast or set of forecasts.

1. Methods of Forecasting

Trend projection, analytic modeling, and strategic analysis comprise the going methodology of forecasting. Each technique has something distinctive to offer, and each exhibits specific deficiencies. Trend projection is essentially the extrapolation of historical experience; as such, it promises

a picture of the general shape of things to come. However, identifiable trends are rarely, if ever, mutually consistent; trends run contrary to one another, and so some will be modified, defeated, or reversed. In these circumstances it may well be beyond one's capacity to foresee the outcome. Moreover, identification of trends does not insure identification of all the causal factors at work. Indeed, the presumption must be that some significant causes will escape detection; these are the type called "nascent causes", which are not trends, rather the causes of future trends. Still, to be aware of trends, especially of dominant trends, is an indispensable begining to the forecasting enterprise.

By strategic analysis I mean the effort to calculate the implications of strategic postures and situations. In most respects this is the most effective of all the techniques of forecasting. Essentially strategic analysis involves an examination of the ways in which people attempt to cope with insecurity and uncertainty within any type of constraints imposed by the situation in which they find themselves. For example, in the United States, focus analysts upon uncertainty converning the countries' educational future, and the structural components of its philosophy gave rise to distinctive styles in strategic thinking. (Dewey's concept of an ideal education for the future is a typical example).

For the theory of forecasting, the outcome of strategic analysis is that strategic prevision depends upon control over all types of events that mark the path to the future. Sumarily, strategic indeterminacy in all aspect of forecasting persists to this day because it can be attributed to two irreducible causes: the decisions to be made that are profoundly influenced by the total situation, consequently by the unique elements resulting from a combination of factors; furthermore the decision is oriented toward an endless clearly defined than that envisaged by the tactician or planner.

Educational administration is a field in which there operates a plurality of causes, the interplay of which produces unforeseeable strategic configurations. Hence uncertainty in planning is inescapable.

Although forecasts of the future and discriptions of ideal futures have been widely scattered through the world's literature over the past 2,500 years or so, it was only during the sixties that there began to emerge a more intense and organized concern for and study of the future. The emergence was certainly stimulated by the demands for change marking the decade and the sense of increased speed of change in world society. After the sixties people in the world became intrigued by the notion that they had entered the final third of the twentieth century. In his introduction to the year 2000 by Khan and Wiener, Daniel Bell suggested that "the current outpouring reflects the desire of society for economic growth, for upgrading the people's standard and conditions of living, and for controlling change for specified ends.[1] As a result more and more people are now talking of the year "2000" and the twenty-first century, causing Bell to voice concern, lest men develop an infatuation with "2000", producing a fadism that will wear out the subject, arousing unfulfillable expectations, and over-emphasizing the technological gadgety that will supposedly transform men's lives.

The "Futurist" and some Futuristic Planning Proceedures

With this new interest in the future, there should come a new professional specialist, the "futurist". (The school administrator) At his best, he is a true interdisciplinarian. Perhaps he is what Buckminster Fuller calls the "comprehensivist," a member of an interlectual alite who assembles the results provided by specialist working on complex problems and issues of specialization .. .." Buckminster continues to assume that "Just as attention to comprehensive study of parts of the world led in the middle of this century to "area" studies and the area specialist, before long there may develop a new

pattern of specialization in a future time period, such as the decade of the 80's-and if he were to plan his career with sufficient vision, a young man finishing his graduate study in the early seventies could become a "decadist": first a futurist specializing in the eighties, then an interdisciplinary analyst and critic of the eighties while living during that decade, and thereafter an historian of the eighties."[2]

In order to develop a new pattern for forecasting and planning for the future, the "futurist" would have to use certain types of methods and strategics. These strategies could also serve as alternatives to the uncertainties entailed in the evolutionary changes that are taken place, and are apt to take place in the future. For example those methods that would be considered necessary are:-

a. Exploratory method - This method Dr. Popper assumes should start with past and current trends and then make extrapolations that are projected as images of the future. This common exploratory methodology includes trend extrapolation, contextual maping simulation, and odeling.

b. Normative-method - This method starts with future needs and goals and then work backward to identify the technology, changes, and decisions required to fill needs and to reach goals. The common normative methods are relevance matrices, mission matrices, and questioneering.

c. Intuitive-method - This method deals with essential sophistication variant of wisdom techniques, that make speculative projections into the future. The common intuitive methods include Delphiprobes, cross impact matrices, and scenarious"[3]

As far as predicting and imagining future societal value system is concerned, the "futurist" is hereby confronted with a challenge. At the outset, there are gross limitations inherent in any exploration of possible future values. However, "It is", according to Ian H. Wilson, "I believe that we can discern the direction of future momentum by analyzing our composti forces: Change in the character of change itself; The transition from an industrial to a post industrial society; The "critically" of a number of well established social forces; and the emergence of a "world macroproblem. It is in the crucible of such forces that the shape of future value systems will be forged"[4]

Considering that the "futurist" would proceed and futher develop and expand his vision on societal value that concerns schools, he would have to:

1. Figure alternative futures for societal educational system: All national educational systems composed of operating units-namely elementary and secondary, college or higher instituions. This system is a set of interacting units with relationship among them. There are two assumptions that have maintained this model of system: That education should start with the young, thus learning should result only from the primary or elementary schools; that education should then continue through preceeding stages of higher learning.

However, these assumptions are rapidly eroding. As society changes it is increasingly clear that education must be lifelong and, therefore, concerned with multi-age learning. And it is increasingly apparent that learning, including societally valued learning, takes place outside of schools, and, as a corollary, that learning does not necessarily take place within schools. Mr. Nixon, a contemporary President of the 70s of the United States in his educational fore- statement stated that: "Most education takes place outside the

school. Although we often mistakenly equate "schooling" with "learning", we should begin to pay far greater attention to what youngsters learn during the more than three quarters of their time they spend elsewhere."[5]

Dozen and more writers in recent years have argued that a massive societal transformation has taken place, is taken place and will take place. Jean-Francois Revel announces that a new, particularly American Revolution has begun without Marx or Jesus. Kenneth Boulding has described a transition to post-civilization; Charles Reich applauds Consciousness 111; Zbigniew Brzenzinski places the US society between Two Ages as the society enters a technetronic era; Peter F. Drucker stretches The Age of Discontinuity, most notably including a shift to a knowledge society; the late Paul Goodman celebrated the New reformation; and Margaret Mead figures that American society is entering a Prefigurative Culture.

A midst this cacophony of describing and prescribing social change and education, there is one clear and inexorable trend that could inform one's understanding of educational trend and system. In otherwords in every sector of human activity there has been an unmistakable trend toward nationalization and globalization. Infact, corporte conglomerates have led the way with their horizontal and virtical intergration and their globe-griding activity. Just as how agriculture has turned into "food supply system," and the goal of one conglomerate-tenneco-is intergration from seedling to supermarket. Just as in transportation, the interstate highway system provides nationwide linkage and uniformity, and international system of traffic control devices is slowly coming into use. In one word, the growth of learning and organizing, needs and increasing systemization on national and international levels are important cues to suggesting alternative futures, a strategic forecast for societal educational system.

2. Image Future Organization in Schools

National Centre for Higher Education Management Sytem (NCHEMS) conducted a research designed to gain insight into the changes that would be likely to occur in post secondary education during the next decade. In conducting this research, they were concerned with the longrange directions of higher education in terms of the management, concepts, tools, and procedures that are been developed or planned. Also they were concerned with the type of forecast that are being used by educational planners in establishing long-range plans that include the appropriate actions must be taken before some other changes occur.

Before the NCHEMS' projected plans were completed and implimented, they found that in the contrast to planning for long-range activities forecasted, unforeseen changes usually disrupt the plans as educators attempt to ensure that forecasted plans take place. Another research Team-The Carnegie Commission or the Newman Task Force, in viewing this phenomenon recommended that in planning or forecasting, planners should rely more on a modified forecasting system - a system which would adapt some elements of sudden changes or uncertainties.

"The identification of changes is to-day more important than ever". This was expressed best by Clark Kerr in an address presented at the 26th National Conference on Higher Education. "Higher Education in the United States is facing a period of uncertainty, confusion, conflict, and potential change, and it has little to guide it in its past experiences. For most of its three and one-third century history, it has had a manifest destiny and through the period from 1920-1970 was marked by rapid change and student unrest. Two factors remained constant: public belief in and support of higher education, and the campus and society were both changing, but in compatible ways.

This is no longer so and higher education is faced with a staggering number of uncertainties: (1) The direction of change that will be taking place in a society that is even more divisive, and in a world that is undergoing a cultural revolution; (2) the impact of the new educational technology; (3) its proper functions in terms of teaching, research and services; (4) the governance of the institutions; and (5) financing"[6]

Feeling that Education as a whole is facing a long period of uncertainties, confusion and conflict, the national office of education and welfare expressed its concern through the National Goals Research staff. In the report released in July 1970 the staff emphasized the importance of defining policy alternatives for the nation as it speeds towards the year 2000 in an era of inquiry, conformation and technological achievement. Appointed by President Nixon in 1969 The National Goals Research staff called for schools to give less emphasis to imparting information and to do more to help students sift data and to establish their own values. They also urged the national administration to get the people now to define what the country wishes to have as its national goals and to develop in both public and private institutions the specific policies and programs which will move the country toward those goals.

It is therefore, important that the "futurists" or school administrtors, in order to develop better approach for educational forecasting in schools they would have to realize that as social systems (including the educational system) grow in size and interpenetration, they must increasingly relate the areas of their firm understanding to larger entities that may be well understood. The illusion of understanding, reinforced by the ritual of methodology inhibits some administrators from facing their ignorance. Rather than veiling their ignorance in research proposals, they should begin to suggest what they do not

know in their research findings, and reward those who are courageous enough to do so.

All administrators (for the future) should consider the systematic collection of information on who learns what, where, and how throughout society, juxtaposed with information, far beyond the schoolish questions posed only to the young by the National Assessment of Educational progress, or who knows what. Presently, there are some administrators who always just call for mediocre and mountains of fragmented, unrelated studies under the rubric of educational research and they continue to shout, "More research". Indeed this is a familiar cry, bolstered in education by the rhetoric of how little is done in relation to the whole enterprise - even under the narrow definition of this enterprise. But more of the same will not solve the fundemental problems. If administrators cannot develop a fruitful balance and synergy between general and specialized perspectives, between theory and emperial work, then it would be better to declare a moratorium on all research. To facilitate such balance of inquiry, a transdisciplinary, transnational, and ideological information system should be established to bring together the wide variety of visions, proposals and system views that already exist and will continue to prolifirate as the administrators search for new ways.

The most serious (futurists) administrators should be affiliated with most of the research organizations or commissions committed to the study of the future. This affiliation should not be limited to both national and international organizations such as the Rand Corporation; the National Planning Association; the Hudson Institute-a private non-profit organization studying public policy issues, especially those related to long-range planning and to the United States national security and international order; the Futuribles Project in Paris directed by Bertrand de Jouvenel, and other committees such as the Committee on the Next Thirty Years in England - established by the

English Social Science Research Council. The purpose of this affiliation should be for the administrators to develop a capability for thinking about the future in such a way as to permit the assessment of educational policies within the context of conjectives about alternative long-range futures.

Forecast Strategies of Program Adaptation with Future Time in Educational Administration

Walter G. Hack clearly stated that the study and application of futurism is quite idiosyncratic since the future could be determined by how individuals and groups see it and bahave in it. However, he asserts that it is possible to predict and in order to predict and determine what the future might be, and begin to adapt programs, the first strategy to employ would be to have ".....Individuals and groups start with themselves and their given organizations to ascertain and plan their own institution's future. Futuristic planning must be recognized as having a developmental character. The work is incremental; there are no fast or firm answers."[7] Indeed there can be no instant answers for asumed future problems. Furthermore, very little work can be simply delegated and then considered completely when the initiative is lodged.

While Hacks contends that future study and planning would require more than just scholarly prediction, Jack A. Culbertson believes that the future can be studied in scholarly ways and that there is greater similarity in studying the future and the present than is generally accepted. He feels that scientific study of phenomena within a present time frame, for example, is concerned with discriptions, explanations, and predictions. The same general goals are pursued by those developing generalizations about the future. It is also evident that in disciplined and systematic inquirey, scholars make explicit the assumptions upon which findings and generilizations are based on

from which they are derived. Culbertson continued to emphasize that this tenet is essential to future, and even past-oriented inquiry as is the tenet that sound generalizations in anytime frame cannot be developed without effective modes of inquiry, well designed data gathering activities, and means for evidential test. For those who might argue that the validity of generalizations or predictions within present or past time frames can be tested against facts achieved through scholarly research and that future-oriented generalizacannot, Culbertson may be inclined to question such arguments. He maintains that the validity of generalizations about the future can be tested by facts within a future time frame. For example, to make a simple example, the accurancy of school enrollment projections for 1980 made in 1974 can be tested in 1980. Further, if scholars carefully state the assumptions on which such projections are based, these assumptions can be tested overtime and if there are errors in assumptions, these will tend to reveal before 1980.

Since it is possible to study the accuracy of a given forecast, it is also possible to assess the accuracy of a set or family of forecasts of program adaptation in educational administration. Future-oriented studies, in other words, can provide planners with needed data to think about prospective conditions and events and to establish directions transcending those inherent in the status quo. Since effective leadership in educational edministration is inevitably concerned with a quest for vision, study of matters or data and generalizations developed through future-oriented predictions can help define and clarify desired directions. To be sure, there are risks which scholarly administrators cannot eliminate in using future-oriented prediction including the data concepts used to develop strategies and objectives. This is true because such data and concepts, as already noted, can only be tested in a future time frame. However, in an incessantly changing society, there are undoubtedly

risks in procedding without formulating future-oriented lives and strategies. It also seems reasonable to that it is less risky to use future-oriented predictions than it is to make instant decisions in the absence of careful study the circumstances surrounding such decisions. Administrators as decision makers, can use explicitly stated assumptions and generalizations about the future to understand the limits of administrative strategies and decisions. Such assumptions can also provide bases for feedback and for needed adaptation when, and if, error does become evident. Thus, it does seem reasonable to conclude that future-oriented predictions and subsequent study of such predictions can help planners and decision makers who are concerned with defining strategies to achieve objectives transcending the status quo.

Few Strategies of Program Adaptation

Most part of every preperation program must be based on theory of administration and related to a theory of program design with evaluative feedback for program development and improvement. Unless significant parts of a preparation program are cast in research design form, the profession will be unable to shape its future. In many cases, most current programs for the preperation of educational administrators have a pragmatic, electic, or emperical design. They reflect varying forms of a system that has evolved overtime, is constrained by relations with other systems, such as the agencies responsible for certification and accreditation, and is bound institutional structures involving course-defined and departmentalized knowledge. The lack of a general theory of administration always tend to support a pragmatic approach. As Schwab has asserted, ".....the pursuit of one sufficing theory of administration is impossible in the foreseable future if there is a lack of at least major central theory...." [8] He suggests that a sophisticated and cynical grasp of about a dozen separate and distinct bodies of theory is indispensable

to good administration, but such intimacy with these bodies of theory, however sophisticated and cynical, is still insufficient. The lack of one comprehensive theory of administration, however, does not preclude the need for research on program element.

Every program plannind designed for the future should start from the general to the particulars. All this should be planned in stages - for example, program evolution proceeding the description of a projected future environment, to criteria guiding program development, to program plans, and then to action pointed to the future either to accomodate to it or to modify it.

In respect to future programs, administrators should establish a futurist program planning task force, and set objectives. This will give the project the status it deserves and needs. Program development, all too often, is accorded a relatively low priority, especially in higher education. The reward system tends to facour research, writing, and even teaching above program development. This is partly because so much program development in elementary and secondary education as well as in higher education has been abortive; either the necessary committee work has been carried out half-heartedly or the recommednations of the committee have had little inpact on the instructional program. Top level stimulation and support are needed, therefore, to overcome the negative image that program development activity has acquired and to give the work of a futurist program task force the importance it should have.

The futurist program planning should be based on a degree of an assumption of uncertainty. This is in contrast to the assumptions of the accurancy of prediction and projection as indicated earlier. This is mostly in contrast with the assumption of stability that has underline so much long-range planning. So often in the past it has seemed as if long-range plans

were based either on things remaining essentially as they were or on growth and change proceeding in a smoth projection. If a more careful study of history could not dispel this notion, futurism should, for the methods of futurism reject suprise-free projections and have a built in allowance for uncertainty and discontinuity. This same allowance, correspondingly should be built into the plans emanating from the proposed task force. One way which this can be done is to identify certain contingency points in long-range plan, points where there would be branching in the sequence of decision-making, with alternative course of action laid out at each "fork in the rod".

Appropriate to our temporary society with its adaptive, rapidly changing, temporary systems, appointment to the task force should be, ideally, a fulltime rather than a part-time assignment. A work pattern marked by meetings after school, after class, at the end of the day, in evenings, or on weekends is neither consistent with the status the work of the task force merits nor with the productivity expected of it. The most effective futurist program, planning should make use of specific short-time plans coupled to broad long-range plans. The rationale behind this is that the long-range plan charts the course-in projection - while the short-term plan gives the day-to-day operating details.

The task force should make use of not only of the conventional techniques and tools of research and planning, but also of appropriate ones among the special techniques and tools of research in futurism. As mentioned earlier in the methods of forecasting the methods and techniques should include the Delphi techique and those that are very effective such as cross-impact analysis, various kinds of trend extrapolation and other types of forecasting, dynamic modeling, and simulating. They should keep in mind the interaction between their institution as a system and other systems, subsystems and

supersystems. Thus, the future development of a school district will be affected by the development of its community, region, and state. Likewise, a school within a University is obviously affected by the development of its component divisions or departments.

Strategic forecasting in educational administration is a challenging task. Most educational administrators may be reluctant to be envolved in future strategic forecasting and planning. Yet, this is an era of high promise and great potential significance for education. New knowledge must be developed through the use of new and improved techniques of research and planning. With the present day fast changing society, it has been difficult to even predict what is going to happen tomorrow. In the same predicament, it is mostly difficult predict with certainty what will happen in the year 1975, to say nothing of the year 2000 or so. However, there are signs of what could be done. In certain sense the efforts that identify and focus on specific developments may result in self-fulfilling prophecies. By pointing to the new intellectual and machine technology that could be adapted to education, one could stimulate greater study of these thrusts by larger numbers and thereby increase their rate of development. It will take more than verbal talk, however, to generate the needed new educational missions, programs, and strategies intended for the future. Life is not that simple and major changes in life styles are enormously complex to effect. However, the time has come to articipate the challenges early enough so that something might be done, and in constructive manner. Finally because of the hope that mankind has in developing himself and the society and world in which he lives in, the future has always been and always will be the universal frontier so that man cannot only prepare for what lies ahead but also try to determine the shape of things to come. Futurism offers intoxicating possibilities tempered by sobering responsibilities. School administrators have

to shoulder these responsibilities in order to develop better education institutions for the forth coming generations and yet other generations to come.

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EDUCATIONAL CHANGE: WHERE ARE WE HEADING?

David Zarembka
Lois A. Sebatane

Educational Change: Where Are We Heading?

In the last decade, the United States has seen considerable criticism and some change in its educational practices at all levels. Open education, alternative education, non-graded curriculums, greater use of the community, more independent studies and practicums, and many others are all examples of significant reforms which may now be on the defensive. One of the reasons why these reforms are on the defensive is because no adequate theoretical and practical rationale has been developed to chart the direction of these changes and focus the interest of their practitioners.

In the past, education has mostly been a preparation either for the next level of education--kindergarden for grade school, grade school for high school, high school for college, college for graduate school, and graduate school for university teaching--or as a certification process--the means that one uses to become a doctor, lawyer, engineer, teacher, plumber, computer programmer, or almost anything. Most of the recent reforms have been attempts to thrust aside this certification and preparation aspects of schooling and substitute meaningful experiences and personal goals for the formality of the diploma or degree. It is this reassertion of certification and preparation that is presently threatening the educational reforms of the last decade. A student cannot take non-graded classes in his major, developing ones own major is not useful in the job market, high school students still need algebra and

geometry to get into college, and grade school students are all preparing for high school. Head Start pushes the process back further and adult education guarantees that schooling for certification (complete with tax-deductions) will be a lifelong process to the benefit of the unemployed educators.

This paper begins to define those educational concepts which we feel significantly influenced educational change in the right direction in the past decade. We hope that our analysis can help to chart the path of educational change by giving it a rationale to assess, justify, and promote that change.

Our ideas have come from a workshop we ran for high school teachers who were interested in "alternative education." We first asked these teachers what their needs were and then planned our workshop around their expressed needs. The workshop itself was run as we would have liked these teachers to run their classes: participants shared in decision-making; participants were made comfortable by informality, but enough structure was imposed to promote order; leadership was non-hierarchical as it passed among members of the group. Participants had very positive feelings about their experiences at the workshop. People commented on the "closeness and informality of the group," the "open and casual" structure which was a "starting point for the group to interact and learn from each other," "discussion method brought about insights not encouraged through lectures," and "I was first disappointed. I was after nominal facts, figures, methods which I thought I needed to bring home to my program. Later, I knew that IDEAS were more important."

We have begun to analyse the basic concepts of alternative education in view of the positive feelings expressed above. Our

assumption is that alternative methods are a viable means of learning in various contexts and with differing groups of participants/students.

We have identified eight concepts which form the elements on our proposed alternative educational construct.

Concept 1: Educational Needs:

First we need to distinguish between incidental learning and intentional learning. Incidental learning is that which the students happen to pick up during the course of the day, at home, in school, on the street corner; etc. Incidental learning is essentially random in that the student learns from whatever s/he happens to be doing. There is no doubt but that a large part of a person's knowledge has in fact been acquired through incidental learning. We submit, though, that much of what actually happens in educational institutions--which by definition should be concerned with intentional learning rather than random, incidental learning--is incidental learning. The stress on repetition, for example, assumes that students pick up knowledge by chance and, if the teacher increases the number of chances, then the students have a greater probability of learning certain material. On the other hand, intentional learning occurs when a student purposely fulfills a felt educational need. In other words, a student must decide that s/he wishes to consciously learn something and then rationally go about learning that specific thing. What frequently happens in school from kindergarden to graduate school, is that the teacher decides what the student should learn and then imposes that decision on the student, often without even telling him/her. For example, grade school

students are told that they need to learn to read; testing data on which their level of accomplishment is based is kept from them and they are told what to do which might improve their reading. Intentional learning can occur only if the student himself decides that s/he wants to learn to read; if s/he does, then s/he can be taught in a very short period of time (as Paulo Fierre and others have shown). But if learning to read depends mostly on incidental learning then the process may be very long and uncertain of success. Under this basis, the teacher has an obligation to let the student know exactly where s/he stands and also what s/he should do in order to be able to read. The student should be given the opportunity to assess his/her own needs and then decide whether to accept or reject the teacher's advice. Students, when not given this opportunity, are exceedingly clever at subverting the goals and purposes of their teachers. Another common consequence is that, when students are asked what educational needs they have, they are unable to reply: they have never been asked the question, have never thought of what they should or need to learn, and have lost complete sense of intrinsic identity. The goal of the teacher is then to re-awaken the students.

In summary, education must be based on the felt, expressed needs of the students. If the needs are not felt and expressed, then intentional learning cannot take place. The best way for the teacher to understand the needs of the student is simply to ask him. If the student can't state his needs, then, like the proverbial student who says he knows something, but can't state it, s/he must figure out what his/her needs are.

Concept 2: Learning is easy:

One of the sad aspects of schools as presently constituted is that most students feel that learning is difficult. A first grader will tell the teacher or parent that arithmetic is hard. This attitude is a tremendous obstacle to learning. But if the student is learning what s/he feels s/he needs to learn, then learning is easy. If learning is easy, then a lot can be learned and retained in a short time span.

Concept 3: Comfortability:

A student can learn best when s/he feels comfortable, not only in a physical sense, but more importantly in a psychological/emotional sense. The student should feel secure, his/her personality should not be threatened, s/he should feel supportive of the group in which s/he is learning, and s/he should feel respected as an individual by the teacher and other students. Many of the games students play with teachers and with their co-students can be seen as a means of defining a comfortable, well-defined role: as is commonly observed, students with discipline problems want to be in that role, others play the dumb-student role, or the apple-polishing role, etc. Consequently for alternative education to succeed students must be made comfortable as positive, contributing members of the class or group.

Concept 4: Teacher attitude to student:

The crux of the educational environment is how the teacher views the students. Does s/he conceive of them as "bad," "lazy," "devoid of knowledge," etc., or does s/he conceive of them as unique

individuals who must be respected for what they are and who have educational needs which the teacher must try to meet. It is this attitude which is most important for people involved with alternative education. Students must be treated as individual people with specific needs.

Concept 5: Decision-making:

If students are respected as individuals with their own needs, then students must be a part of the decision-making process. The school as a community should allow everyone (including non-professional staff, professional staff, chief administrator as well as students) access to the decision-making processes. The administrator is the facilitator of the processes. The ability to make decisions, both as an individual and as part of a group process, is one of the important aspects of the educational content of any school.

Concept 6: Group Learning:

Contrary to the rationale of present educational institutions, most learning occurs in groups, and not in an individualistic setting. For example, compare the result of reading a book by oneself with reading and discussing it with someone else; or attending a movie by oneself versus in company with others. Even cognitive learning such as arithmetic is probably best learned, not with paper and pencil at the desk, but in playing games with others in which arithmetic is necessary. Group learning in a non-competitive environment is also important because of the mutual interacting support and reinforcement between members of the group. Group work, when handled well, enables slow students to be helped by others

without the feeling of competition or being put down.

Consequences of this concept are that teachers must be group workers, schools should demote individualistic experiences that push competitiveness and promote group experiences with the idea of sharing. The question of testing must seriously be considered. Lastly the dynamics of learning in groups must be investigated.

Concept 7: Heterogenity:

If learning is based on groups, then homogenity based on age, race, background, sex, neighborhood, etc. will be counterproductive. It became obvious to us that the teacher development workshop described above was beneficial due to the diversity of perspectives of the participants. As a member of a group an individual learns from perspectives which are different rather than similar; naturally any two given individuals have different perspectives, but heterogenity should increase that diversity. Therefore, for example, the educational benefit of a Peace Corps type experience is that it forces the "student" to value other perspectives than the common American one. The implications of this concept to present educational institutions are also far-reaching: Schooling should probably not be based on age-grade peer groups. Racially, economically, culturally, neighborhood-based schools are also dysfunctional to a diversity of perspectives.

Concept 8: Flat Hierarchy:

Diversity, though, can only be functional in a situation in which no particular viewpoint is considered as superior to any other. Naturally everyone will consider his own viewpoint as best, but

this should not be a competitive situation; each participant can then keep his personal identity and integrity. This assumes a flat hierarchy in that the teacher, only due to his/her responsibility and role, is in any sense above the student. Autocracy and authority come from a group self-definition and not from the "superiority" of the teacher.

What these eight concepts imply for educational institutions is, as noted above, something dramatically different from what we all have come to expect of "schools." We ourselves in various contexts--not the least being our own graduate education--are trying to analyze and implement the above educational concepts. This time we are only at the beginning of our search and we welcome any comments, observations, criticism, experimental data, on educational models that anyone reading this paper has to offer. But we hope that the educational progress of the last decade need not slip back into oblivion and that we can all move forward to better educate our successors.

REFORMING THE UNDERGRADUATE CURRICULUM: A POSITION PAPER

Al K. DeRoy

Reforming the Undergraduate Curriculum: A Position Paper

Al K. DeRoy

I

> We are decidedly of the opinion, that our present plan of education admits of improvement. We are aware that the system is imperfect: and we cherish the hope, that some of its defects may ere long be remedied. We believe that changes may, from time to time be made with advantage, to meet the varying demands of the community, to accomodate the course of instruction to the rapid advance of the country, in population, refinement, and opulence. We have no doubt that important improvements may be suggested, by attentive observation of the literary institutions in Europe; and by the earnest spirit of inquiry which is now so prevalent, on the subject of education [The Yale Report of 1828, p. 277].

> At this juncture in the history of the United States, it is imperative that a fundamental reshaping of undergraduate curricula be undertaken. The institutional improvisations of the past decade merely delayed the process of rethinking what American college students should know and understand of the complexities they now must confront [Winston, 1974, p. 214].

In this era of space travel and undersea exploration, of nuclear power and possible nuclear annihilation, of existential philosophy and the secular society, Americans express a yearning for more simple times. The "nostalgia craze" has produced the reintroduction of Tiffany lamps to home decor, "granny dresses" to women's apparel, and the pleasing merger of classical and rock music.[1] In the spirit of the times, a little nostalgia should be applied to the undergraduate curriculum: Let us return to the "good old days" of education in higher education.

II

> But why, it may be asked, should a student waste his time upon studies which have no immediate connection with his future profession? ...In answer to this, it may be observed, that there is no science which does not contribute its aid to professional skill. "Every thing throws light upon every thing." The great object of collegiate education, preparatory to the study of a profession, is to give that expansion and balance of the mental powers, those liberal and comprehensive views, and those fine proportions of character, which are not to be found in him whose ideas are always confined to one particular channel [The Yale Report of 1828, p. 282].

> ...there is no convincing defensible strategy behind the undergraduate curriculum, and the more intelligent students, and the more self-critical faculty know this. We should not accept uncritically the indictments of the students who condemn irrelevance in the college programme... but we ought to be disturbed that the pundits of higher education cannot themselves agree what constitutes a liberal college education [Ashby, 1971, p. 6].

There is general agreement that the current curricular trend in higher education is toward vocationalism, what Muller (1974) has termed "higher skilling." The pressures producing this emphasis on the pragmatic, best demonstrated in certain aspects of the community college movement, includes a worsening economy and its attendant psychological effects, mass enrollment in institutions of higher education and its supporting philosophic and legal bases, the again-evident suspicion of ideas which is so much a part of the American cultural heritage, and the need for specialists of all types (many of which have not yet been identified). Cries for social relevance in the curriculum are heard on the New Left and for economic relevance on the Old Right. The intention of this paper is neither to explicate the essential unity of knowledge (commonalities of methodology, of the attitude of objectivity as applied through rational empiricism, and perhaps even of essential content), nor to

condemn the views of those who advocate schemes of relevance (for their arguments contain much truth), nor to assail the obvious benefits of scientific and technologic specialization; however, the undergraduate curriculum must provide a sound basis for living and working in the present (as Dewey would desire) and in the future (as Toffler believes). In the words of one young college president, "We have lost the original mission of the liberal arts. Its mission should be to teach a person to function in an increasingly complex society."[2]

Ashby (1971) presents some very good reasons for reforming the undergraduate curriculum. He speaks of a curriculum which fails to prepare students for life in contemporary society. The problem which this criticism presents, however, has been recognized by many contemporary observers of the panorama of American higher education: Almost every student, faculty member, and administrator has an opinion of what is irrelevant in the curriculum; sometimes a sizable consensus on the irrelevant is reached. But only rarely has anyone devised an ideal curriculum, and even more rarely has a consensus been reached regarding such a delineation. Certainly there are noteworthy historic examples of the design of and consensus attained on an idealized curriculum (for example, Robert Hutchins at the University of Chicago and Alexander Meikeljohn at the University of Wisconsin, and, later, the reformers of St. John's College in Annapolis, Maryland), but as Veysey (1973) has demonstrated in an essay on stability and change in the collegiate curriculum, vacilation between free election and prescription, and between one emphasis and another, has characterized curricular movement in American higher education since circa 1910.

Despite the lack of unity on issues pertaining to curricular content, no

one can deny that the present American system of education has failed to produce truly educated individuals on the vast scale desired. The blame for this may be attributed to any one or more of the following: the relatively low funding priority of education (a very real constraint, but a doubtful causal factor in this regard), the failures of other social and economic institutions, poor heredity, a historically poor mass intellectual and cultural environment, the use of poor teaching methods, or the misapplication of one or another educational philosophy. Whatever the cause, the result is evident--the educational system has failed to prepare individuals to act as intelligent, responsible citizens of a democracy.

> The failure to provide any core of unity in the essential diversity of higher education is a cause for grave concern. A society whose members lack a body of common experience and common knowledge is a society without a fundamental culture; it tends to disintegrate into a mere aggregation of individuals. Some community of values, ideas, and attitudes is essential as a cohesive force in this age of minute division of labor and intense conflict of special interests [Higher Education for Democracy, p. 989].

At root, what is lacking is a consensus regarding the need for and the content of general education. Children are promoted in the public schools on the basis of age, not on the basis of achievement. Many high school graduates are essentially illiterate. Thus, in this period of mass postsecondary education and open admissions, responsibility for producing literate individuals, and thus a literate society, has devolved upon the institutions of higher education. Higher education has prepared specialists galore, but "the greatest need for excellence in higher education is to produce generalists [Ashby, 1971, p. 32]."

III

"General education" is the term that has come to be accepted for those phases of nonspecialized and nonvocational learning which should be the common experience of all educated men and women.

General education should give to the student the values, attitudes, knowledge, and skills that will equip him to live rightly and well in a free society. It should enable him to identify, interpret, select, and build into his own life those components of his cultural heritage that contribute richly to understanding and appreciation of the world in which he lives. It should therefore embrace ethical values, scientific generalizations, and aesthetic conceptions, as well as an understanding of the purposes and character of the political, economic, and social institutions that men have devised.

But the knowledge and understanding which general education aims to secure, whether drawn from the past or from a living present, are not to be regarded as ends in themselves. They are means to a more abundant personal life and a stronger, freer social order. [Note that recent scandals such as Watergate and domestic spying conducted by the CIA serve only to reinforce this statement, not as a negation of it.]

Thus conceived, general education is not sharply distinguished from liberal education; the two differ mainly in degree, not in kind. General education undertakes to redefine liberal education in terms of life's problems as men face them, to give it human orientation and social direction, to invest it with content that is directly relevant to the demands of contemporary society. General education is liberal education with its matter and method shifted form its original aristocratic intent to the service of democracy. General education seeks to extend to all men the benefits of an education that liberates [Higher Education for Democracy, pp. 989-990].

It is most unfortunate if we envisage general education as something formless--that is to say, the taking of one course after another; and as something negative, namely, the study of what is not in a field of concentration. Just as we regard the courses in concentration as having definite relations with one another, so should we envisage general education as an organic whole whose parts join in expounding a ruling idea and in serving a common aim. And to do so means to abandon the view that all fields and all departments are equally valuable vehicles of general education. It also implies some prescription. At the least it means abandoning the usual attitude of regarding "distribution" as a sphere in which the student exercises a virtually untrammeled freedom of choice. It may may be objected that we are proposing to limit the liberty of the student in the very name of liberal education. Such an objection would only indicate an ambiguity in the conception of liberal education. We must distinguish between liberalism in education and education in liberalism. The former, based as it is on the doctrine of individualism, expresses the view that the student should be free in his choice of

> courses. But education in liberalism is an altogether different matter; it is education which has a pattern of its own, namely, the pattern associated with the liberal outlook [General Education in a Free Society, pp. 968-969].

It is clear that a major contemporary challenge to higher education is the provision of general education, the scope of which includes "basic literacy education" and "advanced literacy education." It is shocking that so great a proportion of the American people regard basic literacy with an attitude of casual disdain--apparently the old battles must still be waged. In view of the above-mentioned failings of the educational system, one requirement for the bachelor's degree must be that recipients possess the demonstrated capacity to (1) read and comprehend standard English as found in contemporary novels, newspapers, magazines, and elementary texts; (2) write simple, grammatically correct sentences consisting of subject, verb and object, compound sentences using conjunctions and the semicolon, and short complex and compound-complex sentences; and (3) speak precisely using standard English as defined above. Effective communication is prerequisite to any field of endeavor. Without fluency in the use of words, one cannot adequately conceptualize in the abstract or mentally move beyond his or her own experience.

A second requirement for the bachelor's degree must be that recipients possess the demonstrated ability to (1) add, subtract, multiply, and divide decimal numbers and fractions, both positive and negative; and (2) solve simple algebraic equations in one and two first-degree variables. Facility in the use of numbers is required in making change, completing tax forms, and budgeting one's money, to say nothing of designing a bridge or programming a computer.

Ashby (1971) has summarized the concept of basic literacy and concludes

by declaring, "The arts of using words and mathematical symbols accurately are never irrelevant [p. 49]." Muller (1974) has stated the concept of basic literacy more forcefully:

> An effort to restore the general foundation of education cannot avoid the prerequisite of general understanding. Therefore, it must begin with the problem of literacy, both verbal and quantitative. People in the university must be able to talk, read, and count together at a common minimal level of competence. This is not now the case. To make it possible, mandatory instruction in verbal and quantitative literacy must be provided in the university itself for those who continue to arrive there with deficiencies. And absolute standards of verbal and quantitative literate competence must be maintained through the entire curriculum, regardless of areas of special skills, and strictly enforced without exception. There would be costs. Brilliant musicians and artists might fail courses in music or painting for lack of literacy. Engineers might fail engineering courses for lack of verbal literacy, and historians might fail history courses for lack of quantitative literacy. There would be gain, however, in the recovery of general literacy [p. 157].

The two facets of basic literacy, then, are verbal and quantitative skills. These skills need not, and indeed should not be acquired for credit in any institution of higher education. For those who are deficient in basic literacy on matriculation, the deficiencies must be remedied. But to advocate that basic literacy education be given college credit is as ludicrous as advocating the award of credit for breathing. Higher education builds upon the basic skills, but these skills should be imparted in the "lower" schools. Where the skills have not been acquired earlier, undergraduates should be given ample opportunity to acquire them, but not at the expense of the institution nor at the expense of the meaning of the bachelor's degree.

As in the case of basic literacy, advanced literacy is requisite for intelligent living and must be a prerequisite for the bachelor's degree; however, advanced literacy education is a responsibility of the higher educational system. Advanced literacy may be briefly defined as the ability to deal with

the abstract, to analyze and formulate values, and to comprehend the intellectual history of the West, for

> ...it is vital that students become equipped intellectually, by means of a curriculum which has a coherent and comprehensive view of the American past, to comprehend the conflicts of value and meaning in a pluralistic and democratic society [Winston, p. 216].

It should also be noted that advanced literacy is based only on the rational-empirical approach. As Veysey (1973) so eloquently states,

> ...it must be said that the university stands for reason, no matter how earnestly it ought to welcome the counterarguments. Those who carry an irrationalist philosophy to the point of finding no value in the conventional classroom exchange may need to be encouraged to set up shop elsewhere [p. 20].

What is needed is a core curriculum in advanced literacy. Although curricular prescription would be required in establishing such a program, it is the social duty of the college and university to compel students to obtain minimal competence in the domain of advanced literacy. Furthermore, it may be assumed that such a core curriculum would produce important benefits for teaching (Ashby, 1971) and for learning (Bok, 1974).[3]

A core curriculum is feasible in that "there are certain intellectual skills and habits of thought that are so fundamental that they will serve students well in almost any problem or career in which they happen to engage [Bok, 1974, pp. 163-164]." There are pitfalls to be avoided and problems to be resolved in establishing a core program (Ashby, 1971; Bok, 1974)--among these, the problem of identifying the essential unity of knowledge (Kerr, 1963). But there is little doubt that such a program is called for. As Washburn (1974) has indicated,

> Education should give an understanding of the world and of man, as well as offer vocational training. The process should be pleasant and continue throughout life. The traditional structure of the university based on departments prevents the attainment of these goals, and since the culture no longer provides unifying solutions, there is no intellectually satisfying way for the student to proceed. If a student wants to understand the nature of the world, the information is scattered in departments of astronomy, chemistry, geology, mathematics, and physics. It would be difficult enough to take all the courses, but even if the student had the prerequisites and the time, in the end he would have to make a synthesis which his professors have not made. Avenues of approach to the understanding of man are far more labyrinthine. Numerous biological sciencies, the social sciences, history, and the arts are relevant. In short, the university is divided by tradition, research, and for the convenience of professors. It not only does not help the student attain broad intellectual goals, but makes it difficult for him to master knowledge from more than three or four closely related departments [p. 221].

In an essay on reforming the undergraduate curriculum, Winston (1974) has contended that the curriculum should incorporate the American experience (including that of Blacks in America), non-Western thought, and value issues. Novak (1974) has argued forcefully for the inclusion of religious and ethnic minority traditions and the immigrant experience. Washburn (1974) has proposed that the cirriculum be organized around a core of interdisciplinary courses utilizing a "case-study approach;" this core would be followed by more traditional courses including the major sequence. Muller (1974) has suggested that comprehension of history, human biology, and a foreign language be required of all college students. These recommendations are worth some consideration, but they are either too narrow in scope or are so broad as to serve as signposts only.

In designing a core undergraduate curriculum in advanced literacy, four fundamental factors must be considered: duration, educational philosophy, grading and exemption, and content. A most difficult problem involves the length of such a program. The core sequence must not be too long or students

will rebel. One reason for this caution stems from the often heard demand for relevance in the curriculum: although advanced literacy education is necessary for contemporary living, and certainly is relevant to what is alluded to as "leading a full, rich life," students may not recognize this. Another reason for warning against a lengthy core program is that "Students view curricular prescriptions, like parietal rules, as offenses against their adulthood [Almond, 1974, p. 186]." On the other hand, if the time devoted to acquisition of advanced literacy is too short, only the most superficial coverage will be given; such coverage would probably yield as little benefit to students and society as is currently realized from free election. Therefore, the core in advanced literacy should reasonably entail a minimum of one semester (two quarters) to a maximum of one year of fulltime study.

The second consideration is one of appropriate educational philosophy. It appears that "inter-disciplinary" is fast becoming a new catchword of higher education in the 1970s. Despite the drawbacks of using this term in light of its popularity, interdisciplinary may be used to describe what a core curriculum in advanced literacy ought to be. As Harlan Cleveland (1974) has so simply stated, "The real world is by nature interdisciplinary [p. 13]." It must be emphasized here that interdisciplinary teaching is not a series of lectures given by one person from one department, followed by a second series of lectures delivered by another person from another department, followed by a third series of such lectures--ad nauseum. True interdisciplinary teaching in an advanced literacy core would involve the concerted, combined, coordinated effort of one or, preferably, several teachers in each discipline represented in the core. Such an approach (within the bounds of the rational-empirical tradition) would yield tremendous gains not only to undergraduate teaching, but

also to research (in terms of cross-fertilization, i.e., hybrid vigor) and to the state of knowledge (in terms of demonstrating its essential unity).

In that advanced literacy should be a prerequisite to the bachelor's degree, grading (evaluation) of student work in an advanced literacy program should be performed on a mastery basis (standards being set by each institution). Those who have acquired competence in advanced literacy prior to matriculation should be awarded credit and placement in those areas of knowledges and skills where such competence is demonstrated through meeting or exceeding the highest standard.

As to the fourth consideration, it is not the purpose of this paper to unambiguously define the precise nature of a core curriculum in advanced literacy (for that is properly within the purview of groups within each institution), nor is there intent to engrave general guidelines on stone tablets. However, the following list of topics could serve as a basis for a general education program in advanced literacy for undergraduates:

1. an introduction to general philosophy and epistemology
2. the scientific method and scientific reasoning
3. basic Western and American history
4. an introduction to American law and government
5. an introduction to contemporary literature of the United States and of the major geopolitical areas of the world
6. an introduction to major concepts of the social sciences (anthropology, sociology, political science, economics, and psychology)
7. an introduction to major concepts of the natural sciences (biology, geology, chemistry, physics, and astronomy)
8. a short introduction to computer science
9. a brief introduction to career opportunities.

IV

In summary, this paper has discussed some basic ills of the American educational system as it functions in the 1970s with reference to their etiology and symptomatology. Current pressures on the undergraduate curriculum have been described. Basic and advanced literacy have been defined and the need for these examined. Responsibility for the provision of basic literacy (i.e., verbal and quantitative fluency) has been briefly dealt with. Responsibility for the provision of advanced literacy has been placed with institutions of higher education, and a programmatic guide for use by such institutions in serving this purpose has been rendered with consideration as to the proper duration, supportive philosophy, grading and exemption, and content of a core curriculum. In this regard, Grant and Riesman (1975) in an excellent discussion of academic reform movements have expressed the following sentiment:

> We regret that there have not been more intramural efforts on a small scale to develop core curricula which would attempt to connect the contemporary world with its intellectual and historical foundations [p. 185].

General education must be regarded as essential to modern living and as a prerequisite for the bachelor's degree; there is grave danger in perceiving the case to be otherwise. As Muller (1974) has so aptly stated,

> A purely polytechnic training or skilling process as the substance of higher education would degrade the nation's culture. It would fail to develop individual powers of reasoning and judgment; it would fail to prepare persons intellectually for mature life. There is little need to belabor these conclusions because there is almost no disagreement with them on record. The real issue is not whether general education is desirable, but whether it is still even possible--and if so, how [p. 152].

ADDENDUM[4]

These proposals will inspire charges of "advocacy of elitism" and "stifling of pluralism." It must be pointed out that "elitism" and its derivatives have both negative and positive connotations, the positive perhaps having the more long-standing usage, but the negative permeate the current stmosphere. In the realm of the positive, for example, Plato's philosopher-kings would constitute an elite which would presumably utilize its elite status in pursuit of "the good." Ashby (1971), among others, has spoken of the continual need for leaders; Wriston (1959), a former president of Lawrence College and then Brown University, has written, "The need of the world is for more educated men and women, not just more holders of degrees [p. 187]." In order to produce such persons, to produce competent leaders, to produce an elite in the best sense of the term who would not "degrade the nation's culture" but enhance it, a sound program of general education must be provided.

In assuring that college graduates have mastered a body of core knowledges and skills, there would consequently exist an educational common denominator where there presently is none. To believe that requiring mastery of a core curriculum would stifle pluralism obviously is, to an extent, true if pluralism is taken to imply a condition of almost total diversity; to believe that this is "bad" or "unjust" is folly. Is it "bad" that scientists throughout the United States and throughout the world recognize, comprehend, and utilize the formula $E=mc^2$? Is it "unjust" to require a Japanese (or Greek or American) physicist to learn this formula? Pluralism in terms of individual and group differences as to race, ethnicity, and so on may or may not be worth preserving, but pluralism as chaos is nihilistic. Common denominators are necessary. Should not institutions of higher learning strive toward the highest common denominator?

Footnotes

1. The reader is invited to hear the complete version of "Laylá" (Derek and the Dominoes) where a piano concerto is expertly tied to some very "hard" rock.

2. Quote attributed to Leon Botstein, President-elect of Bard College. New York Times, January 27, 1975, p. 29.

3. Ashby feels that a common curriculum would yield educational benefits to undergraduates, especially as regards their supposed predominant mode of learning, i.e., peer group discussion. See Ashby, 1971, p. 162.

4. I gratefully acknowledge assistance with this section provided by David Phillips, University Center for International Studies.

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VOLUME III

HUMANISTIC/AFFECTIVE EDUCATION

THE IMPACT OF PEER INFLUENCE IN THE SCHOOLS: A POSITIVE FORCE THROUGH CROSS-AGE TEACHING PROGRAMS

Lynn Gray, M.Ed.

INTRODUCTION

As an educational consultant in a number of Pittsburgh's inner-city schools, I had ample opportunity to observe the effects of student interaction. I became aware of the close relationship of the peer value system and learning effectiveness. There was an obvious discrepancy between student behavior admired by the school staff and student behavior admired by other students. Negative attitudes were apparent at all schools, and took various forms from apathy to hostility. The general result is a school climate that devalues learning and creates disruption, ultimately harming both student and teacher. Such an atmosphere makes learning difficult and teaching a discouraging experience.

I began to search for ways to bridge the gap between student and teacher goals and provide an active role for students in the learning process. One of the more promising programs introduced in the schools was cross-age teaching.

The purpose of this paper is to seek confirmation or denial of my beliefs by examining the existing research on peer influence, to assess the impact of peer influence on cognitive and affective learning, and to propose cross-age tutoring as an intervention mechanism for utilizing peer influence as a positive force for the benefit of both schools and students.

EMPIRICAL AND THEORETICAL BASE

A search of recent literature shows that most studies on peer socialization in the schools relate to the high-school level. The most definitive work is James S. Coleman's The Adolescent Society. His research covered the entire student body of ten midwestern high schools selected to reflect a diversity of socioeconomic communities.

His main theme is that the high school is the setting for a set of small teenage societies, focusing teen-age interests and attitudes on things remote from adult responsibilities and developing standards that lead away from goals established by the larger society.

Because the school is the student's locale for much of their daily activity, for most of the year, it has become the central focus of their world, dominating the mores, values and norms of the students within. As a result, parents and school staff are no longer dealing with individuals, but social systems that present a united front to adult authority. He writes that social status is the chief reward of the adolescent society, in contrast to the multiple reward possibilities of society as a whole, and is therefore the powerful motivator of the students' energies. The dominant motivation to action is the performance of prestige gaining activitie

In a study in a suburban midwestern high school, Gordon found a situation similar to Coleman's. He divided student effort into three major areas: formal (the academic structure of the school), semi-formal (activities such as clubs, athletics, school paper, etc. organized by the school), and informal (friendships, dates, and group activities controlled by the students). He concluded that achievement in the

informal structure was the fastest route in the constant drive toward valued rank. Other descriptions of a distinct teen-age culture are found in Campbell and Boocock.

Several studies were conducted to investigate the change in the parent/peer referent system at various age levels. Floyd and Smith queried 409 sixth, eighth, tenth and twelth graders on a Likert-type scale designed to measure orientation to parent or peer. A sharp increase in the orientation to the peer group was noted from 6th to 8th grade, a moderate increase from 8th to 10th grade, and no significant increase thereafter. Further comments on this study appear below. Larson also demonstrated an increase in peer influence related to grade level, but claims that conformity to the parent or peer groups varies greatly depending on the situation and the strength of the personal preferences of the individual. Studies by Bowerman and Fogelman generally support the concept of a sharp increase in peer dominance related to increase of student age. Paul Friday, a Pittsburgh school psychologist, claims that the pull between parent and peer loyalty begins when children are first exposed to a peer group; siblings, neighborhood play, nursery school, kindergarten, day care center, etc.

Several of the papers mentioned above point out that the adolescent or pre-adolescent has a basic need of peers as a referent group. Campbell relates that relationship with peer groups is needed for healthy emotional and social growth, and that parents cannot serve as the only models for accepted behavior in a society as complex as ours.

Floyd and Smith note that people have a strong desire to evaluate themselves in a framework of social comparison. They must develop a

frame of reference based on how others in a similar situation are acting. Much of their behavior is modeled after age-peers or older peers. They also explain that young people derive therapeutic benefit from each other, particularly as puberty brings questions, doubts and fears to which parents are unable or unwilling to respond.

A strong tie to peers seems to be part of a natural step between childhood and adulthood. If the goal of child raising is to produce self-sufficient, independent adults, the peer group must serve as the background for the many stages of growth from childhood to adulthood. My main criticism of Coleman and to some extent Gordon is that they over-emphasize the adolescent's isolation from the family and adult society. Several of the other studies previously discussed were constructed to measure peer influence as opposed to parental or adult influence. Specifically, Floyd and Smith found that at the sixth grade level, 62 per cent were parent oriented, 33 per cent ambivalent and 5 per cent peer oriented. At 12th grade 14 per cent were parent oriented, 49 per cent ambivalent, and 37 per cent peer oriented. I suspect that in the large percentage of ambivalent responses are a number of young people who are making decisions based on their own judgement or their individual needs. I believe that the peer system never completely obliterates the influence of the family, and the psychological need for parental acceptance, guidance and support.

What effect does the peer society have on the schools, and their constant efforts to "provide quality education for every student"? Research efforts show that values counter to parent-teacher goals flourish in the school. Coleman asked students, "What does it take

to be important and looked up to by the other students?" and presented six factors to be ranked: coming from the right family, leader in activities, having a nice car (boys) clothes (girls), high grades/honor roll, being an athletic star (boys) cheerleader (girls), being in the leading crowd. The average ranking of "high grades/honor roll" was fourth for the boys and fifth for the girls. The rankings varied considerably from one school to the next: he found a wide variation in the acceptability of scholarship.

Coleman, Gordon, and Campbell all agree that the surest route to high social ranking is superiority in athletics for boys and dating success for girls. Other prestige-gaining attributes for both boys and girls: personality, good reputation, money, good looks, coming from the right neighborhood, good clothes, success in school activities (clubs, school paper, school plays, etc.) for girls: clique membership, being a cheerleader, for boys: having a car.

The role of the intellectual is relatively unrewarding. The student who excels in athletics or school activities is visibly working for the glory of the school. The scholar pursues a lonely route and can bring honor only to himself.

There was general agreement that the social acceptance of the good student depends largely on the number of other positive qualities attributed to him by the other students. Coleman cites a study conducted by Abraham Tannebaum in 1960. Tannebaum asked 615 juniors in a New York middle-class neighborhood to rank imagined characters, described to include every possible combination of three sets of dichotomized attributes. In terms of student acceptability, the eight imaginary characters were ranked as follows:

1 - brilliant non-studious athlete

2 - average non-studious athlete

3 - average studious athlete

4 - brilliant studious athlete

5 - brilliant non-studious non-athlete

6 - average non-studious non-athlete

7 - average studious non-athlete

8 - brilliant studious non-athlete

Studious characters occupied positions as low as possible consistant with athletes ranked at the top. Tannebaum's study supports Coleman's theory that good grades are not nearly as much a social liability as is studiousness. Adolescent norms are clearly against excessive effort. It is a threat to the other students because it could raise the standards of performance expectation for the school as a whole. Although scholarship norms varied from school to school, in Coleman's study, the general feeling among the students is that it is all right to get good grades and collect teacher-pleasing "points" as long as one does not earn them from hard work. He describes the concept as a game in which students devise collective and individual strategies to reduce the effort necessary to obtain a certain grade, and teachers devise strategies to increase the effort.

At the elementary school level, Briskin eloquently describes the lack of respect for the school program, and the inventiveness of the students in devising activities to annoy the teacher, while avoiding activities clearly against the rules, therefore punishable. He quotes one student, "The other kids like me because I'm funny and bad and the teacher can't stop me." Children have learned how to acquire prestige by gaining an

inordinate amount of attention from teachers and other students. Younger children are influenced also by older children in the same school. The Cross-Age Teaching Resource Manual used for training teachers and students involved in cross-age programs emphasizes the need to make older children aware of the extent that they serve as models for the younger children.

Lippitt and Lippitt conducted research and field tested cross-age teaching programs beginning in 1966. They contend that many children believe that the norms of their peers discourage active involvement in learning tasks or collaboration with teachers. They observed that younger children model after older children and that older children are seldom aware of their power to communicate positive or negative behavior patterns.

It is difficult to place the blame for the discouragingly low value allotted to scholarship in so many schools. Several writers suggest that the school system is largely responsible. Boocock describes the role specialization within the school that leads to increased separation of students and staff. She says that although schools exist because of students the "clients" have little to say in the decisions that effect their learning. They are relegated to a passive role and are expected to be quietly receptive to being taught. Since their natural instincts lead them to seek an active role, they must find it outside the learning structure in other activities, some acceptable to adult authorities, some not.

Most schools still operate with a lock-step, one-level curriculum. They have failed to develop the flexibility which allows individuals to learn at their own rate and choose between a variety of learning methods.

Much of the hostile behavior comes from students who do not thrive in this rigid pattern. Faced with daily reminders of their academic failures, they must build their ego in some other area and convince themselves and others that school work is not very important.

Gordon claims the reason that the creative energies of the students are concentrated on semi-formal and informal areas is because they seek activities over which they can generate some degree of control. Coleman notes that classroom efforts are controlled and prescribed by the teachers, leading many students to decide to do teachers' "thing" in the classroom and their own "thing" outside the classroom. Because they are not content with a passive role, their time and talents are given to athletics, clubs, dates, parties, and other self-motivated activities. The performance of these activities often brings out desired skills of organization, inventiveness, discipline and responsibility that are unfortunately lacking in their scholastic efforts.

Several of the writers, particularly Campbell, point out that the value system of most parents does not really support scholarly effort. Campbell thinks that most parents are basically hedonistic and anti-intellectual. The fathers are more likely to brag of their son's athletic prowess than they are about his scholastic achievements. The mother who complains about her daughter neglecting her school work in favor of dates and parties is not nearly as upset as the mother who complains that her daughter does not but study.

OBSERVATION OF THE SITUATION IN PITTSBURGH

My professional work in a number of Pittsburgh's inner-city elementary schools has provided ample opportunity to observe the force of peer pressure at work in the classroom. I have observed behavior patterns in classrooms that cannot help but negate learning efforts, even for those who are determined to try.

To extend the validity of these observations, interviews were conducted with elementary and middle school principals, teachers and educators working in Pittsburgh's inner-city schools. The comments of several principals, transmitted as much as possible in their own words, amply illustrate:

A parochial elementary school principal says that the most valued asset among the older students, both boys and girls, is muscle. Starting at about 6th grade, admittance to the leading crowd is gained by being tough enough to push, kick, or verbally abuse other students without fear of reprisal. The threat to "beat you up after school" is usually enough to gain the desired power. Groups and counter groups are formed to provide protective situations. The student who can be flip with the teacher and get away with it gains many points with the other students.

Those who try to study are looked down on. Homework is seldom assigned, because it is ignored by most of the students, thereby calling attention an obvious breach of authority. Students who do their homework will try to sneak it on to the teachers desk without being seen by the other students. The homework situation causes real problems in families where the parents will punish a child for not doing homework, while the peer group, through various avenues, will "punish" a child who does.

At staff meetings the teachers attempt to find ways to counter the serious effects of this negative climate. They have learned not to praise or otherwise call attention to students who do good work.

The principal remarked that the situation changes in the high schools. The "top dogs" in the elementary school are surprised to find a multiple value system in the high school, and toughness gets one no further than a number of fights with a few other tough students.

A public school elementary principal reports that in his school, bad actors of both sexes are almost gods. They rule by fear. If another student is bold enough to challenge one of the gods, he will encounter the god and his buddies after school. Group retaliation for an offense committed by one student is all too common. Good students are bugged by the others. The students do not play games to garner the teachers' favor because they could not care less about what the teacher thinks. Many parents, particularly in one-parent families, value school attendance so little that they keep their older children home from school whenever they need a babysitter or some other kind of help. The principal stated that he was constantly amazed that the teachers do as well as they do, in spite of these handicaps.

A principal of a large middle school says that in his school group norms can vary from one classroom or one social group to the next, but the prevailing attitude is negative. Being too smart or getting good grades is not socially acceptable. The scholars are perceived as doormats, discouraging good students who want to be like everyone else. He sometimes marvels at the sophisticated games played by some of the students, manipulating other students and teachers so subtly that even the teachers

are not always aware of what is happening. Belonging and being in a group is everything, and all sorts of risks, including drugs and pregnancy, are taken rather than incur isolation from the group. Among friends there is a protective code. Students will lie to the teacher to help each other.

At the beginning of each new year, a pecking order is established. Power-gaining strategies are devised such as: "Look how bad I am with the teacher, so don't mess with me." The trouble-maker is valued and looked up to.

Some of the students who are really determined to learn have found ways to survive. They seek out each other, change schedules, flee to the library, and manage to learn in spite of the handicaps imposed by the majority of their peers. He says the most difficult students are the 7th and 8th graders. By the 9th grade the worst aspects of negative peer pressure ease off perceptively.

Interviews and conversations with other educators add similar details to this grim picture. Other comments: "Nobody likes a smart kid" "A bright kid better be good at sports" "If he's a brain-only kid, he's a finky kid"

There is general agreement that peer influence is a more destructive force in 6th, 7th and 8th grade than it is in high school, that the implications are serious, and that something should be done to improve the situation. Teaching can only be an ennervating, joyless and frustrating experience under these conditions, discouraging a caring attitude and stifling attempts to make learning interesting.

Referring again to the researchers, some of their remarks are salient here. In the concluding note of the Adolescent Society, Coleman makes two points. Our educational problems will not be solved by pouring more money into the schools, but by learning to acquire some intangible quality that cannot be packaged and distributed. If education is to be successful, it must compete in an open market, because the adolescent will spend his energy in the ways he sees fit. It is up to the adult society to structure education to capture this energy.

In an article on the problems a core city elementary school Kluger suggests an approach that encourages children to be helpful to each other. He concludes that we must somehow increase the supply of love and attention in a system with so many deprived members. The greatest scarcity is adults with enough time and energy to give to children in a mutually rewarding way, and the greatest untapped resource is other children.

Boocock contends that the true strength and nature of peer group influences are not known, but programs that work against peer values are doomed to failure. She adds that the best thing to do with such a force is to use it constructively. She concludes that the search for areas of agreement between youth and adult cultures and methods of learning that channel the energies of student relationships seems a fruitful type of research. In the following section, I will propose cross-age teaching as one such method.

CROSS-AGE TEACHING PROGRAMS

Cross-age programs vary in degree of organization and supervision. In a typical program, students, hereafter called olders, are selected to help younger students with reading or math skills on a one-to-one basis during the school day. The olders attend a number of initial training sessions and then are paired with children 2 to 4 grade levels younger. The olders meet with their youngers 2 to 4 times a week, and attend periodic in-service training sessions. The coordinating and training responsibilities are assumed by teachers, other staff members, aides or volunteers. A number of high schools are offering cross-age teaching as a credit course. High school students serving as olders are bused or walk to nearby elementary schools.

Research and development was conducted in the Detroit neighboring school districts by Peggy and Ronald Lippitt and Jeffrey Eiseman working under the auspices of the University of Michigan Institute for Social Research. In 1969 they completed a comprehensive program package. It contains a manual, (Orientation, Training and Related Materials - A Manual for Cross-Age Helping, 1969) filmstrip, a record and a telephone consultation. After extensive field testing, the Ontario-Montclair School District produced an excellent manual, (A Cross-Age Teaching Resource Manual, 1970) building on the research findings of the Lippitts. The manual outlines sequential steps necessary to begin a program, provides job descriptions and training suggestions for the staff conducting programs, provides a comprehensive curriculum guide for up to fourteen training sessions for olders (the material can be condensed to adjust for fewer

sessions) and provides samples of useful papers such as tutoring schedules, report forms for olders to record progress of youngers, evaluation forms, and a sample letter to parents explaining the program.

Careful selection of students to serve as olders is an important factor. In some programs, an entire grade or classroom are involved as olders. In other programs, students are chosen who are achieving below grade level and have demonstrated a poor attitude toward school and learning - in short, some of those "flip," tough and disruptive students so much admired or feared by their peers. Seldom is difficulty encountered in recruiting olders. Any change from the school routine and any way to get out of a scheduled class is welcomed.

The training program for the olders is designed for these objectives:

1 - Gaining an understanding of the way one's behavior affects others.

2 - Developing sensitivity to the needs of youngers.

3 - Developing constructive relationships with youngers.

4 - Helping youngers to build a more positive self-image.

5 - Sharing responsibility with the teacher for setting objectives and planning lessons.

6 - Developing techniques for effective teaching.

Initial and on-going training is designed to make use of the creative abilities of the olders and take advantage of the fact that the special relationship of one student to another produces insights and teaching opportunities not available to adults. Training sessions should maximize opportunities for student interaction by employing student-centered discussions, role-playing and brain-storming techniques.

There is no way to know just how many cross-age programs are now in operation. To begin with, cross-age teaching in a school setting

is as old as formal schooling. One-room schoolhouses, with one teacher for many grades, necessitated the use of older children to help younger children. Variations of this informal process occur today in almost every school.

I estimate that nationwide there are at least 2,000 programs identified as cross-age to the degree that they are sanctioned by the administration and conducted with certain minimal training and supervisory standards. The Ontario-Montclair, California School District project, operating on ESEA Title III funds, received a two-year grant in 1971 to develop a cross-age model. Funding was extended for an additional two years to accomplish statewide adoption in the state of California. The results of this project are encouraging. They claim to have generated over 600 cross-age program adoptions in 620 schools in 200 school districts, primarily in California. Since the termination of the grant period, over 2,000 additional manuals have been distributed, with many more adoptions resulting. The salience of this idea is further exemplified in Southeast Asia through programs initiated by INNOTEC, a division of the Southeast Asia Ministries of Education, and in Lebanon through the efforts of David Sherertz, the former director of the Ontario-Montclair project. The National Commission on Resources for Youth, a New York-based non-profit organization, recently included a questionnaire on cross-age programs in a newsletter and received information on 250 programs throughout the country. The Lippitt package described previously has sold over 800 units at $60.000 each since 1966.

In the Pittsburgh area, I have been involved in the implementation and training aspects of six programs, and am aware of eleven more local

programs now operating successfully. I am currently teaching a course in cross-age teaching for the Allegheny Intermediate Unit Teacher In-service Training Division. Several new programs will be initiated by participants of this course.

There are many advantages to cross-age teaching programs. It should be fairly obvious that a well run program can do much to change peer influence from a liability to an asset. Extensive evaluation of cross-age programs, from both a cognitive and affective standpoint, has been conducted.

The results of these evaluations, based on academic growth and attitudinal change of both the olders and the youngers, are impressive.

An impressive list of benefits have been recorded by those involved in cross-age programs. For the younger, instruction is tailored to his achievement level and his special learning style. He gains confidence as the one-to-one relationship provides a successful experience at each meeting, eliminating gear of failure and negative comparison with classmates.

For the older, the satisfaction of helping another person increases his sense of self-worth. As olders become aware of youngers as people with individual problems, in need of patience and understanding, judgmental attitudes become helping attitudes. Olders can review basic learning concepts not mastered at an earlier age, without embarrassment or a sense of defeat. They develop a new sense of responsibility and acquire skills in relating positively to others, conveying ideas and thinking creatively in order to plan lessons for youngers.

For the teacher, there is assistance in providing individualized instruction in the classroom. The process of training olders can be a challenging, creative and satisfying experience. The diagnostic and creative skills of the olders lead to a number of innovative teaching games, activities and materials which can make learning more interesting for other students. The change of the teacher from authoritarian to friendly consultant opens up new relationships between teacher and student. Teachers are more comfortable when they feel that students like and respect them, and discipline problems are lessoned.

The cash outlay to start a program in a school is minimal. Teachers, aides or other staff members working on cross-age teaching programs do so as part of their regular school day, and reliable volunteers have successfully assumed a primary or supplementary role in a number of programs.

Copies of the Ontario-Montclair manual are inexpensive ($3.00 each) and the papers and forms needed can be easily duplicated in any school building. A booklet, For the Tutor, available from the National Commission on Resources for Youth, provides a number of creative tutoring techniques and shows olders how to make learning aides and games for use with their youngers.

Some teachers have heard about cross-age programs and started one in their own school with no other resources than a manual and the cooperation of the school staff. Ideally, those responsible for the program should receive initial training help with planning and implementation and periodic follow-up assistance from cross-age specialists. Staff

training is designed to develop skills in conducting student-centered training sessions. Content planning sessions with olders and the teachers of youngers, and efficient coordination and maintenance of the operation.

Continued care is needed to assure that cross-age, older-younger relationships remain productive. A program that does not provide such support to the students can lead to disappointment for olders, youngers and teachers, and discourage adoption in other schools. In the past training and consultation services for most programs have been funded by special research grants. It is my hope that in the future school boards will see the value of cross-age teaching and assume responsibility for system-wide implementation.

CONCLUSION

The extent of damage from the negative aspects of peer influence in our schools, particularly for 6th, 7th and 8th grade students, can only be estimated. Intensive research in this area should be of great interest to educators. However, if the results of such research are not taken into consideration in future planning, the research would be useless.

The human being is inherently energetic and inquisitive. We cannot prevent learning from happening but we can continue to permit it to be dissipated by tolerating an adversary system which divides teacher and student, and student and student. Intervention mechanisms must be introduced that will allow students to help themselves and help each other to maximize learning potential. Cross-age tutoring is one such mechanism. There are other programs that are not expensive and should be acceptable by most school systems: extending individualized learning methods to the middle schools and high schools, using student-teacher contracts for individual and group projects, applying skill-developing games and simulation games in the classroom, establishing interscholastic and intrascholastic gaming contests, organizing fund-raising or community service projects, and helping students to make games and learning materials for classroom use.

Most educators will agree that reforms are needed and that the kind of programs listed above would be beneficial. The big riddle is how to accomplish broad-scale diffusion on a nation-wide level. A number of excellent innovative programs have been tested and developed with the aid of local or federal funds, but there is much more interest in

designing and evaluating workable new educational models than there is in seeing that such models become an integral part of a significant number of school systems. The ESEA grant to the Ontario-Montclair project for program dissemination appears to be a notable exception.

Commercial producers of text-books and educational materials know how to disseminate - they are experts at marketing costly educational packages in large volume. It may be fruitful to seek funds to hire some of the marketing experts and use their skills to accomplish the adoption of cross-age teaching and other kinds of student-centered programs that are so clearly needed.

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AN AFFECTIVE APPROACH TO ALCOHOL EDUCATION IN THE SCHOOLS

Joseph F. Cvitkovic
Gerald Colvin

Educators have recognized for some time now that school systems have a responsibility to their students which goes beyond helping them to acquire skills in the uses of words and numbers. More and more emphasis is being placed on enhancing students' understanding of themselves, and preparing them for a rapidly changing world which will be making both foreseeable and unforeseeable demands on them. Affective education has become a major component of the educational process in the Seventies, and school systems will be increasingly concerned with helping to nurture healthy attitudes, values, and behavior for students. Although some educators, parents, and community leaders still voice reservations and fears regarding potential dangers of the trend toward "affective education" within the schools, this new emphasis is clearly established. The debate has now become an issue of who shall provide the affective training to students, rather than, should the schools be concerned with traditionally nonacademic matters.

An example may be drawn from one area of substance use and abuse; alcohol. Parents and educators alike are aware of and concerned about the increase in the use and abuse of alcohol among students. This reflects the greater social concern about alcohol related problems in general. It is our conviction that educators are in a critical position to influence students' attitudes and behavior related to alcohol, and that they can exert such an influence at the very time when students are deciding how they will use alcohol. In turn, the trend toward affective or humanistic education encourages school systems to support programs which go beyond the teaching of academic skills to enhance the interpersonal skills and mental health of students with the hope that they will be less likely to value alcohol abuse in the future.

A recent evaluation of a number of Pittsburgh area school systems by the Pennsylvania Department of Education exemplifies the criteria considered important by the State Board of Education in assessing "quality" education. Included in the evaluation was an expected concern for the schools' performance in the development of academic skills. However, equal concern was demonstrated in evaluating the

reported self-esteem of students, expressed interest in citizenship and other psychological or sociological aspects of the educational process. Those schools scoring low in the interpersonal and affective realm have now become concerned with upgrading these aspects of the school system, which indicates that although there may be local resistance in communities to implement affective education, schools are faced with the responsibility of developing programs to more adequately provide experiences for the students enabling fuller and more complete development.

There are several problems to be overcome as school systems prepare to provide these new types of educational programs. In alcohol education, one such problem is the question of who will be the most effective in working with students, the teacher or the specialist? Often, in conducting inservice training for teachers in affective alcohol educational techniques, we hear teachers verbalize many doubts and fears about their ability to conduct these types of discussion groups. Many teachers shun the facilitation of emotional expression of values and attitudes in the classroom, for fear of "losing control" of the situation. Additionally, the criticism levied by parents involves claims that unqualified teachers have no business delving into psychological or personal areas with their children.

It is clearly seen that training provided to teachers in college programs is not sufficient to prepare them to conduct affective oriented programs. Thus, specialists appear to be the most appropriate person to present and conduct programs where expression of emotions and feelings, be it alcohol education, sexual attitudes sharing, value clarification, are facilitated. The specialist tends to be more affectively oriented through specialized training, is not encumbered by the adversary relationship that often exists between students and teachers, and may have more credibility in the eyes of students in matters involving private behaviors. Ideally, teacher training should include the development of facilitative skills required to provide students the opportunity to express their feelings in class discussions; implicit in the concept of affective education is that expression of students' feelings will enhance learning in academic areas of education. However, in personal areas specially trained educators may be necessary because of the special skills needed.

The school system is an integral part of the community, and to provide quality educational experiences the school must become open, and utilize the reservoir of expertise within the community. In the area of alcohol education, educators with specialized skills in affective educational techniques are available for consultation services within the schools. School systems, however, have been reluctant to draw from the alcohol educators in the community in implementing alcohol education in the curriculum. Two of the reasons for school systems' reluctance are the apparent indifference of teachers to alcohol education, and the fact that the educational system is more responsive to influences by local school boards and professional organizations than they are to other community influences.

The attitude of indifference to alcohol education among educators has some of its roots in the plethora of demands made on schools by special interest groups in recent years. This cannot, however, be justification for refusing programs in alcohol education. We noted earlier in this paper that the trend toward affective education is clearly established. It is just as clear that alcohol education soon will be part of the curriculum, and school systems must overcome institutional resistance, and begin to work with specialists in the community to mount programs for alcohol educatio

The difficulty in implementing alcohol education in schools is attributable also to the lack of responsiveness of schools to issues in the community except as they are reflected in the local school boards. The use of alcohol by children and youth, and alcohol education, are definitely issues in the community; the success of plans for implementation of alcohol education depends on the cooperation of educators and alcohol specialists in making school board members aware of issues related to alcohol and youth.

In addition to discussing alcohol education at school board meetings, educators and specialists can facilitate implementation of alcohol education programs by eliciting support for such programs in professional organizations and conferences, at parent-teacher meetings and in teachers' union meetings.

SUMMARY

Parents and teachers alike are concerned about the increasing use of alcohol by children and youth, so that alcohol education soon will be a part of the school curriculum. The most effective approach to alcohol education goes beyond the pedagogi function of the school to include enhancement of the interpersonal skills of students. The clearly established trend toward affective education in the Seventies lends some credibility to an interpersonal approach to alcohol education.

There are some problems that must be overcome before alcohol education programs can be implemented on a wide scale. Educators must be aware of, and overcome any institutional resistance to alcohol education programs; and educators must work together with alcohol specialists in the community to make school boards and professional organization more responsive to issues in alcohol education.

With pressures from the State Board of Education, the deficiencies in teacher training with regard to interpersonal skills, and the definite need to offer education of an affective nature in the classroom, the primary course at this time is a combined effort by the schools and community specialists. The need is there now; the community has the resources available to meet the need, and it is the responsibili of the schools to utilize those resources.

PROGRAM DEVELOPMENT FOR TREATMENT OF EMOTIONALLY DISTURBED DEAF CHILDREN

Terry Edelstein

I. Statement of Purpose

The purpose of this project was to improve the functioning of emotionally disturbed deaf children now attending a residential school for the hearing impaired. The approximate population of the school is 500 pupils, ranging from 3 to 21 years of age. This project focused on 10 of the most disturbed and has been in operation for 2 years. Prior to the establishment of this program no regional or state facilities existed for treatment of childhood emotional disorders among the deaf [1] although it is estimated that 10 percent of deaf children are disturbed enough to warrent intervention extending beyond the special education required because of deafness.[2] This paper will describe how the program was developed and its present status.

The primary objective of the Emotionally Disturbed (ED) Program was the emotional and social growth of the disturbed child in the special class. The second ry objective was integration into the regular class. The mechanism for intervention was the establishment of a secure environment which placed the child in a psycho-educational milieu that encouraged development of self-respect, social relationships, communication and language skills.

II. Theoretical Considerations

Analysis of the disturbed deaf must stem from an appreciation of the fundamental physical deficit, the lack of hearing, and the frustration associated with the loss of verbal information and communication. As the hearing child develops he learns what is demanded of him in the context of language. But the young deaf child is often unable to exchange information on rudimentary needs

with the family."[3] A reliable communication pattern does not immediately develop between mother and child. If model interaction continues to be confused and frustrated the opportunities for early learning and development of trust become unavailable and the child experiences progressive isolation from the family. Consequently the next stage of growth, independence, is not easily attained. During the nursery and elementary school years the majority of educational facilities for the deaf advocate intensive training in oral skill development. The manual language system for the deaf is discouraged in the home and school, oral language acquisition being the prime objective. If in the process, however, the usual childhood activities of relationship building are neglected, real communication and interaction are not experienced and the child remains with no foundation for social development. These difficulties encountered by the young deaf child, if unresolved, are the seeds of rejection, frustration, and isolation that can severely restrict his emotional and social growth. It is therefore this author's supposition that development of trust, communication and ability are the basic elements in the positive familial or therapeutic relationship.

III. Population Description

The 10 students enrolled in the ED program ranged in age from 7 to 17 years, all within the normal range of intellectual ability. Two students were early withdrawals from the program. Seven of the 8 remaining students operated 2-6 years below their academic potential. There were as many different behaviors manifested as class population. Some students lacked any social

relationships. Some students responded aggressively to social situations. Some withdrew from interaction. Most had primitive communication skills.

The children were on varied schedules each year. (Table 1) The time spent in the ED room was determined by a student's ability to maintain himself in the regular classroom. It was found that most students could profit from duel placement in the ED and regular school programs. A part-time placement in the ED room served to relieve students of sufficient stress to continue partial participation in the regular curriculum. Two older students

Table 1

STUDENT SCHEDULES

	Year 1	Year 2
Student 1	all day	half day
Student 2	all day	half day
Student 3	half day	one hour/day
Student 4	one hour/day	---------
Student 5	--------	all day
Student 6	--------	one hour/day
Student 7	--------	one hour/day
Student 8	two hours/week	one hour/week

were also seen in a counseling situation both during and after the school day. The ED room additionally functioned as support for the full time student during the gradual transition to academic integration. The student teacher ratio in the class was limited to 4:1 the first year, and revised to 3:1 the second year.

IV. Program Coordination

The ED teacher coordinated the ancillary school services, dormitory personell, integrating teachers and parents into a unified program. Consultations and evaluations were initiated on a weekly basis and maintained on a bi-weekly or monthly schedule. A behavior grid was developed and checked monthly by the program participants to depict behavior change or maintanence. (Table 2)

Anecdotal records, isolated behavior grids, and an annual battery of psychological and achievement testing augmented monthly graphings.

V. Implementation

The program design related to the student's needs and capabilities. Some students required non-confrontation and relief from regular classroom structure; others required freedom for physical movement. Some needed structured routines and contingency contracting; while others needed individual attention and a secure adult relationship. All required communication development. Short and long term goals were formulated in each case in the areas of personal and social adjustment and language functioning.

Elements of milieu and interpersonal therapy and behavior modification were employed to convey an atmosphere of acceptance, warmth and security within which limitations and reality structures could be effected.[4] Rienforcements utilized were praise, affection, rewards, privledges, work and behavior contracts, and new skill mastery. All interactions were communicated through combined sign and verbal language. The intervention techniques found to be valuable supports in the development of a desensatized design were:

1. Organizing experiences in graduated challenges to minimize frustration.
2. Developing a feeling of self-worth and adequacy through mastery of relevant and desired pursuits.
3. Lending emotional support to the child in imposing situations by one close to the child's life.
4. Depersonalizing controls from oral instructions to group established records and contracts.
5. Tolerating some behavior expressions until an awareness or readiness exists for its elimination.
6. Preventing severe disruptions by removing to an alternative activity for diversion, relaxation, or ventilation of tense feelings.

7. Isolating a child overwhelmed by a panic or tantrum.

8. Lending controls to particular students to help manage his fury and maintain a reality link to prevent total withdrawal.

9. Acknowledging the readiness to return when composure is regained.

VI. Learning Center Environment

The ED classroom was organized into self-contained working areas. (Diagram 1) The unit center design attempted to alter the child's perception of himself in the environment by demonstrating his ability to be productive and capable of independent functioning in his environment. The centers encouraged a child to explore an activity, handle materials, congregate in groups or in private. The learning areas provided a situation the child could master and operate successfully, which in itself became a motivating factor.

The students utilized centers selectively, most students functioning in the majority of stations. Some pupils had required and free choice activities, others had any activity available for selection. The teacher supported each area project by making supplies available, demonstrating new skills, suggesting references, guiding experimentation and original work. The learning center design provided models for productive channeling of energies and demonstration of methods to organize a situation and obtain an objective.

VII. Communication and Language Development

The development of communication hinged on the students' need and interest to communicate, the foundation of which is developed through positive non-verbal interactive. Next, there must exist an appreciation of the function of language as the

process of exchanging information. And finally the resources and the mode of language must be developed.

A. A variety of media was employed to stimulate and provide experiences in language use. Photography was a prime tool in actualizing language. Candid Poloroid photos of student activities were mounted, captioned and displayed throughout the year. The weekly correspondences to home were descriptions of the enclosed photo work. Students also photographicly illustrated science experiments, cooking demonstrations, etc. Video-tape presentations were experiences rich in language and communication development. Groups prepared, produced and critiqued poetry readings, verb lessons, activity work. Utilizing another media form, a small group coordinated the production of a captioned filmstrip record of a field trip.

B. Written language was structured in the Fitzgerald Key[5] form, used for the deaf, which patterns vocabulary for usage. (Diagram The basic Key sentence format is: Who Verb What. The format becomes more complex as competencies in language develop. This method teaches vocabulary in categories and structures language into patterns which are natural for the hearing but not the deaf.

Diagram 2. Fitzgerald Key

	Whose	Who What	Verb		What Whom	Whose	Whom What	Where	For With How Why	When
		X	X							
		X	X		X					
X		X	X	X	X					
X		X	X	X	X		X			
X	X	X	X	X	X		X			
X	X	X	X	X	X	X	X			
X	X	X	X	X	X	X	X	X		
X	X	X	X	X	X	X	X	X		X
X	X	X	X	X	X	X	X	X	X	X

C. At the same time, sign language was used and taught with an emphasis on increasing vocabulary and developing independent facility with reference material. Dictionaries, individual sign books, word cards, etc., were available sources for daily reference. The promotion of independent language resources became self reinforcing as well as making material assessible to the student otherwise too threatened to recieve direct instruction. Therefore the thrust of the language program was development of the student's ability to explain intent and have a vehicle for more elaborate expression.

VIII. Social Relationships

Most students initially operated as isolates and were not prevailed upon to interact in a group until a readiness was exhibited. However some participation could be tolerated in certain non-interaction structures, such as puzzle games, weekly community walks, and movies. As tolerance for social contact increased, games and trips became more socially accelerated, such as monopoly playing, group planned trips, etc. At this stage, social boundaries were being learned and interest in the game or trip became a modality for heavier teacher support and guidance than could be previously tolerated. Special weekly activities and the unit centers were also effective in counteracting usual avoidance patterns, in particular: shop, cooking, gardening, playroom, baseball.

The ultimate focus of the group experience was integration or mainstreaming into the regular deaf classroom. (Table 3). Integration was attempted when there existed assurances of a child's readiness to successfully re-enter the mainstream and was developed in gradual

steps after consideration of appropriate placement. The ED and academic teachers cooperatively supported the child's social and academic adjustment. The selected mainstreaming provided important

Table 3
INTEGRATION AREAS

Fine Arts	Vocational Arts	Academic Classes
Art	Sewing	Social Studies
Rhythm	Auto Repair	Math
Painting	Woodshop	Movies
Crafts	Cooking	Assembly
Cartooning	Painting	News
Dance	Shop	Physical Education

models for growth and reinforcement of self-worth. The integration also precipitated a second stage of intervention, as students' developing awarenesses and experiences changed the relationship with the ED teacher from one of support in the school to a role of counselor and advisor.

IX. Conclusion

The conclusion is that deaf children with emotional disturbances are responsive to treatment within a psycho-educational environment. Changes in behavior patterns were effected and sustained in school and home and satisfactory inclusion in the mainstream was facilitated. The scheme developed proved to be a workable physical situation as well as an adaptable framework for accomodating varying individuals. The strengths found in the intervention scheme were: 1. the experience of the child as a capable individual in his environment; 2. the respect and trust established between child and implementer; 3. the use of total communication; 4. the adaptation of the ED classroom as both a full-time and part-time resource facility; 5. the psycho-educational orientation of the treatment approach.

Special Studies Program — 9 — MONTHLY RECORD

Teacher: Mrs. Edelstein Student:

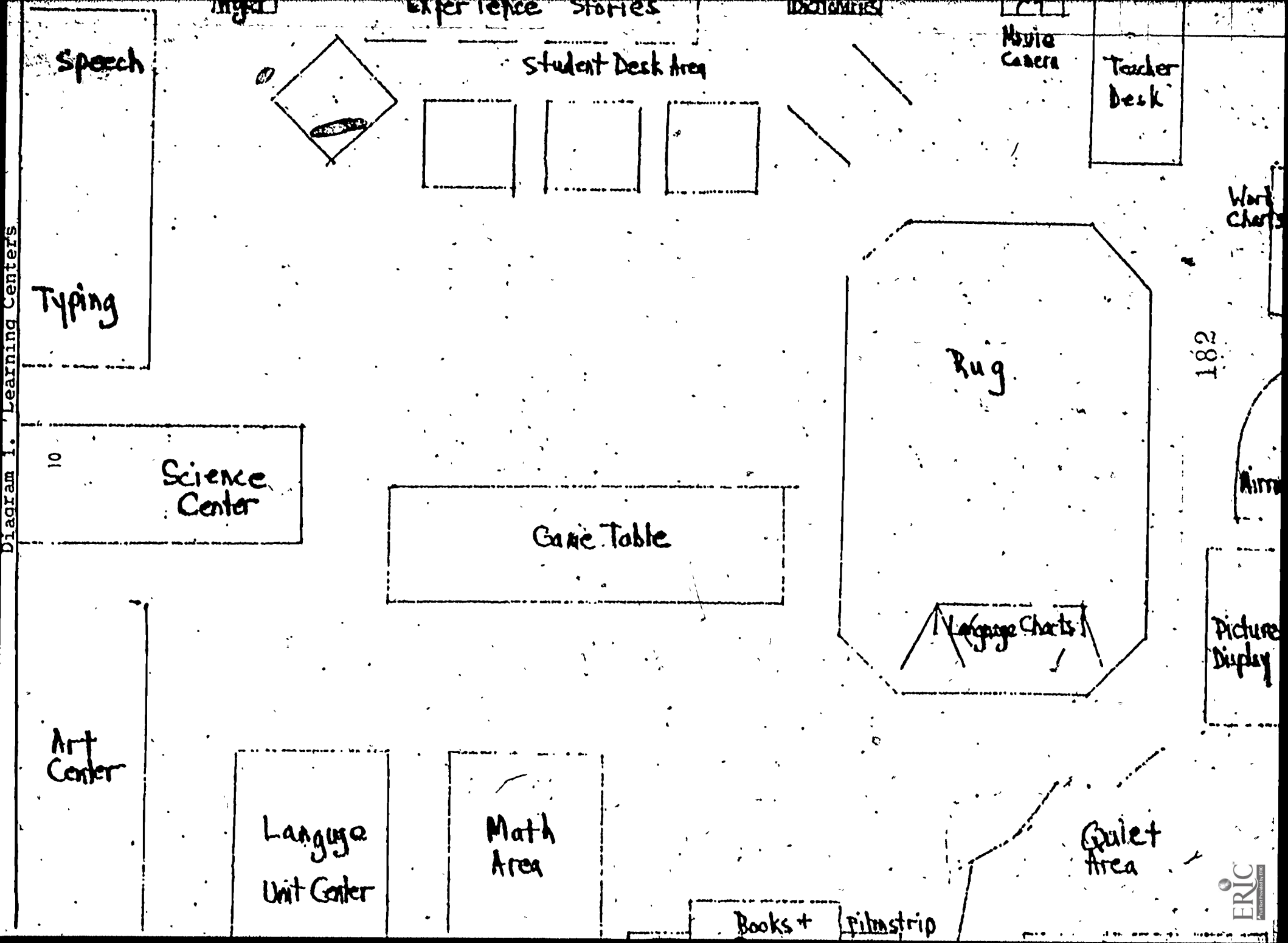
Please record how you feel your child is doing each month.

S for September	F for February
O for October	M for March
N for November	A for April
D for December	MA for May
J for January	JU for June

Please return this to me the first week of each month.

	poor	improving	good
1. Communicates with others			
2. Understands direct communication			
3. Answers direct communication			
4. Can be reasoned with			
5. Expresses ~~interest~~ in things			
6. Interacts with children			
7. Interacts with adults			
8. Shows affection			
9. Shows aggression			
10. Responds ~~freely~~ to situations			
11. Works independently			
12. Works in a group			
13. Follows directions			
14. Completes projects			
15. Acquires new abilities			

tionship _____ Name: _____


Experience Stories
Speech
Student Desk Area
Movie Camera
Teacher Desk
Typing
Rug
182
Science Center
10
Game Table
Language Charts
Art Center
Language Unit Center
Math Area
Books + filmstrip
Quiet Area
Diagram 1. Learning Centers

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VISUAL LITERACY:
A DEVELOPMENTAL APPROACH

Joanne V. Dunn

SUMMARY

In this paper I attempted to approach visual literacy from the standpoint of what is known about this area, on how literacies are formed, and on the value visual literacy has for education. This was done by surveying the literature on studies and programs developed by various educators, philosophers, and psychologists in the field of learning and perception. I felt it was necessary to acquaint the reader with the theories and the processes of learning from as many perspectives as feasible, so that an interest might be generated in integrating the visual experience into the system of education.

When considering man and his ability to communicate three functions come into mind, the use of language both verbal and visual, the employment of concepts, and the ability to think. All of these functions are intimately intertwined. It is difficult if not impossible to focus on one aspect without considering the others. However, education has emphasized the verbal aspect of communication and ignored to a large extent any type of visual training for the majority of students. Educators in this age of technology can no longer avoid the visual mode. Edgar Dale(1969) expresses that at least 90% of our learning comes through the eye. D. Dondis(1973) states, "The cultural and global force of film, photography, and television in the shaping of man's image of himself defines the urgency for teaching visual literacy, p.xi."

This brief paper will attempt to present a survey of the visual components involved in the learning process. The following areas are included: First, the need for the study of visual communication and the definition of the term "visual literacy", Second, the process of the development of a visual language within the individual, Third, a brief review of the projects and systems currently being developed in teaching visual concepts and communication, and Fourth a discussion of the research and several proposals for future study.

It is a gross inconsistency in the learning process that our students are bombarded with visual media, films, television, slides, models, etc. without any guidelines for evaluating and understanding the effects they produce. Robert McKim(1972) feels education that develops skills in visual thinking "provides vehicles that are frankly more appropriate to to the thinkers needs than language symbols."(p.3) It is the responsibility of educators to educate the whole student and this includes the structure

and recognition of the visual mode.

The term "visual literacy" is currently used to describe a group of visual competencies. The definition agreed upon by the National Conference on Visual Literacy is as follows:

> Visual literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, and symbols natural or man-made, that he encounters in his environment. Through the appreciative use of these competencies, he is able to comprehend and enjoy the masterworks of visual communications. (Fransecky and Debes, 1972)

However the word "literacy" in conjunction with the word "visual" holds various connotations that are inconsistent with the visual process. The main one being a simple lineal approach to this process. This is perhaps a cultural mis-label as well as an oversimplification of the problem because the visual communication process, unlike the verbal communication process, holds a multiplicity of human functions that are so extensive that a simple definition is impossible. Caleb Gattegno (1969) in Towards A Visual Culture describes the visual process.

> Sight is swift, comprehensive simultaneously analytic and synthetic. It requires little energy to function, as it does, at the speed of light, that it permits our minds to receive and hold an infinite number of items of information in a fraction of a second. With sight infinities are given at once; wealth is its description.

We must ask then whether education has recognized the importance of the visual sense? John Debes(Oct. 1969) says, " Yes, in a way we have.... But we have trained it not to do the eye's thing, but to do a verbal thing. We have set it to follow the concatenations of the printed language, a thin chain of words, a narrow linear track that presents

information at so slow a pace that the lively T.V. nurtured eyes of our young people are dulled, bored and stultified. p.27" This chain or linear approach is perhaps entrenched in our culture. Dorothy Lee (1959) in Codifications of Reality: On Lineal and Nonlineal Modes of Thinking relates that "we arrange objects and events in sequence which is climatic, in size and intensity, in emotional meaning or according to some other principle. We often arrange events from early to later." But when primitive cultures such as the Tbobianders relate happenings, "there is no developmental arrangement....p.116

Educators should try to approach the teaching of visual language in a non-linear manner. Rather than trying to define the term "visual literacy" why not define the visual process and how to direct it toward the individual's own personal way of experiencing and utilizing the myriad of visual stimuli with which he is confronted. Possibly by expanding the "loom" as quoted by J. Debes, (1969) into a metaphorical definition the visual literacy process would take on greater meaning. For example, the plethora of functions involved in the visual communications process is comparable to the weaving of a tapestry. The warp resembles the grammar or common elements present in all visuals such as: tone, shape, balance, direction, texture and pattern. These elements remain constant just as the warp remains constant, but the weaver may emphasize or subordinate particular areas. The woof is similar to the concepts one acquires through experience and learning. Each individual carries a variety of these threads that he derives through experience. It is the responsibility of the educator to provide the individual with the materials for the warp and the woof. For as D. Dondis (cf. 1973)

says, "Sight is natural; making and understanding visual messages is natural to a point, but effectiveness on either level can only be achieved through study." p. 10. Once the student has acquired the requisite materials he is ready to weave his visual tapestry, and experience those woven by others. Although there may be commonalities in the weave of each individual's tapestry, no two individuals apply the exact same materials or concepts nor experience the same concepts precisely in the same way.

With this analogy in mind we will venture to discuss Rudolph Arnheim's (1969) analysis and experimental investigation of little understood problems relating to known principles of Gestalt Psychology, especially those on configuration, closure, organization. He proceeded to illustrate the means by which visual abstraction occurs. A common theme that runs through Arnheim's works is that given an amorphous shape the human subject, depending on his intentions, will articulate it, clarify and make it more meaningful. In other words beginning with a relatively simple, irregular and not too meaningful design, the human subject strives to endow this design with a meaning and significance that he can understand. This process may take many forms but essentially it involves conceptualizing the design as more than a conglomeration of pieces.

Arnheim feels that those who are interested in the growth and development of the visual process should familiarize themselves with the works of Piaget on cognitive learning. Like Arnheim, Piaget pursues the course of symbolic thinking as it proceeds through human development. Piaget's studies besides being both stimulating and provocative have had a wide appeal in education and psychology because they have opened

extensive research in many areas. Although Piaget's theories are generally thought to be essentially involved with the formation of symbolic thinking, his findings are applicable to all phases of mental development, that is, the symbolic, the visual, as well as the formation of language. Piaget demonstrated that a child's mental growth may be characterized by three stages of growth and development. These three stages are important because they assist the child in the acquisition of both visual and verbal abilities.

For Piaget(1963) visual imagery depends upon two complimentary processes known as assimilation and accomodation. Through the process of assimilation Piaget feels that the child relates what he perceives to his already existing knowledge and understanding of it. For example, if the child knows what birds look like but by chance he sees a flying squirrel he assimilates it but not as a squirrel that flies, but rather as a bird. In assimilation new perceptions are incorporated into the child's present understanding of the world. Also, during assimilation the child responds mentally to the familiar and to that which is recognized. On the other hand, accomodation begins when the information the child incorporates into his mental schema is at variance with his existing knowledge and skills, and when he is incapable of utilizing this information. In short, all mental growth including the development of mental imagery, according to Piaget, results from "....the resolution of the tension between assimilation and accomodation the conflict between using old responses for new situations and acquiring new (or changing old) responses to fit new ones."(Piaget, 1963) This alteration of old mental schema to fit new emerging situations is, for Piaget, the essence of all mental growth.

Piaget(cf.1963) also insists that children are not just little adults, for they think qualitatively different from adults. As described in Piaget's studies children are caught in different stages of development and therefore they have the tendency to see things literally. They are not capable of carrying out abstract visual thinking operations until they are nearly young adults. On this point Schachtel in his book Metamorphosis (1969) states:

> The adult is usually not capable of experiencing what the child experiences; more often than not he is not even capable of imagining what the child experiences. It should not be surprising, then, that he should be incapable of recalling his own childhood experiences since his whole mode of experiences has changed. The person who remembers is the present person, a person who has changed considerably, whose interests, needs, fears, capacity for experience and emotion have changed. p. 285

This should then awaken those concerned with visual education, and education in general, that materials developed by adults for children are more often than not inadequate for the immediate visual needs of the child. Therefore, it is the responsibility of the teacher, media specialist and librarian to familarize themselves with the child's cognition and visual growth and to take into account such factors as life style, background, interests, etc.

Schachtel (cf.1969) in discussing the senses holds vision in high esteem. He contends that the importance of vision for learning can be better appreciated if we see vision as being capable of grasping simultaneously many more facets of an object "..... for each object looked at is given to the perceiver more fully and in more dimensions than through any other sense." In contrast to vision the sense of touch is limited in its functions. For example, many objects are not accessible to touch and therefore we cannot grasp their structure.

Nor can we unify such large objects as a house, a landscape or a mountain if we had to rely solely on touch. Schachtel also says that hearing and speech and listening to music are akin to the active structuring of visual focusing on objects. In fact, he adds, we search for a structure in all things that we perceive. Although language and visual structures may have similarities they are distinct in their communication modes. This clarifies what Marshall McLuhen(1964) means when he says we must find a "new grammar" which attempts to educate for visual structures just as we educate for verbal structures.

Various programs have been developed in the last five years that are attempting to integrate visual communications into the curriculum. One of these programs is the Milford Education Program. This project is a full system program piloted in 1970-71 and implemented in 1972, in grades k-12, Milford, Ohio. The curriculum includes five phases, each with general objectives, specific skills, and specifically designed materials and learning activities. Basic skills are stressed on the elementary level while more sophisticated perceptual skills, production techniques and interdisciplinary program projects, are included on the secondary level. The five phases are: 1. Visual perception, 2. Sound and image relationship, 3. Media and Hardware, 4. Still Photography 5. Multi-media comparisons. Unlike many programs that introduces media in a haphazard manner, the Milford Project is highly structured. (Fransecky and Ferguson, 1973)

Another structured approach to visual education is the system designed by CEMREL, Inc. titled the Five Sense Store: An Aesthetic Education Program. It is currently available for purchase (1974). Although initially conceived for pre-primary through 12, the program is still in the process of development. Packages are currently available for K-3. Each program is broken into units or packages and each package encourages

the students to become involved in such things as manipulating time on film, or examining the function of light and vision. Students, perceive, analyze, talks about, produce/perform, judge, value, and react to content. These behaviors lead to experiences and insights that will begin to prepare them for making decisions on the basis of their increased aesthetic awareness as well as their own individuality. The students go through the process of originating an idea and organizing elements into an end product to communicate that idea.

Another visual curriculum worth mentioning (although it has not been tested) is the basic course in visual education by Kurt Rowland titled Learning to See (1968). This program was evaluated in the EPIE Review No. 52, Apr.1963, Evaluations of Art Programs for Non-Artist Teachers. The materials consist of a series of picture books and teachers guides designed to heighten the students awareness of the world around him, and provide him with a sound visual vocabulary for the further study of visual elements in his environment. The age level is variable.

In designing and evaluating programs and systems for visual education, research and methodology must be kept in mind. Except for the psychological studies on perception, research in the area of visual literacy is sparce. Until recently research was chiefly confined to the physical aspects of vision while little was alloted to the subjective qualitative elements entering into the visual language model. Only in the past ten years have linguists, semanticists, philosophers, psychologists, and educators developed an interest in the visual experience. Deutsch (1963) has devoted his attention toward the exploration of parallels between visual and verbal language. He worked with disadvantaged children and found

that in this type of child the relationship between visual and verbal language is strongly suggested.

Jerome Hausman (1963) discuss"Research on Teaching the Visual Arts" he says,"In short, many forces have now turned toward recognition of art as a basic human discipline." For example, the report "Art Education for Scientist and Engineer (Comm. for the Study of Visual Arts M.I.T., 1957) recognized that"it is only recently that American educational thinking has turned to the educational potential of the visual arts." They state "American education has been, and still is based on vocational convenience rather than deep-rooted values" (p. 110I).

Perhaps Fransecky and Ferguson (cf.1973) have pointed out the most useful review of research. This review was authored by Clarence M. Williams, chairman of the National Center for Visual Literacy, and professor of education at the University of Rochester. Dr. Williams set forth a series of nine propositions that would be helpful to those contemplating research in visual literacy:

Proposition 1: Deprivation of early visual experience can lead to visual problems in the later life of the organism.

2: Visual enrichment in early life appears to make an organism more successful in visual tasks in later life.

3. It is probable that a program of visual enrichment can improve learning if effectively implemented.

4. The ability to sequence visual stimuli is related to the experiences(history) and the opportunities provided for the learner

5. Development of the "Glance-Curve" is related to sequencing experiences and early reading-related experiences.

6. Hierarchical potential in any pictorial scene or set of pictures is related to an organism's history, sequencing ability, and development of verbal literacy.

7. The development of the ability to engage in visual metaphoric communications and activities is related to history and opportunities.

8. There exists a range of visual literacy sophistication, and this range is related to history and opportunities.

9. The ability to transfer back and forth among visual-visual, verbal-verbal, and visual -verbal metaphors is related to visual and verbal literacy development.

(C.M. Williams, cited in Fransecky and Ferguson, 1973)

It is clear from the preceeding viewpoints that there is a need for serious research in the area of visual literacy. Also consideration must be given to the measurment and evaluation of the visual skills.

The teacher of the future must be trained to integrate the visual mode within the scope of curriculum planning. In planning units teachers must be clear about the types of media that will convey specific meaning. Above all the future design of education not only must focus on the development of visual skills, but also must focus on the development of appropriate research methods and measurements of these skills.

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