August 1974

The Synthesis of a Technique of Comprehensive Analysis of Individual Learners

Bruce R. Ledford
East Tennessee State University

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THE SYNTHESIS OF A TECHNIQUE OF COMPREHENSIVE ANALYSIS
OF INDIVIDUAL LEARNERS

A Dissertation
Presented to
the Faculty of the Department of Education
East Tennessee State University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Bruce Randal Ledford
August 1974
APPROVAL

This is to certify that the Advanced Graduate Committee of

BRUCE RANDAL LEDFORD

met on the

25 day of July, 1974.

The committee read and examined his dissertation, supervised his
defense of it in an oral examination and decided to recommend that his
study be submitted to the Graduate Council and the Dean of the School
of Graduate Studies in partial fulfillment of the requirements for the
degree Doctor of Education.

Ted Cofrin
Chairman, Advanced Graduate Committee

H. Floyd Edwards

Harold Meisel

May S. Marshall

Elizabeth L. McNabb
Dean, School of Graduate Studies
THE SYNTHESIS OF A TECHNIQUE OF COMPREHENSIVE ANALYSIS
OF INDIVIDUAL LEARNERS

An Abstract
Presented to
the Graduate Faculty
East Tennessee State University

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Purpose. The problem of this study was to develop a superstructure of learner analysis. The framework of the superstructure was composed of component elements which, together, provide a consistent and comprehensive analysis of the learner.

Method. Learning components and their elements were identified, isolated, and interpreted, and, a technique of profiling the results of analysis were incorporated to develop a superstructure for analysis of individual learners. The superstructure, the components, and the elements were heuristic in that they had not, at this stage of development, been validated.

Summary. At the level of long-term learning, disregard of the process and product of learner analysis in the design of the learning event was seen to be sheer audacity. It was horrendous, but true, that there was no comprehensive, valid, or convenient way to analyze learners. There were pieces and parts, here and there, now and then, but there was no coherent technique that was adequate for prescription and design of learning events.

When it existed at all, the analysis of learners was made on several important, but rather obvious characteristics. The intelligence quotient (I.Q.) and, consequently, something called mental age (M.A.) and chronological age (C.A.) were computed. I.Q. had long been a controversial matter. Intervening variables had modified I.Q.'s to make them unpredictable and by no means static over periods of time.

It was common practice to test the ability of learners to see and to hear. In the area of vision, visual span, peripheral vision, and eye-movements were sometimes measured. These were critical determinants for learning event design, but were not consistently implemented.

It was, also, common practice to test the ability of learners to read with speed and comprehension at a variety of levels. This kind of testing was implemented to a somewhat greater degree of consistency. Findings were not consistently used to influence the design of learning events.
The ability to hear was sometimes tested. But, the ability to listen was not usually measured, and seldom, if ever was taught with real purposeful intent.

Achievement testing was practiced by many schools. Special attention was usually given to characteristics such as the ability to perceive spatial relationships and the size of informational bits that could be spanned.

Educators could analyze learner characteristics presuming that their insights included a purposeful and comprehensive gestalt. When learner characteristics were identified which required analysis, educators could design techniques, if they did not already exist. As a consistent practice, however, educators failed to use appropriate analyses techniques (because the techniques existed only superficially, if at all). No data were produced, consequently, in a form which could implement the diagnosis of learner characteristics and the implied prescription of design for predictably relevant and accountable learning events.

This study was limited to identifying, isolating, and interpreting learning components and their elements, and to designing a technique of profiling the results of analysis. The technique of profiling the results of analysis contributed to the diagnostic gestalt of the analysis and its prescriptive application for learning event design.

Conclusions. To aid in the development of appropriate learning event design, determinations about the learner should be made in areas incorporating the sensory-motor, symbol manipulation, spatial relationships, oral communication skills, personal identity, cultural determinants, interactional-transactional patterns, and the affective.

Specifically, in the sensory-motor area, the auditory, visual, olfactory, savory, tactile, proprioceptive, and kinesthetic abilities of individual learners need to be determined. In the symbol manipulation area, the ability of the learner to read, write, and compute, as well as the ability to use cognitive learning skills, should be analyzed. Diagrammatic planning, diagrammatic interpretation, and structure analysis comprise the area of spatial relationships. Speaking and listening make up oral communication skills while synnoetics and ethnics comprise personal identity. The family, religion, peer influences, mores, social agency influences, and politics are cultural determinants that affect learning, and, therefore, need to be analyzed; interactional-transactional patterns include kinesics, proxemics, and transactionals; and, the affective domain includes ethics, empathies, esthetics, and histrionics.

The superstructure of learner analysis is composed of the thirty-one components of analysis. Each of the components is composed of elements relevant to that specific component. When each of the elements and components are treated individually and then combined on the superstructure, the result is a profile which provides a comprehensive picture of the nature of the learner. Use of the profile will enable
the learner to be pictured on a continuum as possessing a skill, cognition, and/or affect to a degree that is less than standard, standard, or greater than standard.

Dissertation prepared under the guidance of Dr. Ted C. Cobun, Dr. C. Harold Measel, Dr. Floyd H. Edwards, Dr. Nancy Hamblen Acuff, and Dr. Max Marshall.
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Above all, I am deeply indebted to my wife Suzanne, son Joey, and daughter Jenny for their patience and understanding throughout the program of doctoral studies.

B. R. L.
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Chapter 1

INTRODUCTION

In the future, it seems likely that educators will be faced with a situation in which there are more and more young people to be taught and more to be learned in our contemporary world. It appears that the only way our educational system can meet its obligations is to look beyond the numbers and focus upon the individual.

Human variability and individual differences have been, traditionally, taken to be facts of life. Assumably, if they are ignored, educators will continue along the same kind of educational paths as in the past. If not ignored, by giving constructive efforts to analysis of a comprehensive battery of learner characteristics, the raw material, the event, and the product can be improved predictably and observably.

Achievement levels among learners of given ages vary enormously. Add to the differences within each individual from subject to subject and human characteristic to human characteristic and educators find themselves confronted with patterns as ordered as disarranged jig-saw puzzles. These stubborn facts must be taken into account in all planning and organizing for teaching.¹

Like medication, instruction can be given when none is needed. It is also possible to prescribe modes of instruction when other modes of instruction would be more pertinent to the specifics of the goal intended. Instruction executed in a mode inappropriate to the needs and nature of the learner is wasteful, erosive, confusion-generative, and generally unproductive. It may even militate against beneficial learning when the learning opportunity, at last, arises. Therefore, it is, at least, as appropriate for those who would solve problems of attaining desirable human performance to conduct an analysis before selecting a remedy as it is for a physician to make a diagnosis before describing a cure.

Viewing man as a class of creatures, one is struck with the common features shared by all members of the species. Specifically, each homo sapiens has many features in common with other members of his species. Based upon the subsistence characteristics of his life frame, there is a significant amount of commonality among all men. Yet, at the level of thoughtful behavior, leading to cultural norms and innovations, a group of men may be characterized by the startling person-to-person differences that makes agreement of statement of purpose kaleidoscopic in potential. These differences complicate teaching and learning. In this sense, while men are born more or less equal, cultural aspects impinge upon them to make them different and unequal.

The problem becomes one requiring isolation, interpretation, and analysis of the differences. Comprehensive analysis facilitates bringing to bear the better kinds of prescriptive treatments portending to generate behavior changes desirable to whomever seeks them.
THE STUDY

Statement of the Problem

The problem of this study was to develop a superstructure of learner analysis. The framework of the superstructure was composed of component elements which, together, provide a consistent and comprehensive analysis of the learner.

Delimitations of the Study

This study was intended to develop a superstructure for analysis of learning components of specific individuals and the elements of the components. It was not intended for comparison of any individual with any other individual.

The study was limited to identifying, isolating, and interpreting learning components and their elements, and to designing a technique of profiling the results of analysis. The technique of profiling the results of analysis contributed to the gestalt of the analysis and its application to learning event design.

This study was heuristic in design. Heuristics were agents which served to guide, or reveal, a solution to a problem. The problem, in this study, was to design a superstructure of learner analysis which, when utilized, would enable the designer to design a learning event based upon the ascertained needs, and nature of, the learner. The Webster's Seventh New Collegiate Dictionary defines heuristic in the following manner: "... serving to guide, discover, or reveal, specifically valuable for empirical research but unproved or incapable of proof."²

The validity of components of the superstructure were heuristic in that they had not, at this stage of development, been validated. The elements of the components, also, were heuristic in nature in that they too, were not validated. The components and elements, while not presently validated, were more extensive than existed currently with the possible exception of certain of the sensory-motor components.

The review of literature concerned itself with three major aspects in regard to learner analysis; specifically, what has been, what is, and what might be. The literature was reported in three major divisions of the chapter; specifically, the historical background of learner analysis, the contemporary status of learner analysis, and selected learning theories which spoke to learner analysis in advocacy, but not in described techniques, as a potential for what might be.

Due to its heuristic nature, this study was not concerned with the application of specific learning theory, or theorists, to the components of analysis, the elements of analysis, nor to the superstructure of learner analysis. In fact, it could be assumed that closure in this regard was an infinitesimal probability.

This study might itself be, or evolve into, a valuable learning theory which carries its own grist, and since it is heuristic in nature, owes only superficial service to contemporary learning theory.

The study was delimited to two major points:

1. identifying the components and elements for analysis, and
2. devising a technique of summarizing for convenient display, or symbolization, data derived from the analyses.

The study was not concerned with:
1. developing instruments of analysis,
2. validating instruments of analysis,
3. designing learning events, and
4. applying learning theories to the superstructure.

Assumptions

1. The worth and dignity of learners, found to be aspects of most philosophies, most texts on educational psychology, most learning theories, and most school statements about their philosophies, made learner analysis mandatory as the only valid process in attaining the intensively subscribed goal.

2. Learner analysis was expensive and time consuming. But, failure to make adequate analysis was more expensive and potentially more deprecating to the educational effort. Learner analysis, thus, was seen to be a tenable route to professional accountability.

3. Each learner was seen to be unique in that learners learn in different ways and at different rates. Each learner had individual wants, needs, interests, capacities, capabilities, preferred learning styles, and was under a unique set of personal influences.

4. Conditions existed within a learner as a part of a learner's uniqueness that precluded learning, or, created communication noise and caused distortion of message reception and response outputs.

As long as a learner was physiologically and psychologically sound he was able to learn. Whether or not he did learn was a function of the general process to which he was exposed. The three factors within this process that established the intent of the learner to learn were:
a. relevance,

b. motivation, and

c. appropriate design of the learning event.

Relevance. If a learner saw no value or utility in learning any given thing he was less likely to learn on a long term basis. Unless he saw what he could do with what he learned, and accepted the logic and rationale for doing so, research findings showed that he would forget almost all he had learned as soon as he was no longer obligated to its recall and commission.3

Economy of effort was important in the learning process. There was so much to learn that choices had to be made. Some things needed to be deferred or deleted in favor of others. That is, there was a priority of learning events.

Economy of effort was also influenced by how learners learned. Learners learned most efficiently when strategies were designed to suit their needs. No two learners were presumed to learn optimally under the same conditions. An analysis of the conditions within which a learner learned most, learning lasted longest, was applied most often, and learning was transferred most readily and with versatility, was highly contributive to economy of effort and the generation of productive long-term learning.

Motivation. Motivation was seen to be a condition without which learning was absent or short-term. Without adequate motivation, 

learning was likely to be slow and uneconomical. Aspects of motivation that had to be taken into account included:

1. physiological,
2. psychological,
3. sociological,
4. ego, and
5. self-fulfillment.  

The curriculum could be presumed to have increasingly less effective relevance to the learner if aspects of motivation were not part of the analysis program, and to the extent that the aspects were not clearly defined and techniques not designed to attain them. A. H. Maslow stated that in the absence of satisfaction of certain physiological needs, effective learning did not take place. There were basic physiological drives that had to be satisfied, to varying degrees, in conjunction with the relevance of what, and how, a learner was to learn, in order to produce motivation and effective learning. Hunger, thirst, air hunger, fatigue, sex, the need for sleep, degrees of warmth and cold, pain, and bowel and bladder tensions were physiological needs, among others, that had to be fulfilled.  

Psychological and social motivation were not as obvious, and, according to some educators, were of a lower priority than physiological needs. Nevertheless, these needs had to be met. Included were:

1. the need for rewards (learned),
2. the need for comfort by others,

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5Ibid.
3. the need to investigate,
4. the need to achieve, and
5. the need to be accepted by others. 6

Ego and self-fulfillment needs which had to be met included needs for contact with reality, progressive symbolization, increasing self-direction, a fair balance between success and failure, and attainment of selfhood. 7

**Appropriate design.** The third factor within the process that established the ability and the intent of the learner to learn was appropriate design of learning events according to identified learner needs. Appropriate design was predicated upon learner analysis. Until we know the characteristics of the learner's ability to learn, the degree to which he possessed study skills necessary to effective learning, and the initial characteristics of a learning event under which he learned best, we could not design relevant learning events that were free of randomness, were economical, and were effective. In order to determine those things which were relevant to the learner in his cultural framework one had to have the comprehensive information derived from learner analysis.

**SIGNIFICANCE OF THE STUDY**

Don Stewart saw two major barriers to the improvement of instruction. The first barrier was educator loyalty (automated or

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thoughtful) to the traditions of education, and the second barrier was the process of evaluation. To these barriers a third obstacle could have been added: the absence of a technique of learner analysis which would have enabled educators to design appropriate learning events with greater prescriptive predictability. Some detail on each of the three barriers served to clarify their conditions.

The Barrier of Educator Loyalty to the Traditions of Education

Teachers at all levels tended to teach the way they were taught, not the way they were taught to teach. Many teachers were not taught to teach effectively. Teacher training institutions generally subscribed to the concept of individual differences, yet few institutions provided relevant training and practice in the specifics of analysis and synthesis of identified learning differences for systematic design of learning events.

The Barrier of an Inadequate Process of Evaluation

As teachers tended to teach the way they were taught, so also did they tend to evaluate in the ways they were evaluated. Such observations and consequent applications were, after all, all that they knew how to use. Traditionally, educators attempted to evaluate learners through a process known as "curve grading" (utilizing a normative reference) to determine evaluation. Educators who had used this technique implied that learning in our schools was influenced mainly by

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8Don Stewart, Educational Malpractices (Westminster, California: Slate Services, 1971), pp. 1-100.
the laws of randomness and chance. Curve grading was based upon the concept of the normal probability curve. In turn, the curve was based upon chance, or "normal" probability.

Implications were that teachers presumed a rigor of probability when they used curve grading. The curve of normal probability was based upon a predictability of randomness of occurrences. By the use of the curve, percentages of students were consigned, before the fact of learning, to success, to failure, and to mediocrity. The older learners became, in educational survival, the more it seemed to be assumed that they represented the success end of the curve. In practice, however, these more successful learners were regrouped and the curve was reapplied to evaluate success, mediocrity, and failure. Failure, by this process, was assigned by intent and design.

The Barrier of a Lack of a Consistent and Comprehensive Technique of Learner Analysis

Robert Gagne said, "Anything which is respectably worth learning can be taught in some designable form." ⁹ A designable form was seen to be vulnerable to the degree of competence and expertise with which educators could isolate, identify, and interpret the characteristics of individual learners. Yet, there was no comprehensive technique of analysis. Based upon the uniqueness of the individual, a relevant curricular decision could be made and the appropriate learning event design could then be applied. The learner was then evaluated according

to his own growth differential and potential, and in relation to whether he accomplished a stated objective, or possessed the specified terminal behavior at levels described by predetermined criteria. This technique of evaluation was called criterion-referenced evaluation.

There were seen to be two basic kinds of education: general education and specialized education. General education included the knowledge, attitudes, and skills that all learners needed to possess in order to live successfully in a free society, continue to grow physically, mentally, ethically, aesthetically, and in all other desirable ways.

When tenets of normative evaluation and normative instruction were applied, general education suddenly became, in terms of reality, specialized education. The emphasis was not upon all learners acquiring the basics, but upon the sorting of individuals into two groups; those who had succeeded and could go on, and those who had not succeeded and thus failed, dropped-out, or were passed on without experiencing success. The likelihood of no success increased with each passing day, and resulted in a negative self-image.

With the development of a comprehensive technique of learner analysis, educators would be able to learn to design appropriate learning events based upon relevance of the curricular decision which would boost the motivation of the learner. Educators would, as a result, be much closer to producing effective and efficient education.

PROCEDURE OF THE STUDY

This study was a result of an analysis of prevalent conditions of teaching and learning. The specific study was isolated as a result
of thoughtful analysis, professional experiences, and conferences with practicing professionals of national and international renown (See Appendix).

Analysis and synthesis of the literature germane to learner analysis was incorporated. A superstructure of learner analyses composed of component elements which, together, provided a consistent and comprehensive analysis, was developed heuristically.

Means of achieving a comprehensive analysis by profiling all of the components of the superstructure were compiled from the literature to form what was essentially an innovative analysis gestalt. A summary, conclusions, implications, and recommendations for further study concluded the study.

DEFINITIONS OF TERMS

Criterion-referenced Measurement

Criterion-referenced measurement measured student progress toward explicit objectives as defined by the school enterprise. They were measures of degree of mastery of material taught and learned, sometimes in a specific time frame. The major intent was to measure individual progress and identify needed experiences to assure mastery of educational objectives.¹⁰

Curve grading

Curve grading was the process of grade assignment (evaluation) on the basis of the normal probability curve.

Framework

A framework was composed of all of the contributive bits, pieces, and items which formed the configuration of each of the components of the superstructure.\(^{11}\)

Learner Analysis

Learner analysis was the process of determining the learner's characteristics, ability to learn, the degree to which he possessed study skills necessary to effective learning, and the initial elements of a learning event under which he learned best.

Normative-referenced Measurement

Normative-referenced measurement was a measurement of learners in relation to each other rather than in an individualized manner. It was oriented to the normal probability curve and produced a situation where half the learners would always be below the median; half of the learners must always lose.\(^{12}\)

Prescription

A prescription was a set of learning experiences designed for the individual learner or a specific group of learners. The design made use of data resulting from comprehensive analysis to control elements which resulted in economy of time and effort in the learning event.\(^{13}\)

\(^{11}\)Statement by Ted C. Cobun, personal interview, January 11, 1974.

\(^{12}\)National Education Association, loc. cit.

\(^{13}\)Cobun, loc. cit.
Profiling

Profiling was a means of pictorializing the otherwise dense and complicated information of learner analysis; it provided a rational simplification of the data and expedited the process of prescription.

Superstructure of Learner Analysis

A superstructure of learner analysis was composed of all of the items which when treated individually by systematic analyses, and then combined, provided the comprehensive picture of the nature of the learner referred to in the study as a profile.\textsuperscript{14}

ORGANIZATION OF THE STUDY

The study was organized in four chapters. Chapter 1 gives a rationale and presents the significance of the study, contains a statement of the problem, notes delimitations of the study, presents assumptions germane to the study, specifies the procedure of the study, defines terms pertinent to the study, and presents the organization of the study.

Chapter 2 presents a selected review of the literature related to the topic of learner analysis.

Chapter 3 contains a superstructure composed of component elements which, presumably, will provide a consistent and comprehensive analysis of the learner.

Chapter 4 contains a summary, conclusions, implications, and recommendations for further study.

\textsuperscript{14} Ibid.
Chapter 2

REVIEW OF THE LITERATURE

HISTORICAL BACKGROUND

One of the first recorded attempts at an analysis of an individual occurred at the Jordan River in the twelfth century, B.C. According to the Old Testament Book of Judges, the soldiers of Ephraim were defeated by the armies of Gilead. The Ephraimites, in their attempt to return to their homes, found it necessary to cross the River Jordan which was controlled by the victor Gileads. The Ephraimites and Gileadites were indistinguishable in appearance and language except that the Ephraimites were unable to pronounce correctly the "sh" sound in a word. Thus, the Gileadites devised a test to analyze, and thereby detect, the enemy Ephraimites. Over 42,000 Ephraimites failed this test.¹

Henry Lindgren reported that scientist first became aware of individual differences in 1796 at the Royal Observatory at Greenwich. An incident occurred resulting in the dismissal of a laboratory assistant because of a consistent difference of eight-tenths of a second between his observations of the transit of stars and those of the Astronomer Royal. The difference was assumed to be the result of the assistant's incompetence. Twenty years later the assistant was vindicated after

¹Judges 12:4-6.

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an investigation showed that people tend to differ in reaction time and that people tend to differ in other characteristics as well.\(^2\)

With the passage of time, physiologists and psychologists became interested in measuring differences in individuals, and interest eventually led to the development of the field of measurement.

Lindgren identified three basic areas of measurement that have been the focus of analysis in recent times. He considered the basic areas of measurement to be the measurement of intelligence; the measurement of aptitude, interest, and personality; and the measurement of creativity.\(^3\)

**The Measurement of Intelligence**

In 1905, Alfred Binet of Paris developed the first widely used intelligence test. This test, the Binet-Simon Scale, was concerned with the problem of identifying children who were not benefiting from instruction because of a low intellectual capacity.\(^4\)

J. Stanley Ahmann reported that the Binet Simon test came to the attention of Henry Goddard in 1908 who promptly translated it into English and used it with American children.\(^5\) Lindgren reported that this translated version of Binet's test was based upon French children's norms.\(^6\) In 1916, Louis Terman, of Stanford University, published another revision of this test, with norms based on a sample of American children.

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\(^3\)Ibid., pp. 407-493.


\(^5\)Ibid., p. 83.

\(^6\)Lindgren, op. cit., p. 468.
children. This test, the Stanford-Binet, received widespread acceptance, and according to Lindgren, was the standard against which most intelligence tests were checked.  

Since the development of the first intelligence test in 1905, a number of other intelligence tests had been developed both for individual analysis and group analysis. Robert Thorndike and Elizabeth Hagen reported fifteen different general intelligence tests in relatively widespread usage. Each of these tests had its own strengths, weaknesses, and logistical concerns unique to that test. Therefore, the specific test to be utilized was determined by the analyzer's own criteria, and the criteria were frequently superficial or invalid.

Measurements of Aptitude, Interests, and Personality

Lindgren differentiated between aptitude tests and achievement tests, generally, but considered each to be an intelligence test. He discriminated between the tests in this manner; achievement tests presumably measured the amount of [culturally-oriented] learning that had taken place, while aptitude tests looked into the future and predicted performance standards and potentials.

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7 Lindgren, op. cit., pp. 468-470.


Achievement tests. Henry Chauncey and John Dobbin reported achievement tests as having a long history as tests of ability.\textsuperscript{10}

The Spartan youth demonstrated his athletic ability by running to the top of a mountain. The Athenian scholar engaged others in disputation. The American youth of the early 1900's demonstrated his achievements to the community by spelling, reciting, or ciphering on visitation days.

Chauncey and Dobbin reported that the point of an achievement test was to find whether the learner had learned what the teacher had tried to teach him. From the early colonial schools to the present, the most frequently used achievement tests had been those prepared by the teacher.\textsuperscript{11}

A step toward standardized testing was taken in 1845 when Mann substituted a uniform examination for analysis of learner achievement prepared by Boston school committeemen. The first application of a standardized achievement test to an educational problem came in 1897, when J. M. Rice prepared a test to determine criteria to add new subject matter to the curriculum.\textsuperscript{12}

An Introduction to the Theory of Mental and Social Measurement, published by Thorndike in 1904, was taken by many to be the beginning of modern times in achievement testing. Thorndike's work was soon followed by other pioneering attempts to measure achievement by learners: in 1908, Stone's arithmetic reasoning test; in 1909, Curtis'\textsuperscript{13}

\textsuperscript{11} Ibid.
arithmetic computation test; in 1910, Thorndike's scale for the handwriting of children; in 1911, the Ayres Handwriting Scale; in 1912, the Hillegas composition scale. The start had been made.¹³

Through the educational ferment of the scientific management movement of the 1920's there was a wholesome building of tests. There was an over-reaction to these tests when it became known that they were neither as valid, nor as reliable, as zealots had claimed.

Interests. There were several inventories of interest in current usage in schools, but the Strong Vocational Interest Blank and the Kuder Preference Record were the ancestors and prototypes of all of them. The oldest, and probably the best known of the two was the Strong Vocational Interest Blank. E. K. Strong, Jr. developed the inventory in 1927, and after many revisions the inventory was still a viable tool utilized by administrators and interpreters of this inventory.¹⁴ The Kuder Preference Record appeared in its original form in 1934.

Personality. The Sixth Mental Measurements Yearbook listed more personality tests than any other kind of test. The personality reviews occupied 400 pages out of the 1,200 pages devoted to tests of all kinds. Most of the personality tests commonly used in schools were questionnaires.¹⁵

¹³Chauncey and Dobbin, op. cit., p. 12.


Louis Karmel said that teachers and parents had been interested in determining the personality of persons as long as parents and teachers had been interested in any other analysis. What had been lacking was a method of observing and describing personality that was objective and accurate. There was not available for general use in schools any test that would describe or categorize the personality of "normal" people with the accuracy of intelligence tests, achievement tests, and interest tests.  

The Measurement of Creativity

In 1959, J. P. Guilford differentiated convergent and divergent thinking processes. Guilford pointed out that most learners were encouraged to find "right answers" to problems, and as a result convergent thinking processes were promoted. Learners did not have to think divergently to get top grades. Since creativity was more likely to be associated with divergent thinking than with convergent thinking, creativity, via divergent thinking, was not rewarded.  

J. L. Holland, in a study in 1959, found that teachers were better able to identify students showing leadership and high academic achievement than those showing a high degree of creative achievement.  

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CONTEMPORARY STATUS OF LEARNER ANALYSIS

Jack V. Edling, in a research report performed pursuant to a contract with the United States Department of Health, Education and Welfare, Office of Education, and in an attempt to describe "... what was happening around the country with reference to individualizing instruction" reported three fundamental procedures in diagnosing individual learner requirements. These were found in all combinations:

1. Criterion-referenced tests and/or normative referenced tests were employed as primary sources for obtaining data.

2. Data were given objective analysis and interpretation; that is, any score(s) had a pre-determined meaning and a specified learning experience followed, or, data were given a subjective analysis and teachers prepared a wide range of learning activities using the score(s) as only one consideration.

3. Individual teachers or teams of teachers diagnosed the learner's requirements.

Marshall Rosenberg assumed that with training and experience the classroom teacher could learn to assess individual differences of learners. The information used in making the assessment was derived primarily from three sources:

1. The nature of the errors that a learner made in the process of his day-by-day work and in his written work.

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20 Ibid., p. 23.
2. Behavioral observations of the learner as he worked on a task, interacted with the teacher, and interacted with his peers.

3. Utilizing information from standardized tests that measure individual differences as they pertained to the learning process.21

While what Rosenberg said appeared to be academically respectable, it was possible to point out that variations in teachers' abilities in learner analysis and the quantity of data necessary to be processed by a single teacher made it apparent that ultimately any analysis would be unbelievable in complexity and manageability. Further, the three points offered by Rosenberg appeared to generate a condition of too little and too late.

Marie Hackett, in her book Success in the Classroom, attempted to apply and implement Gagne's principles of learning to individualized instruction. To analyze learners, it was necessary to construct assessment items which would measure the learner's ability to perform specific intellectual skills. The assessment items had to be related to the learning hierarchy. That is, assessment items had to be written that corresponded to each skill and performance objective being taught in the hierarchy. Each item had to be devised on a pass-no pass basis. Another way of describing the problems of this type of assessment needed was to say that educators needed criterion-referenced tests for analysis.22

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Analysis was the process of obtaining and analyzing data about the learner for purposes of appropriate individualized learning requirements. In practice a PREP (Putting Research into Educational Practice) study by the United States Office of Education found three basic elements for determining learning requirements:

1. Special or subjective tests as the primary source data.
2. Objective analysis and interpretation based upon test scores or a subjective evaluation of data which is used only as one consideration in making assignments.
3. Diagnosis of learner requirements by individual teachers or by teams of teachers.

Nine patterns emerged from the basic elements:

1. Special tests objectively interpreted by one teacher.
2. Special tests subjectively interpreted by one teacher.
3. Standardized tests objectively interpreted by one teacher.
4. Standardized tests subjectively interpreted by one teacher.
5. Combination of tests and interpretative methods.
6. Special tests subjectively interpreted by a teacher team.
7. Standardized tests subjectively interpreted by a teacher team.
8. Combination of tests interpreted by a teacher team.
9. Determination of assignments on the basis of pupil interests.

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24Ibid.
The special tests, objectively interpreted by a single teacher, were the most prevalent form of diagnosis found in the PBEP study.

Madeline Hunter reported that diagnosis was no longer restricted to, or reserved for, the educationally "sick." Diagnosis had become an intrinsic part of the teaching art for all learners.\(^\text{25}\)

Rita and Kenneth Dunn said "... diagnosis was the passkey to successful individualization of instruction\(^\text{26}\) yet, the Dunns reported that each pupil was not diagnosed to determine the teaching strategies through which the learner can learn best. Also, the Dunns failed to recommend that what a learner was expected to learn be based upon an analysis of that learner. The Dunns did not recommend that the teacher and/or other members of the instructional team analyze the data from those elements.

Horton Southworth found the state of the learner to be dynamic. Thus, teachers needed refined skills to recognize traits (present and developing), synthesizing techniques, and supporting reference in developing an appraisal of the learner.\(^\text{27}\)


Gertrude Noar listed four criteria by which learners typically were diagnosed:

1. On the basis of an IQ test.
2. On the basis of marks recorded by previous teachers.
3. On the basis of scores on standardized achievement tests.
4. On the basis of chronological age.  

The faculty of one of the pioneering open-space concept schools in East Tennessee publically subscribed to the concepts of individual differences; the faculty believed that each student was unique, that each student learned in different ways and at different rates, and that the curriculum should be flexible and oriented toward the individual. The accounting for individual differences came by grouping; the learners were grouped on a quota basis, the main criteria being geographic in nature; specifically, the location of the learner's home dictated the group to which he was assigned.  

William Bechtol said that the teacher's guided observation must suffice in assessing a learner's learning style, sensory factors, tempo, problem-solving strategy, and interaction style. Specifically, to observe a learner's learning style, the teacher had the following questions at his disposal:

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29 Statement by George Johnson, principal of East Ridge Middle School, Hamblen County, Tennessee, in doctoral seminar at East Tennessee State University, May 2, 1974.

1. What does the student do when study time is announced?
2. How does he warm up for learning or starting an assignment?
3. How does the student make himself concentrate?
4. What distracts the student?
5. How does a student remember a story best?\(^{31}\)

The comment by Bechtol that "guided observation must suffice" was valid only because that prior to this study there had been no systematic, more or less comprehensive, technique valid for learner analysis. Further, his comment about guided observation was respectable to a knowledgeable and practicing profession only to the degree that teacher observations were guided by reliable quantification.

Oakland Community College of Bloomfield Hills, Michigan, under the direction of its president, Joseph E. Hill, utilizing a technique termed cognitive mapping, was seen to be on the leading edge of the wave of learner analysis. The technique of analysis was utilized by the faculty of the college to diagnose individual differences and to prescribe events of learning to generate a 90:90:90 ratio; that is 90 percent of the students who were diagnosed, and who had events of learning prescribed on the basis of design, learned 90 percent of what they set out to learn 90 percent of the time.\(^{32}\)

The mapping technique utilized by Oakland Community College was empirical in nature. As any other form of empirical mapping, the degree to which a performance test represented an effective measurement was


contingent upon both the validity of the test and the interpretative ability of the mapper.\textsuperscript{33}

To provide effective measurement, the Oakland Community College instrument considered the characteristics of the target group. Characteristics were pertinent to the background and life experiences, educational level, and language capabilities of the learner. A major criticism of this technique was a question of order in the systemic design; specifically, how did an analyzer deliberate upon the characteristics of the target except through analysis?

The goal of analysis was quantification of the identified characteristics. The methods utilized by Oakland Community College included written tests, performance tests, and the Q-sort. Mapping of cognitive styles was accomplished in a variety of ways including empirical mapping by observation in both contrived and normal situations; interviews employing questions keyed to behavior indicative of presence of elements to be measured and geared to the language and experience level of the individual being mapped; performance tests; translation of standardized tests, inventories, and scales; and the utilization of specially constructed inventories such as the Q-sort or others employing forced-pile ranking or scaling.\textsuperscript{34}

SELECTED LEARNING THEORISTS AND LEARNING THEORIES

GERMANE TO LEARNER ANALYSIS

A study of the literature indicated that the individual characteristics, and subsequent needs of the learner were still being

\textsuperscript{33}Ibid. \textsuperscript{34}Ibid.
neglected. There was little attempt to assess the capabilities of each student in relation to planned goals and objectives. Even when learning experiences were individualized they were seldom validated. Most learning events were presented to groups of learners in traditional ways. Most presentations were constant in mode, including levels of terminology, abstractions of symbols, rates of development of content, and pace of presentation. It was more than purely logical, in fact, that there had been voluminous evidence, by competent researchers, to show that for any given group of learners differentials in presentational mode were virtually mandated for predictable and successful learning. Yet, the learner's needs played a secondary role in the learning process.

The blame should not rest entirely with the teachers and administrators. Many professors of education have been responsible for the obvious lack of individualized programs of instruction based upon an analysis of the learner. Since 1958, educators had spent a great deal of time discussing the educational crisis. There had been numerous high-level conferences in which theorists discussed the problems and goals of education. These conferences did not result in a substantial improvement in the classroom.

Many theories had been proposed but none of them provided a comprehensive technique for analysis of the learner. Theories were important, but to be useful and effective in education, a theory must not only point out the goals of education, but also describe a realistic, coherent process by which the goals can be achieved. Analysis of the learner was seen to be fundamental to the process of goal-achievement.
There was a growing cadre of professionals in education who recognized the need for learner analysis and subsequent tailor-design of learning events. Some contemporary learning theorists, and theories, who supported these contentions and their theories were:

1. Jerome Bruner, and his logical structures theory.
2. R. C. Atkinson and R. M. Shiffrin, and their human memory theory.
3. B. F. Skinner, and his theory of reinforcers.
4. Robert Gagne, and his conditions of learning theory.
5. David Ausubel, and his advance organizers theory.
6. Heintz Werner, and his organismic-holistic theory.

**Bruner's Theory of Logical Structures**

Bruner distinguished a theory of instruction from a theory of learning. According to Bruner, a theory of learning was descriptive rather than prescriptive. A theory of instruction was concerned with how that which one wished to teach can best be learned with the end being improving, rather than describing, learning. A theory of instruction was prescriptive in the sense that it set forth rules concerning the most effective way of achieving knowledge or skill; a theory of instruction was criterion-referenced in that it set up criteria and stated the conditions for meeting them.\(^{35}\)

According to Bruner a theory of instruction had four major features:

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1. A theory of instruction should specify the experiences which most effectively implant in the individual a predisposition toward learning. It had been customary to focus upon cultural, motivational, and personal factors affecting the desire to learn and to undertake problem solving.

2. A theory of instruction must specify the ways in which a body of knowledge should be structured so that it can be most readily grasped by the learner. Any idea or problem or body of knowledge can be presented in a form simple enough so that any given learner can understand it in a recognizable form.36

3. A theory of instruction should specify the most effective sequences in which to present the materials being learned. The sequence in which a learner encounters materials within a domain of knowledge affects the difficulty he will have in achieving mastery. Bruner did not specify how to sequence but he did specify that there is no unique sequence for all learners, and the optimum in any particular case will depend upon a variety of factors, including past learnings, stage of development, nature of material, and individual differences.

4. A theory of instruction should specify the nature and pacing of rewards, and punishments in the process of learning and teaching.37

Atkinson's and Shiffrin's Theory of Human Memory

Atkinson and Shiffrin, in a study supported with a grant by the National Aeronautics and Space Administration, outlined a general theoretical framework in which to view human memory. The framework

36 Ibid., p. 44. 37 Ibid., pp. 39-72.
categorized the memory system along two major dimensions. One category, referred to as the memory structure, distinguished permanent structural features of the system from the second category, control processes, which could be readily modified or reprogrammed at the will of the subject.  

The memory structure, or permanent features of memory, included both the physical system and the built-in processes that were unvarying and fixed from one situation to another. Control processes, conversely, were selected, constructed, and used at the option of the subject and varied from one task to another even though, superficially, the tasks appeared similar. The use of a particular control process in a given situation depended upon the nature of the instruction, the meaningfulness of the material, and the subject's history, each of which were elements of a designed learning event.

In a computer analogy of the memory system, the computer hardware and those programs built into the system that cannot be modified by the programmer are analogous to memory structures; those programs and instructional sequences which the programmer can write at the console, and which determine the operation of the computer, are analogous to control processes. The structural components included the basic memory stores; examples of control processes are coding procedures, rehearsal operations, and search strategies.

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39 Ibid.
Skinner's Theory of Reinforcement

One of the characteristics of a designed learning event is reinforcement of desired learner behaviors. Skinner presented a theory of learning which had, as a sub-system, a theory of reinforcement. In the presentation of the theory of reinforcement, Skinner admonished William James for advising teachers to fill their students with devouring curiosity while not explaining how to do so. The same criticism could be made of Skinner. Specifically, while he offered a rationale of reinforcement of desired learner behaviors, and as he pleaded a psychologically-oriented case for reinforcement and presented a technique of reinforcement, he did not present a technique, or even a rationale, for determining the type, degree, amount, depth, pace, sequence, or symbolization of reinforcement of individual learners.  

Specifically, while Skinner acknowledged differences among individuals in sensory-motor aspects, motivational and emotional aspects, learning strategies and styles, differences in speed of learning and speed of forgetting, and stated that "failure to provide for differences among students is perhaps the greatest single source of inefficiency in education," he did not offer a solution to the problem of accounting for individual differences. In fact, he stated "a program designed for the slowest student in the school system will probably not seriously delay the fast student . . . ."  

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41 Ibid., p. 56.
Skinner stated that analysis of the individual can be applied to teaching. As a result of the analysis, the teacher can choose topographies of response and stimuli suitable to the student. The teacher can discover effective reinforcers, positive or negative.

Cagene's Conditions of Learning Theory

Gagne had identified eight varieties of learning:

Type 1: signal learning. This was the classical conditioned response of Pavlov. The learner made a general, diffuse response to a signal. It has been customary to represent this type of learning in the following manner: S___R.

The child's total environment was thought by Jenson to condition the child to like, or dislike, the school environment. Since likes and dislikes can be acquired through signal learning, and since this learning has such fundamental importance upon the future learning of the learner, it cannot be ignored. There is much evidence to indicate that there are marked individual differences in the rapidity with which people acquire signal-response connections.

Type 2: stimulus-response learning. Thorndike, Skinner, and Kimble set forth theories in regard to stimulus-response learning. According to these theories, the learner acquires a precise response to a precise stimulus. This type of learning involved making very...
precise movements of the skeletal muscles in response to specific stimuli. It was distinguishable from signal learning in terms of its outcome. It had been customary to represent stimulus-response in learning the following manner: \( S \rightarrow R \), the arrow representing a discriminating process.  

Since the young child already possessed a large repertoire of \( S \rightarrow R \) when he first entered school, and since these were \( S \rightarrow R \) connections fundamental to the learning process, it was mandatory, for appropriate learning event design, that teachers assess the degree to which any learner had acquired \( S \rightarrow R \) skills.

**Type 3: chaining.** Skinner and Gilbert, among others, described the chaining of two or more \( S \rightarrow R \) connections. Language was filled with chains of verbal sequences. Motor chains had to be learned at various stages of development; for example, operating a scientific instrument, such as a microscope, required motor chaining. As with Type 2 learning, a diagnosis of chaining was mandatory for appropriate learning event design.

**Type 4: verbal association.** Verbal association was the learning of chains that were verbal as compared to motor. These chains were learned as formulas or as expressions in common language usage. A determinant of degree of difficulty a learner encountered in verbal association was the number of codes, or associations, the learner had available to him.

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\(^{47}\)Ibid., pp. 38-40.  
\(^{48}\)Ibid., p. 63.  
\(^{49}\)Ibid.
Type 5: discrimination learning. Since connections tended to interfere with each other's retention, the learner needed to acquire a set of discriminations to distinguish the properties of a vast number of objects, concepts, and states of being.

Type 6: concept learning. Obviously a pervasive type of learning, concept learning was either concrete or defined. The term referred to the acquisition of classifications of objects, events, or properties.  

Type 7: rule learning. A rule was a chain of two or more concepts. A rule functioned to control behavior that was rule-governed. Examples included operations in which the learner dealt with objects, numbers, words, and abstract concepts.

Type 8: problem solving. Two or more rules previously acquired were combined to produce a capability that was a higher-order cognition. This higher-order process was referred to as thinking. Individual differences that affected the problem solving process included:

1. The store of rules the learner had available.
2. The ease of recall of relevant rules.
3. Differences in concept distinctiveness among individuals.
4. The fluency of hypotheses may distinguish one individual from another on the basis of the facility with which rules were combined into hypotheses.  

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50 Ibid., p. 64.
51 Ibid.
Specific advantages of Gagne's model of learning were:

1. The teacher could identify the prerequisites that were necessary in order that a particular level of learning could occur.
2. The teacher could decide, beforehand, the level of complexity of learning.
3. Attention was given to each step in the process of getting to the particular level of learning that the teacher desired as her instructional outcome.
4. It allowed the teacher to develop some common instructional goals for all students.

Werner's Vitalistic Theory

Werner's vitalistic theory contained three basic positions: (1) an organizing factor for development, (2) a tolerance for basic discontinuities in development which were unpredictable, and (3) the view that the whole is greater than the sum of its parts. To elucidate each of these positions should serve to clarify their conditions.

1. An organizing factor for development in man was the factor of knowledge. Werner contended that each individual strives to achieve knowledge of himself and his environment in order to achieve an integrative view of a perception of reality.

2. Werner's vitalistic theory was dependent upon discontinuities in development. In the individual's attempt to achieve a perception of reality he invariably experienced crisis situations. During these crises situations, the growth patterns were no longer even but became discontinuous and unpredictable.
3. Since this emergent reality was unpredictable we can assume that this whole is greater than the sum of its parts.  

Ausubel's Advance Organizers Theory

David Ausubel reported that a function of education is to bridge the gap between what the learner knows and what he needs to know before he can accomplish the task at hand. In order for a facilitator of learning to do this the cognitive structure of the learner must be manipulated so as to enhance proactive facilitation. This manipulation involves the use of appropriately relevant and inclusive introductory materials (organizers). These organizers are present in advance of the learning material and are presented at a higher level of abstraction. They emphasize the salient points of the material by omitting less important information, and by repetition and simplification.

The function of organizers, as reported by Ausubel, was to "provide ideational scaffolding for the stable incorporation and retention of the more detailed and differentiated material that follows in the learning passage . . . ."  

Regardless of how well organized the learning material was, it seemed reasonable that learning could be enhanced, effectively and efficiently, by the use of advance organizers at the appropriate levels of inclusiveness. But, since the advance organizers themselves must be


54 Ibid., p. 149.
learnable, and since existing subsumers in the learner's cognitive structure typically lacks particularized relevance and inclusiveness, effective and efficient utilization of advance organizers were as dependent upon learner analysis as any task of learning was at any time.

SUMMARY

The descriptive term, learner analysis, was noticeably absent from the literature. Yet, the concept of analysis of learners had been present since the earliest records of educational development. The review of literature showed that analysis of individual learners has been an evolutionary process not unlike that described by Charles Darwin. Until now, no comprehensive technique of analysis of learners has been developed to support a prescription of designed learning events in a systemically designed program of instruction that lends itself to experimental testing and validation. Until now, there has been no comprehensive technique which supports validation of the modes of instruction relevant to the prescription, and subsequently, validation of an entire instructional program.
Chapter 3

THE SYNTHESIS OF A TECHNIQUE OF COMPREHENSIVE ANALYSIS OF INDIVIDUAL LEARNERS

INTRODUCTION

At the level of long-term learning, disregard of the process and product of learner analysis in the design of the learning event was seen to be sheer audacity. It was horrendous, but true, that there was no comprehensive, valid, convenient, way to analyze learners. There were pieces and parts, here and there, now and then, but there was no coherent technique that was adequate for prescription and design of learning events.

When it existed at all, the analysis of learners was made on several important, but rather obvious characteristics. The intelligence quotient (I.Q.) and, consequently, something called mental age (M.A.) and chronological age (C.A.) were computed. I.Q. had long been a controversial matter. Intervening variables have modified I.Q.'s to make them unpredictable and by no means static over periods of time.

It was common practice to test the ability of learners to see and to hear. In the area of vision, visual span, peripheral vision, and eye-movements were sometimes, measured. These were critical determinants for learning event design, but were not consistently implemented.

It was, also, common practice to test the ability of learners to read with speed and comprehension at a variety of levels. This kind
of testing was implemented to a somewhat greater degree of consistency. Findings were not consistently used to influence the design of learning events.

The ability to hear was sometimes tested. But, the ability to listen was not usually measured, and seldom, if ever, was taught with real purposeful intent.

Achievement testing was practiced by many schools. Special attention was usually given to characteristics such as the ability to perceive spatial relationships and the size of informational bits that could be spanned.

Educators could analyze learner characteristics presuming that their insights included a purposeful and comprehensive gestalt. When learner characteristics were identified which required analysis, educators could design techniques, if they did not already exist. As a consistent practice, however, educators failed to use appropriate analyses techniques (because the techniques existed only superficially, if at all). No data were produced, consequently, in a form which could implement the diagnosis of learner characteristics and the implied prescription of design for predictably relevant and accountable learning events.

This study was limited to identifying, isolating, and interpreting learning components and their elements, and to designing a technique of profiling the results of analysis. The technique of profiling the results of analysis contributed to the diagnostic gestalt of the analysis and its prescriptive application for learning event design.
COMPONENTS OF ANALYSIS

To aid in the development of appropriate learning event design
the following determinations about the learner should be made:

Sensory-Motor

1. The ability to hear clearly (Auditory).
2. The ability to see clearly all significant details (Visual).
3. The ability to receive and interpret appropriate aromas
   (Olfactory).
4. The ability to receive and interpret appropriate tastes
   (Savory).
5. The ability to feel and interpret appropriate tactile
   stimuli (Tactile).
6. The ability to detect and interpret for appropriate
   applications, degrees of bone-joint angulations, change of angulations,
   muscle stretches, and tendon tensions (Proprioceptive).
7. The ability to perform and develop a relevant set of motor
   skills (Kinesthetic).

Symbol Manipulation

8. The ability to read with optimal speed and comprehension at
   pertinent levels (Reading).
9. The ability to write efficiently and expressively at
   pertinent levels about pertinent matters (Writing).
10. The ability to use learning techniques with efficiency and
    effectiveness (Cognitive Learning Skills).
11. The ability to compute relevant problems involving
    quantities which can be symbolized numerically (Computation).
Spatial Relationships

12. The ability to construct a diagram displaying the relationship of components making up three dimensional whole objects (Diagrammatic Planning).

13. The ability to interpret diagrams which represent three-dimensional whole objects made up of components (Diagrammatic Interpretation).

14. The ability to predict the structural form(s) of three-dimensional whole objects, made up of components, on any of its aspects which are normally invisible in a two-dimensional view (Structure Analysis).

Oral Communication Skills

15. The ability to speak efficiently and expressively at pertinent levels about pertinent matters (Speaking).

16. The ability to listen skillfully (Listening).

Personal Identity

17. The ability to interpret one's relationships to environment and to revise and refine either, or both, optimally (Synnoetics).

18. The identification and interpretation of the influencing ethnic concepts and interactive behavior of others, as they relate to one's own (Ethnic).

Cultural Determinants

19. The identification and interpretation of the family organization and practices of others, as they relate to one's own (Family).
20. The identification and interpretation of the influencing religious concepts and practices of others, as they relate to one's own (Religion).

21. The identification and interpretation of the influencing peers of others, and the relationships of those peer members to one's own peer group (Peer Influences).

22. The identification and interpretation of functional patterns of mores, as they influence the behavior of others, and as they relate to one's own (Mores).

23. The identification and interpretation of agencies which influence the learner (Social Agency Influences).

24. The identification and interpretation of the influencing political concepts and practices of others, as they relate to one's own (Politics).

Interactional-Transactional Patterns

25. The ability to receive, interpret, and use non-verbal language intended to create effects (Kinesics).

26. The ability to judge and respect, perhaps tactfully penetrate, the critical physical and social distance fields of others, and to extend one's personal fields to optimal limits (Proxemics).

27. The ability to maintain an interaction of influence with a variety of others (Transactionals).

Affective

28. The ability to receive, interpret, and commit to a describable set of values, or moral principles, obligations, or duties (Ethics).
29. The ability to receive, interpret, and identify with the feelings, ideas, emotions, and purposes of others (Empathic).

30. The ability to receive and interpret situations, products, and ideas in terms of the beauty or pureness of their character (Esthetic).

31. The ability to observe, interpret, or perform a staged behavior, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others (Histrionics).

The thirty-one components of the superstructure were determined as a result of observations made while an educator at the junior high school, high school, and university level; as a result of a review of the literature germane to analysis of individual learners; as a result of study in instructional communication which is consistent with learning system design; as a result of in-depth conferences with practicing professionals of national and international renown; and, as a result of exhaustive conferences with the chairman of the dissertation committee.

The superstructure of learner analysis is composed of the thirty-one components of analysis. Each of the components is composed of elements relevant to that specific component. When each of the elements and components are treated individually and then combined on the superstructure, the result is a profile which provides a comprehensive picture of the nature of the learner.

Use of the profile will enable the learner to be pictured on a continuum as possessing a skill, cognition, and/or affect to a degree that is less than standard, standard, or greater than standard. Criteria for each of these degrees is presented in the text.
If the designer of the learning event needs the information of a more comprehensive analysis, he can utilize the profile of any, or all, of the components. Each of the components contain a profile of the elements relevant to that component, and, the learner is pictured on a continuum as possessing a skill, cognition, and/or affect to a degree that is less than standard, standard, or greater than standard. Criteria for each of these degrees is presented in the text.

Figure 1 illustrates a superstructure of learner analysis composed of the thirty-one components. Figures 2 through 33 illustrate the profile for each of the components of the superstructure.

AUDITORY COMPONENT, CRITERIA, AND FRAMEWORK

Normally and physiologically, learners utilize the five basic senses in the process of learning. Learning events do not take into account the specific ability of any learner to use any of his senses, in particular, when the physiological senses of the learner have not been measured. For example, a learner may hear to a degree that is less than standard, to a standard degree, or to a degree greater than standard. If the learning event does not allow the learner to function optimally within the limits of his hearing ability, then effective and efficient learning is less likely to take place.

Auditory Perception

Auditory perception in a function of acoustic stimulation by vibrations of a frequency range between 30 Hz (Hertz) and 15,000 dB (decibels) and 120 dB. Frequency and intensity discrimination varies widely as a function of the frequency and intensity of the stimulus tone.
| Category                        | Auditory                          | Visual                            | Olfactory                        | Savory                           | Tactile                          | Proprioceptive                   | Kinesthetic                      | Reading                          | Writing                          | Cognitive Learning Skills         | Computation                       | Diagrammatic Planning            | Diagrammatic Interpretation       | Structure Analysis               | Spelling                         | Listening                        | Synnoetics                       | Ethnic                           | Family                           | Religion                         | Peer Influences                  | Mores                            | Social Agency Influences          | Politics                         | Interactional Transactional Patterns | Kinesics                        | Proxemics                        | Transactionals                   | Ethic                            | Empathic                         | Esthetic                         | Histrionic                       | Figure 1                         | Superstructure of Learner Analysis |
Auditory Threshold

The weakest signal which gives rise to a sensation which is just barely detectable as sound is called the auditory threshold. The amplitude of the signal at threshold varies as a function of the frequency of the signal. Figure 2 illustrates amplitude variance as a function of the frequency of a signal.

Decibels

Decibels refer to the sound pressure level above a reference level. The standard reference level for sound pressure is 0.00002 newtons/m². Decibels are symbolized as dB.

Hertz

Sound frequency is measured in Hertz, symbolized as Hz. Frequency refers to the quantity and speed of Hertzian waves which impact on a receiver. Hertzian waves are composed of electrical impulses at the radio segment of the spectrum of light.

Amplitude

Amplitude refers to the loudness of a stimulus. The minimum difference in level between two tones of the same frequency that can be discriminated is called the intensity difference. The size of this difference is a function of both the frequency and the sensation level.

Pitch

The audible frequency range extends from approximately 40 to 1,500 Hz. Each frequency gives rise to a sensation of a certain pitch. Pitch is not only a function of the frequency of the stimulus tone, but also of its sound pressure level. For tones above 2,000 Hz the pitch
Figure 2
Amplitude Variance
increases with intensity, while for those below 2,000 Hz it decreases in intensity. The discrimination of differences in pitch between two tones is mainly a function of the frequency of the two tones.

Above a 5 dB sensation level all tones have a definite pitch; for example, the minimal pitch of a tone may be given in musical notation (CDEFGAB). Most individuals can name a given tone when given a reference tone, but cannot name a tone when asked to without a reference tone.1

Figure 3 illustrates the framework of the auditory component. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner, related to the auditory component.

VISUAL COMPONENT, CRITERIA, AND FRAMEWORK

Normally and physiologically learners utilize the five basic senses in the process of learning. Learning events that are not appropriately designed do not account for the specific ability of any learner to use any of his senses, except by chance. For example, a learner may see to a degree that is less than standard, to a standard degree, or to a degree greater than standard. If the learning event does not allow the learner to function optimally within the limits of his seeing ability, then effective and efficient learning is less likely to take place.

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**Figure 3**

*Framework of the Auditory Component of the Superstructure*
Visual Acuity

Visual acuity means literally "sharpness of vision." Acuity can be defined in terms of the smallest object that can be seen at a standard distance. In optical measurement the usual standard distance is 20 feet, the object is 20 centimeters in height, and the illumination is 100 foot candles. For non-readers, the standard is the minimum distance at which two parallel lines are definitely separable.²

Periphery

The periphery of a learner's vision is the distance from the center of focus at which significant detail or motion can be perceived.

Night/Day Blindness

In night blindness vision is defective in dim light while day and color vision is normal. Day blindness is characterized by defect in color senses.³

Color Vision

The Young-von Helmhotlz theory of color vision postulates three types of receptors—each sensitive to one of the primary colors. Color sensation results from stimulation of these elements at different relative intensities.⁴

³Silbriges, op. cit., p. 23.
⁴Ibid.
Color Solid

The three qualities of color (hue, saturation, and brightness), and the relationship between them, can be shown in a three dimensional color solid which has one dimension representing hue, a second for saturation, and a third for brightness. All combinations lie within its boundaries.

Hue. The linear distance from a point on one wave of light to the corresponding point on the next wave length determines hue. The normal visible spectrum ranges from violet to red.

Saturation. Saturation is the purity of the wave-length of reflectance involved.

Brightness. The brightness of a color is determined by the intensity of the light in proportion to the foot-Lamberts of reflectance of the surface which holds the color.\(^5\)

Color Blindness

Color blindness is a result of defective, or absent, cones in the retina of the eye.

Total color blindness. Total color blindness is a result of total absence of cones in the retina, and this condition is relatively rare.

Dichromatic color blindness. Dichromatic color blindness is a condition of normal vision for two primary colors, usually yellow and

\(^5\)Ruch, loc. cit.
blue, and a weakness, or blindness, in distinguishing red or green or both, in varying degrees.

The standard for color blindness is determined by the pseudoisochromatic plates. 6

**Visual Defects**

Visual defects are determined by optometric measurement. Some of the common visual defects that designers of learning events need to take into account include:

- **Myopia.** Myopia is a condition of near-sightedness.

- **Hyperopia.** Hyperopia is a condition of far-sightedness.

- **Astigmatism.** Astigmatism is a condition of clear vision, in one dimension, and fuzzy vision in another dimension.

- **Diplopia.** Diplopia is a condition of double vision.

- **Scotoma.** Scotoma is a condition of having a blind spot which can be either permanent or temporary.

- **Presbyopia.** Presbyopia is a condition of hardening of lens that usually accompanies the aging process. 7

Figure 4 illustrates the framework of the visual component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

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6 Ibid. 7 Ibid.
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<td>Day Blindness</td>
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<td><strong>Color Vision</strong></td>
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<td>Astigmatism</td>
<td>Diplopia</td>
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<td>Scotoma</td>
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**Figure 4**

Framework of the Visual Component of the Superstructure
The conditions under which the olfactory senses are a part of learning are specific to learning events which have aromas as part of their characteristics. It follows, nevertheless, that the importance of olfactory measurement is high when olfactory responses and/or analyses are called for by the learning event. Learning events do not take into account the specific ability of any learner to use his olfactory senses, in particular, when the olfactory sense has not been measured. For example, a learner may smell to a degree that is less than standard, to a standard degree, or to a degree greater than standard. If the learning event does not allow the learner to function optimally within the limits of his smelling ability, then effective and efficient learning is less likely to take place.

Identification

The literature revealed confusion in regard to a classification of odors. A traditional system listed four classifications: acid, burnt, fragrant, and caproic. These classes of odors have implications for learning event design in that learners will vary discretely in their ability to name, match, and categorize odors. For maximum learning effectiveness and efficiency, each learner should be able to name, match, and/or categorize the four classes of odors.

Sensitivity

Some odors act as anesthetics for some olfactory receptors. This gives rise to the phenomenon of even the foulest stench, or the most permeating aromas, becoming less noticeable.
Recovery

Recovery refers to the amount of time necessary for the olfactory receptors to regain lost sensitivity as a result of exposure to anesthetic odors. One hour is a standard time taken by most people in regaining lost sensitivity.

Low Ability

When a learner is seldom successful in identifying a standard set of odors through naming, matching, or categorizing, or in sensitivity to specific odors, and/or when he requires longer than standard recovery time after intentional anesthesia, he can be said to be of low ability. Low ability is recorded as less than standard ability.

Standard Ability

When a learner can name, categorizing, or match a standard set of odors, and/or when he meets the standard recovery time for sensitivity after intentional anesthesia, he can be considered to have standard ability.

High Ability

When a learner is successful in identifying specific odors through naming, matching, or categorizing a standard set of odors, and/or when he requires less than standard recovery time after intentional anesthesia, he can be considered to be of high ability. High ability is recorded as greater than standard ability.

Figure 5 illustrates the framework of the olfactory component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will
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**Figure 5**

Framework of the Olfactory Component of the Superstructure
facilitate the design of a learning event based upon the needs and nature of the learner.

SAVORY COMPONENT, CRITERIA, AND FRAMEWORK

The conditions under which the savory senses are a part of learning are specific to learning events which have tastes as a part of their characteristics. It follows, nevertheless, that the importance of savory measurement is high when savory responses and/or analyses are called for by the learning event. Learning events do not take into account the specific ability of any learner to use his savory senses in particular when the savory sense has not been measured. For example, a learner may taste to a degree that is less than standard, to a standard degree, or to a degree greater than standard. If the learning event does not allow the learner to function optimally within the limits of his tasting ability, then effective and efficient learning is less likely to take place.

Identification

For maximum learning effectiveness and efficiency, each learner should be able to name, match, and/or categorize four classes of taste.

Sourness. A taste that has only acids as activators will be sour. Specifically, the more hydrogen ions a solution has, the sourer the taste will be.

Sweetness. Many compounds of different chemical compositions activate a sweet taste. The most common sweetness activators, however, are sugars. Some lead salts, saccharine, cyclamates, and d-asparagine are sweet taste activators.
Saltiness. Sodium chloride (table salt) has the purest salty taste and is unique in this respect because most soluble inorganic compounds have several tastes in various combinations.

Bitterness. Many chemically different compounds have a bitter taste. The more bitter tastes are alkaloids like caffeine, nicotine, quinine, and brucine.

There are six factors that affect taste; specifically, adaptation, fatigue, concentration, temperature, tongue area, and solutions sometimes have more than one taste. Odor and taste are senses which were not so fully understood as were the senses of hearing and vision. They were, therefore, more difficult to evaluate. In recent years, highly sophisticated instruments and chromatographic techniques have been developed which promise to make future evaluations of odor and taste more accurate. 8

Low Ability

When a learner is seldom successful in identifying a standard set of tastes through naming, matching, or categorizing, or in sensitivity to specific tastes, and/or when he requires longer than standard recovery time after intentional anesthesia, he can be said to be of low ability. Low ability is recorded as less than standard ability.

Standard Ability

When a learner can name, categorize, or match a standard set of tastes, and/or when he meets the standard recovery time for

sensitivity after intentional anesthesis, he can be considered to have standard ability.

High Ability

When a learner is successful in identifying specific tastes through naming, matching, or categorizing a standard set of tastes, and/or when he requires less than standard recovery time after intentional anesthesis, he can be considered to be of high ability. High ability is recorded as greater than standard ability.

Figure 6 illustrates the framework of the savory component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

TACTILE COMPONENT, CRITERIA, AND FRAMEWORK

The conditions under which the tactile senses are a part of learning are specific to learning events which have touch as a part of their characteristics. It follows, nevertheless, that the importance of tactile measurement is high when tactile responses and/or analyses are called for by the learning event. Learning events do not take into account the specific ability of any learner to use his tactile senses in particular when the tactile sense has not been measured. For example, a learner may touch to a degree that is less than standard, to a standard degree, or to a degree greater than standard. If the learning event does not allow the learner to function optimally within the limits of his touching ability, then effective and efficient learning is less likely to take place.
### Figure 6

Framework of the Savory Component of the Superstructure
Discrimination

Tactile discrimination is the ability to analyze the characteristics of solid or liquid matter within the limits of the physical properties of the matter.

Rough

An uneven textural condition within which component particles can be definitively perceived.

Irregular

A textural condition of matter within which component particles can be detected but cannot be definitively perceived.

Smooth

A textural condition of matter within which component particles can neither be detected nor definitively perceived.

Slippery

A textural condition of matter which permits, more or less free, sliding.

Tacky

A textural condition of matter which makes it adhesive to the touch.

Hot

The condition of presence of heat within uncomfortable or intolerable ranges.

Warm

The condition of presence of heat within tolerable ranges.
Cold

The condition of absence of heat within uncomfortable or intolerable ranges.

Rigid

A condition of matter which makes it unyielding to touch.

Flexible

A condition of matter which allows it to yield to the touch, but, which allows the matter to return to its original shape.

Malleable

A condition of matter which allows it to yield to the touch and does not allow it to return to its original shape.

Mobile

A condition of a substance which allows it to be moved to new positions without return.

Oscillatory

A condition of a substance which allows it to be moved to new positions but return to its original position when the force is removed.

Static

A condition of a substance which denies movement to new positions.

High Viscosity

A condition of a substance, usually a liquid, in which resistance to flow is distinctly perceptible.
Low Viscosity
A condition of a substance in which resistance to flow is not perceivable.

Wet
A condition in which a substance is covered, saturated, or consists of, a liquid.

Moist
A condition in which a substance contains, or is covered with, a discernable liquid.

Dry
A condition in which a substance is not covered, not saturated, nor does it consist of a discernable liquid.

Low Ability
When a learner is seldom successful in identifying a standard set of tactile stimuli through naming, matching, or categorizing, he can be said to be of low ability. Low ability is recorded as less than standard ability.

Standard Ability
When a learner can name, categorize, or match a standard set of tactile stimuli, he can be considered to have standard ability.

High Ability
When a learner is successful in identifying specific tactile stimuli through naming, matching, or categorizing a standard set of tactile stimuli, and/or when he requires less than standard recovery
time after intentional anesthesia, he can be considered to be of high ability. High ability is recorded as greater than standard ability.

Figure 7 illustrates the framework of the tactile component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

PROPRIOCEPTIVE COMPONENT, CRITERIA, AND FRAMEWORK

Not only do learners react to stimuli originated outside the body and perceive meaning from these stimuli, but a learner also reacts to stimuli arising within his body. The ability to detect and interpret degrees of bone-joint angulation, change of angulations, muscle stretches, and tendon tensions contribute to the process of learning when learning events are contrived and based upon the degree of ability the learner possesses. The proprioceptive sense applies most frequently to psychomotor learnings. It may, however, influence, to more than minimal degrees, affective learning, and is even conceivable to be a significant part of cognitive learning.

Muscle Spindle

A muscle spindle is a nerve ending in a muscle which detects the degree of extension beyond ordinary extremes.

Kinesthetics

Kinesthetics is the degree of angulation of the joints and the rate of change of angulation of the joints.
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Figure 7

Framework of the Tactile Component of the Superstructure
Golgi Tendon

The golgi body in a tendon is a nerve ending which detects the degree of tension applied to a muscle in either contraction or extension applied to a muscle by means of the degree of contraction or extension.

Less than Standard

When the learner seldom displays the ability to detect degrees of extension of muscles, he can be said to have less than standard ability.

Standard

When the learner intermittently displays the ability to detect degrees of extension of muscles, he can be said to be of standard ability.

Greater than Standard

When the learner consistently displays the ability to detect degrees of extension of muscles, he can be said to have greater than standard ability.

Figure 8 illustrates the framework of the proprioceptive component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

KINESTHETIC COMPONENT, CRITERIA, AND FRAMEWORK

The kinesthetic sense is mediated by end organs located in muscles, tendons, and joints, and stimulated by body movements. The
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Figure 8
Framework of the Proprioceptive Component of the Superstructure
body derives a sensory experience from this sense, and thereby, perceives meanings through stimuli. To be appropriately designed a learning event must take into account differing kinesthetic perception abilities of individual learners. Kinesthetic analyses are particularly important to psychomotor activities of all kinds. They may have influences on affective learning associated with psychomotor events. They may have influence on scope and depth of certain cognitive learning events, such as, dance appreciations, art appreciations, and many instances of industrial education.

**Versatility**

Kinesthetic versatility consists of the ability to interpret the contraction or extension of single muscle movements. In the performance category, kinesthetic versatility consists of the ability to execute contraction or extension of single muscles. In the creative category, kinesthetic versatility consists of the ability to use contraction and extension of single muscles to perform functions in innovative ways.

**Accuracy**

Kinesthetic accuracy is the ability to interpret or perform the contraction, or extension, of single muscles in the execution of an act.

**Beauty**

Kinesthetic beauty is the ability to contract or extend a single muscle or a necessary combination of muscles with smoothness within limitations of time and space.
Less than Standard

When the learner seldom displays the ability to interpret and/or perform specific muscle movements, he can be said to have less than standard ability.

Standard

When the learner displays the ability to interpret specific muscle movements at some times and not at other times, he can be said to have standard ability.

Greater than Standard

When the learner displays the ability to interpret and/or perform specific muscle movements on a continuous basis, he can be said to have greater than standard ability.

Figure 9 illustrates the framework of the kinesthetic component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

READING COMPONENT, CRITERIA, AND FRAMEWORK

The act of reading is a component of the process of learning for most learners. Too often, the learner is expected to read at a given level (and thereby perceive meaning through the symbols of reading) without regard to his current reading ability. Consequently, the learner may be asked to read at a level above, or below, his ability.
Figure 9

Framework of the Kinesthetic Component of the Superstructure
Reading at a level which is other than appropriate for a given learner more often results in the generation of frustration than in the desirable generation of motivation and enthusiasm.

An appropriately designed learning event will incorporate the specific reading level of the learner for that event, and will, thereby, boost his motivation and enthusiasm. For purposes of contemporary education and for effective participation in most of life's activities reading is a primary input of information, recreation, and perhaps even therapy. It is important that reading abilities be analyzed and repaired or refined as appropriate.

**Speed**

The rate, usually stated in words per minute, at which a learner reads, is usually referred to as his speed.

**Comprehension**

The rate of comprehension is shown by the learner's ability to summarize, or outline, what the author said—to get the main ideas of a passage and the subordinate details, to distinguish essential details from those that are incidental or unimportant. Comprehension also requires ability to see relationships such as comparisons, contrasts, and time sequences; to read between the lines, and to sense the author's tone, mood, or intention in writing the material; and to evaluate what the writer had to say. In essence, comprehension consists of the learner's ability to treat any body of content by recall and demonstrating relationships between parts.
Sophistication

The reading sophistication of a learner is denoted by his ability to interpret terms and symbols, and his ability to synthesize terms and symbols on a scale consisting of a continuum between the concrete and the abstract.

Filtration Competency

The ability of the learner to separate the relevant from the total task constitutes his filtration competency. This necessitates a determination of the learner's ability to filter concrete information, concrete ideas, and concepts.

Iconic Representations

Iconic representations are made up of charts, diagrams, maps, concrete pictorial representations, and abstract pictorial representations. The reading competence in iconic representations is implemented by the visual literacy of the learner. His competence is dependent on his ability to scan the visual and make sense of its various parts.

Independent Reading Level

This is the level at which the learner reads effectively on his own without extrinsic assistance or intervention. This level is recorded on the profile as standard.

---

Instructional Reading Level

This is the highest level at which the learner reads under teacher supervision, without signs of difficulty. This level is recorded on the profile as greater than standard.

Frustration Reading Level

This is the level at which the learner is blocked by inadequate phonic skills, inadequate visual literacy, lack of information, or the inability to think about what he is trying to read. This level is recorded on the profile as less than standard.

Figure 10 illustrates the framework of the reading component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

WRITING COMPONENT, CRITERIA, AND FRAMEWORK

Effective learning incorporates the process of communication. Communication dictates an interaction between, and among, people. Interaction includes writing as well as other communicative acts. Appropriately designed learning events take into account the fact that learners have different degrees of skill in writing and enables the learner to utilize his specific degree of skill optimally.

\[10\] Ibid.

\[11\] Ibid.
Figure 10

Framework of the Reading Component of the Superstructure
Legibility

Legibility is the condition of being capable of being read or deciphered plainly and easily. It refers to the ability of the writer to write in some style, printing or cursive. It does not refer to his composition or communication abilities.

Vocabulary

A learner's vocabulary consists of a stock of words he is capable of employing semantically, with accuracy, in his writing.

Semantic Interpretation

Semantic interpretation refers to the ability of a learner to write in such a manner that the reader can infer intended meaning from his written language.

Format Versatility

The format versatility utilized by a learner in his writing refers to the general plan of organization and the degree to which he can change, or modify, this general plan of organization. Elements include spelling accuracy, sentence structure, paragraph coherence, and a simple:complex ratio in length of sentences, use of polysyllable words, semantic necessity, and esthetic literalness.

Coherence of Presentation

The coherence of presentation refers to the systematic connection of legibility, vocabulary, semantic interpretation, and format versatility in logical presentation. Coherence of the transmission of intended meanings is at the center of a coherent presentation.
Low Ability

When a learner seldom displays the ability to write efficiently and expressively at pertinent levels about pertinent matters he can be considered to have low ability. It is recorded on the profile as less than standard.

Moderate Ability

When a learner tends toward the mean in writing efficiently and expressively at pertinent levels about pertinent matters he can be considered to have moderate ability. It is recorded on the profile as standard.

High Ability

When a learner displays the ability to write efficiently and expressively at pertinent levels about pertinent matters on a continuous basis he can be considered to have high ability. It is recorded on the profile as greater than standard.

Figure 11 illustrates the framework of the writing component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

COGNITIVE LEARNING SKILLS COMPONENT, CRITERIA, AND FRAMEWORK

Learning skills and strategies are held by learners to varying degrees which affect the effectiveness and efficiency of learning. Included are note taking, test taking, problem solving, group
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**Figure 11**

Framework of the Writing Component of the Superstructure
participation, and library skills and strategies. Events of learning not based upon the degree of skill held by any learner will make any learning that takes place accidental, rather than by design, in nature.

Low Ability

A learner can be considered to have low ability when he lacks relevant learning skills, and/or when he is seldom successful in his attempt to utilize a specific learning skill. Low ability is recorded on the profile as less than standard.

Standard Ability

A learner can be considered to have standard ability when he is successful in the use of a pertinent range of learning skills, as they apply to a specific learning event. This level of ability is recorded on the profile as standard ability.

High Ability

A learner can be considered to have high ability when he is successful in his attempt to utilize a relevant set of specific learning skills on a continuous basis.

Figure 12 illustrates the framework of the cognitive learning skills component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

COMPUTATION COMPONENT, CRITERIA, AND FRAMEWORK

Computation is a skill which is important to many learning acts, especially to problem-solving involving quantity. Computation
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Figure 12
Framework of the Cognitive Learning Skills
Component of the Superstructure
ability is a part of the general education curriculum of the philosophies endorsed by most schools. It is important to analyze computational ability to assure that learners have entry skills at whatever level they are needed.

Computation

Computation is the act of computing a sum, difference, product, or quotient of two or more numbers.

Addition

Addition is the mathematical operation of combining numbers so as to obtain a sum.

Subtraction

Subtraction is the mathematical operation of deducting one number from another so as to obtain a difference.

Multiplication

Multiplication is the mathematical operation that is an abbreviated process of adding a number to itself a specified number of times so as to obtain a product.

Division

Division is the mathematical operation of finding how many times one number is contained in another so as to obtain a quotient.

Low Ability

A learner can be considered to have low ability when he is seldom effective in obtaining a sum, difference, product, or quotient
from two or more numbers. The level is recorded on the profile as less than standard.

**Standard Ability**

A learner can be considered to have standard ability when he is effective in obtaining a sum, difference, product, or quotient from two or more numbers at levels appropriate to his mental and chronological age, and to his learning maturity. It is recorded on the profile as standard ability.

**High Ability**

A learner can be considered to have high ability when he is effective in obtaining a sum, difference, product, or quotient from two or more numbers on a continuous basis at levels higher than standard. It is recorded on the profile as greater than standard ability.

Figure 13 illustrates the framework of the computation component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

**DIAGRAMMATIC PLANNING COMPONENT, CRITERIA, AND FRAMEWORK**

Symbols have meanings when the meanings are perceived by the learner. These meanings are perceived to varying degrees and at varying rates. Diagrams are symbols, and therefore, have meanings when they are perceived by their users. Communication is an integral component in the process of education, and communication takes place between, and among,
<table>
<thead>
<tr>
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<td></td>
</tr>
<tr>
<td>Short Division</td>
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<td></td>
</tr>
</tbody>
</table>

Figure 13

Framework of the Computation Component of the Superstructure
interactors. To convey, and sometimes receive, meanings from symbols, it is sometimes necessary to construct diagrams. Appropriate learning event design needs to be formulated in the light of the fact that learners vary in degree of skill in constructing diagrams.

Diagrammatic Planning

The ability of a learner to create diagrams from reality, or from intellectual concepts, constitutes his diagrammatic planning ability.

Aspects of Dimension

The aspects of dimension of a structure which convey meaning to the learner include length, width, height, and depth perception, and perspective design.

Aspects of Proximity

Any structure is likely to have components and sub-components. The intimacy, or closeness, of these parts and sub-components can affect aspects of dimension, proximity, inference, and manipulation.

Aspects of Inference

Elements of some diagrams may be constructively invisible. They may require the learner to make valid assumptions about structure. Propositions can be arrived at by the learner by noting the intimacy of main components, by deduced elements, and by induced elements.

Aspects of Manipulation

In diagrammatic planning the aspects of planning to which the learner must allude include the ratios of balance-imbalance, flexibility-rigidity, and static-fluid.
Low Ability

A learner can be considered to have low ability when he is seldom effective in planning a diagram, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation. Low ability is recorded on the profile as less than standard.

Standard Ability

A learner can be considered to have standard ability when his ability to plan a diagram, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation, is operational at levels appropriate to the learning event. It is recorded on the profile as standard ability.

High Ability

A learner can be considered to have high ability when he can plan a diagram, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation on a continuous basis. It is recorded on the profile as greater than standard.

Figure 14 illustrates the framework of the diagrammatic planning component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.
<table>
<thead>
<tr>
<th>Aspects of Dimension</th>
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<td>Aspects of Manipulation</td>
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<tr>
<td>Balance-imbalance</td>
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<tr>
<td>Flexibility-rigidity</td>
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<td></td>
<td></td>
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<tr>
<td>Static-fluid</td>
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</tbody>
</table>

Figure 14

Framework of the Diagrammatic Planning Component of the Superstructure
DIAGRAMMATIC INTERPRETATION COMPONENT, CRITERIA, AND FRAMEWORK

Symbols have meanings when their meanings are perceived by learners who use them. These meanings are perceived to varying degrees and at varying rates. Diagrams are symbols, and therefore, have meanings when they are perceived by their users. Communication is an integral component in the process of education, and, communication takes place between, and among, interactors. To convey, and sometimes receive, meanings from symbols it is sometimes necessary to interpret diagrams. Appropriate learning events need to take into account the fact that learners vary in degree of skill in interpreting diagrams.

Diagrammatic Interpretation

The ability of a learner to interpret diagrams.

Aspects of Dimension

The aspects of dimension of a structure which convey meaning to the learner include length, width, height, and depth perception, and perspective.

Aspects of Proximity

Any structure is like to have components and sub-components. The intimacy, or closeness, of these parts and sub-components can affect aspects of dimension, proximity, inference, and manipulation.

Aspects of Inference

Elements of some diagrams may be constructively invisible. They may require the learner to make valid assumptions about structure.
Propositions can be arrived at by the learner by noting the intimacy of main components, by deduced elements, and by induced elements.

**Aspects of Manipulation**

In diagrammatic interpretation the aspects of manipulation to which the learner must allude include the ratios of balance-imbalance, flexibility-rigidity, and static-fluid.

**Low Ability**

A learner can be considered to have low ability when he is seldom effective in interpreting a diagram, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation. Low ability is recorded on the profile as less than standard.

**Standard Ability**

A learner can be considered to have standard ability when his ability to interpret a diagram, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation, is operational at some times and not at other times. It is recorded on the profile as standard ability.

**High Ability**

A learner can be considered to have high ability when he can interpret a diagram, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation on a continuous basis. It is recorded on the profile as greater than standard.

Figure 15 illustrates the framework of the diagrammatic interpretation component of the superstructure of learner analysis.
<table>
<thead>
<tr>
<th>Aspects of Dimension</th>
<th>Less than Standard</th>
<th>Standard</th>
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<tbody>
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<td>Induced Elements</td>
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<tr>
<td>Aspects of Manipulation</td>
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<tr>
<td>Balance-imbalance</td>
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<td>Flexibility-rigidity</td>
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<tr>
<td>Static-fluid</td>
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</tbody>
</table>

Figure 15
Framework of the Diagrammatic Interpretation
Component of the Superstructure
Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

**STRUCTURE ANALYSIS COMPONENT, CRITERIA, AND FRAMEWORK**

Symbols have meanings when their meanings are perceived by the learner. These meanings are perceived to varying degrees and at varying rates. Diagrams are symbols, and therefore, have meanings when they are perceived by their users. Communication is an integral component in the process of education, and communication takes place between, and among, interactors. To convey, and sometimes receive, meanings from symbols it is sometimes necessary to analyze the structure of the symbols. Appropriate learning events need to take into account the fact that learners vary in degree of skill in analyzing diagrams.

**Structure Analysis**

Structure analysis is the ability of a learner to analyze the components and characteristics of a structure, either in reality, or in intellectual concepts.

**Aspects of Dimension**

The aspects of dimension of a structure which convey meaning to the learner include length, width, height, and depth perception, and perspective.

**Aspects of Inference**

Elements of some structures may be constructively invisible. They may require the learner to make valid assumptions about structure.
Propositions can be arrived at by the learner by noting the intimacy of main components, by deduced elements, and by induced elements.

Aspects of Proximity

Any structure is likely to have components and sub-components. The intimacy, or closeness, of these parts and sub-components can affect aspects of dimension, proximity, inference, and manipulation.

Aspects of Manipulation

In structure analysis the aspects of manipulation which convey meaning to the learner include the ratios of balance-imbalance, flexibility-rigidity, and static-fluid.

Low Ability

A learner can be considered to have low ability when he is seldom effective in analyzing a structure, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation. It is recorded on the profile as less than standard.

Standard Ability

A learner can be considered to have standard ability when his ability to analyze a structure, either in reality or in intellectual concepts, in aspects of dimension, proximity, inference, and manipulation, is operational as required for the learning event. It is recorded on the profile as standard ability.

High Ability

A learner can be considered to have high ability when he can analyze a structure, either in reality or in intellectual concepts, in
aspects of dimension, proximity, inference, and manipulation on a continuous basis. It is recorded on the profile as greater than standard.

Figure 16 illustrates the framework of the structure analysis component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

SPEAKING COMPONENT, CRITERIA, AND FRAMEWORK

The process of education directly involves the process of communication and vice versa. The process of communication directly involves the act of speaking and vice versa. Speaking is a process of sign production (oral) that has a common meaning conveyed between, or among, interactors. Yet, speakers vary in their ability to speak. Instruction, designed irrespective of the nature of a learner's speaking ability, is ineffective, inefficient, confusion-generative, and generally unproductive.

**Projection**

Projection describes the ability of the learner to throw, or cast forward, a verbal discourse so as to communicate vividly with his audience as a result of his volume and range of sound levels.

**Ennunciation**

The articulation of vowels determine the general quality of the voice and the articulation of consonants shape words and make them
Aspects of Dimension

- Length
- Width
- Height
- Depth
- Perspective

Aspects of Proximity

- Intimacy of Parts
- Intimacy of Sub-components
- Intimacy of Main Components

Aspects of Inference

- Deduced Elements
- Induced Elements

Aspects of Manipulation

- Balance-imbalance
- Flexibility-rigidity
- Static-fluid

Figure 16
Framework of the Structure Analysis Component of the Superstructure
Intelligible. With proper articulation, speakers are easy to understand and make it pleasant to listen to them.

**Precision**

The precision of a speaker is constituted by the level, fluency, versatility, denotative and connotative accuracy of his vocabulary, and by the word quality, word quantity, polysyllabic frequency, and complexity of structure in economy.

**Level.** The level of the vocabulary utilized by a speaker can be determined by the position of the vocabulary usage in any designated scale. Typically, the scale used for vocabulary level has been one indicating age, or in instances, grade (year) in school.

**Fluency.** Speaking void of halting, hesitant speech is usually considered fluent; also, if a speaker is certain, avoids awkward pauses, repetitions, false starts, and clumsy phrasings, he can be considered fluent.

**Versatility.** The vocabulary versatility utilized by a speaker refers to the degree to which he can change, or modify, his general plan of vocabulary usage.

**Denotative and connotative accuracy.** Meaning is of two general kinds: (1) denotative (intellectual) and (2) connotative (emotional). Denotative meaning is characteristic of the language of science; it is the accurate, dictionary meaning of words. Connotative meaning is characteristic of the language of art; its' meaning is based on the experiences of the individual, and its' meanings can be different for
everyone. The criterion implies the ability of the learner to use each kind of meaning appropriately.

**Word quantity.** Word quantity in economy refers to the efficient usage of words; superfluous words are limited or non-existent.

**Word quality.** Word quality in economy refers to the effective usage of words; the chosen word(s) convey the message better than any other word(s).

**Polysyllabic frequency.** Polysyllabic frequency refers to usage of words containing more than two syllables. In many instances, a polysyllabic word will convey a more accurate meaning than does several words for the same meaning.

**Style**

A learner's style of speaking is determined by his interest index, pace of presentation, and length of bits and pieces.

**Interest index.** The color:monotony ratio determines the interest index. Color in speaking is characterized by a vividness, or variety, of effects of language; monotony is characterized by a lack of vividness, or variety, of effects of language.

**Pace.** The pace of presentation in speaking refers to the rate at which the speaker proceeds through informational bits.

**Length.** The length refers to the size of the informational bits.
Participation Format

Learners vary in their willingness and desire to participate in speaking. Learners can be classified as being either eager, cue-oriented, or reticent.

Eager. An eager speaker is marked by keen, enthusiastic, or impatient desire.

Cue-oriented. A cue-oriented speaker is one who is motivated by a specific signal for a specific speech.

Reticence. A reticent speaker is one who is restrained in expression and inclined to be silent or secretive.

Distractibility Index

The concentration, idea traffic, and participation-confusion ratio determine the distractibility index.

Concentration. Concentration is the ability to direct one's attention to a single objective.

Idea traffic. The pace, quantity, and quality of ideas that emerge from one's thought processes constitute idea traffic.

Participation-confusion. The ratio between perplexity and taking part in speaking activities.

Low Ability

When a learner is seldom successful in the use of any, or all, components of the speaking process, he can be considered to have low ability. It is recorded on the profile as less than standard.
Standard Ability

When a learner is successful in any, or all, components of speaking process at levels required by the learning event, he can be considered to have standard ability. It is recorded on the profile as standard.

High Ability

When a learner is successful in any, or all, components of the speaking process on a continuous basis, he can be considered to have high ability. It is recorded on the profile as greater than standard.

Figure 17 illustrates the framework of the speaking component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

LISTENING COMPONENT, CRITERIA, AND FRAMEWORK

The process of education directly involves the process of communication and vice versa. The process of communication directly involves the act of listening and vice versa. Listening is a process of sign reception (aural) that has a common meaning conveyed between, or among, interactors. Yet, listeners vary in their ability to listen. Instruction designed irrespective of the nature of a learner's listening ability is ineffective, inefficient, confusion-generative, and generally unproductive.
<table>
<thead>
<tr>
<th>Projection</th>
<th>Less than Standard</th>
<th>Standard</th>
<th>Greater than Standard</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Level</td>
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<td></td>
<td>Fluency</td>
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<td>Vocabulary Versatility</td>
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<td>Denotative and Connotative Accuracy</td>
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<td>Length</td>
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<td>Concentration</td>
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<tr>
<td></td>
<td>Idea Traffic</td>
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</tr>
<tr>
<td></td>
<td>Participation-confusion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 17**

Framework of the Speaking Component of the Superstructure
Listening Concentration

Listening concentration is the ability to achieve an intentional isolation of a single sound source from the many aural stimuli besieging the learner. It is used to maintain an interest span.

Organization

Organization is manifested by note-taking activity, frequency and nature of question-asking activity, and the extrapolation of summaries during and after listening.

Filtration

The effective and efficient listener can comprehend the main ideas from a discourse, can ignore confusion and distraction, and can present an accurate recall of the oral discourse.

Interpretation

The effective and efficient listener can counter noise, penetrate dialect, make sense out of confusion, and can ignore interceptors.

Noise. In communications theory, noise is interpreted to be anything which diverts, distorts, or disrupts the message.

Dialect. A regional variety of a spoken language, or a jargon, for instance, as associated with occupations or peer groups; or a language considered as a part of a larger group of language, for instance Spanish and French are Romance dialects. Penetration of a dialect means to ignore the ramifications of the dialectically structured message to perceive the intended content.
Confusion. Confusion is a state in which order, or sense, is not a condition of the message.

Interceptions. Interceptions are conditions or events which stop or interrupt the progress of the message and tend to disrupt the continuity and contiguity of the development of the message. These interceptive conditions are also referred to as "noise."

Ineffective Activity

Ineffective activity in the act of listening consists of the inability to receive the message through the aural senses. It is recorded on the profile as less than standard.

Standard Activity

Standard activity consists of a condition in which the listener perceives the message with accuracy as required by the learning event. It is recorded on the profile as standard ability.

Effective Activity

Effective activity in the act of listening is a condition in which the message is easily perceived and can be demonstrated or acted upon in all of its essential criteria. It is recorded on the profile as greater than standard.

Figure 18 illustrates the framework of the listening component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.
<table>
<thead>
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<td>Organization</td>
<td>Question-asking Frequency</td>
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<td>Extrapolation of Summaries</td>
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<td>Filtration</td>
<td>Comprehends the Main Ideas</td>
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</tr>
<tr>
<td></td>
<td>Ignores Confusion and Distractors</td>
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<td>Can Present Accurate Recall</td>
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</tr>
<tr>
<td>Interpretation</td>
<td>Counters Noise</td>
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<tr>
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<td>Penetrates Dialect</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Makes Sense Out of Confusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ignores Interceptions</td>
<td></td>
</tr>
</tbody>
</table>

Figure 18
Framework of the Listening Component of the Superstructure
Most social scientists agree that a learner's environment has as much, or more, effect upon the development of psychomotor, cognitive, and affective aspects as heredity has upon these aspects. Each learner varies in his ability to interpret his relationship to his environment, adapt to his relationship, or refine either, or both, optimally. Instruction should be geared to the degree to which the learner interprets, adapts, or refines his relationship to his environment.

*Synnoetics*

The ability to interpret one's relationship to one's environment and to revise adapt to, or refine either, or both, optimally.

*Social Status*

A learner has a role in society and this role can be defined in terms of the leadership, followership, or degree of membership searching the learner exerts upon society. The result is a position, or rank, in relation to others.

*Leadership.* Leadership can be defined as a state, or condition, of participating in various social activities contributing innovative applications of social situations and providing deductive and inductive motivation to other participants.

*Followership.* Followership can be defined as a state, or condition, of participating in social activities with participation as motivated by leaders.
Membership searching. Membership searching can be defined as a state, or condition, of continually searching for membership in groups that the learner feels enjoys a higher social status than the highest ranking group of which he is presently a member.

Political Status

The position, or rank, one holds in relation to others in a system of politics constitutes one's political status.

Non-participation. A member of the society who takes no active part in the conduct of government, either vicariously, as in the case of most learner participation, in civic, state, and national political affairs, and possible vicarious non-participation in the case of school governmental activities.

Moderate participation. A member of society whose life frame is focused in major part on the political activity in the conduct of government.

Leadership. The condition of participating in various organized political activities, in either a worker or office holder role, contributing innovative applications on political theories and principles and providing deductive and inductive motivation to other participants. In the case of real civic governmental events, the influence of the learner's family structure and peer groups is to be taken into consideration. In the case of school government, the learner may, of course, provide more or less intense leadership.

Ideology. A set of beliefs about the proper order of society and how the proper order can be achieved.
Religious Status

The position, or rank, one holds in relation to others in a system of religion constitutes one's religious status.

Non to minimal participation. Non to irregular attendance to organized activities constitute this type of participation.

Active observer. One who attends various organized religious activities with only covert participation.

Leadership. One who participates in various organized religious activities contributing innovative applications or religious theories and principles and providing deductive and inductive motivation to other participants.

Family Status

The position, or rank, one holds in relation to others in a family constitutes one's family status.

Solitary. A member of a family group who operates alone to create and strengthen family unity can be considered to be solitary.

Non-participation. A member of a family group who takes no part in family activities.

Active participation. A member of a family group who takes part in family activities on a continuous basis.

Leadership. One who participates in family activities contributing innovative applications of family welfare and providing deductive and inductive motivation to other family members.
A recording of less than standard, on the profile, means that the learner manifests little or no activity in relation to the element being analyzed.

A recording of standard, on the profile, means that the learner manifests activities in relation to the element being analyzed at a level which seem appropriate to his mental age, chronological age, and learning maturity.

A recording of greater than standard, on the profile, means that the learner manifests activities in relation to the element being analyzed at levels which are greater than expectations.

Figure 19 illustrates the framework of the synnoetics component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

ETHNIC COMPONENT, CRITERIA, AND FRAMEWORK

Race, religion, and nationality are frequent bases for social differentiation in society. Since the school, and the processes of education, are typically societal functions, these differentiations effect what teachers are trying to teach, to whom, to what degree, and why any given event should be learned.

If the designer of the learning event can identify and interpret the influencing ethnic concepts and interactive behaviors of others, as they relate to his own, then a learning event that is relevant can be appropriately designed. Too, the motivation of a learner, when these
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Figure 19
Framework of the Synnoetics Component of the Superstructure
conditions are taken into account, is boosted, and thereby increases the efficiency and effectiveness of the event.

**Ethnic Group**

The term ethnic group is used to designate groups that are differentiated from a dominant group in the same society primarily on cultural grounds, whether or not other bases of differentiation, such as race, religion, or nationality are also present.

**Curiosity**

Attitudes one may hold that are directed toward an ethnic group include the attitude of curiosity. One may be curious as to who and why a member of the ethnic group is. One will greet the ethnic group member and not arouse defense mechanisms and mores against him. The perceiver will hold a secret air of superiority while being sympathetic toward this helpless person(s). The perceiver will likely be protective of the minority person.

**Economic Welcome**

Attitudes one may hold that are directed toward an ethnic group include the attitude of economic welcome. The minority group member is welcomed into the labor market and given equal opportunity in business ventures as well as economic employment.

**Social Antagonism**

Attitudes that one may hold that are directed toward an ethnic group include the attitude of antagonism. Through either sporadic or organized movements, vicious propaganda is spread against the minority
member; the majority member is prejudiced toward the minority member, and as a result, discriminates in social relationships.

**Fair Play**

Attitudes one may hold that are directed toward an ethnic group include the attitude of fair play. Friendships with minority members, economic opportunities, broadminded attitudes, and a sense of equality, prevails.

**Rejective**

A learner is considered to be rejective when, overtly, his activities appear to repel, reject, antagonize, or otherwise demonstrate various degrees of hostility to ethnic groups other than his own. It is recorded on the profile as less than standard.

**Neutral or Covert**

A learner is considered to be neutral, or covert, when his activities, in relation to ethnic groups other than his own, are non-existent, or unobservable. It is recorded on the profile as standard.

**Acceptive**

A learner is considered to be acceptive when his activity, in relation to ethnic groups other than his own, cannot be discriminated from his relationships with his own ethnic group. It is recorded on the profile as greater than standard.

Figure 20 illustrates the framework of the ethnic component of the superstructure of learner analysis. Using this framework the designer
Figure 20
Framework of the Ethnic Component of the Superstructure
of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

FAMILY COMPONENT, CRITERIA, AND FRAMEWORK

The family is a social institution that, in many instances, is the primary cultural determinant. The family can be small and simple in size, organization, or norms; or, it can be large and complex. Individuals within the structure function to varying degrees in family activities, unity, and influence. The influence of the family, and the role the learner plays within the family, is projected into the school situation. The identification and interpretation of the family organization and practices of the learner, as they relate to one's own, will facilitate appropriately designed learning events.

Total Commitment

A family member whose life frame is focused in major part on family activities and family unity. It is recorded on the profile as greater than standard.

Intermittent Commitment

A family member whose life frame is focused on family participation and family unity only at times when he is selfishly concerned or times of crisis. It is recorded on the profile as standard.

Uncommitted

A family member who takes no interest in family activities or family unity. It is recorded on the profile as less than standard.
Non-participant

A member of a family group who takes no part in family activities.

Solitary

A member of a family group who operates alone to create and strengthen family unity.

Followership Participation

A member of a family group who participates in family activities as motivated by family leaders.

Leadership

One who participates in family activities contributing innovative applications of family welfare and providing deductive and inductive motivation to other family members.

Figure 21 illustrates the framework of the family component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

RELIGION COMPONENT, CRITERIA, AND FRAMEWORK

It is important that the designer of the learning event identify and interpret the influencing religious concepts and practices of others, as they relate to his own, because the learner's behaviors are influenced by religion. Society achieves its unity through the possessing by individuals of specific values and goals. As a result, a powerful
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Figure 21

Framework of the Family Component of the Superstructure
control over conduct is exercised, guiding it along lines subservient to institutional structures and conforming to ultimate values and goals.

Learners are influenced to varying degrees by religion. This influence can manifest itself in different roles and in different degrees. A learner can be profiled, according to the influence and participation, on a continuum ranging from non-participation to total commitment.

Religion

An organized system of beliefs and rituals centering on a supernatural being or beings.

Continuous Commitment

The practice of religious beliefs and rituals as they relate to all aspects of living. It is recorded on the profile as greater than standard.

Intermittent Commitment

The practice of religious beliefs and rituals as they relate to specific aspects of living, when convenient to the practice. It is recorded on the profile as standard.

Uncommitted

No systematic application of religious rituals and/or beliefs to aspects of living. It is recorded on the profile as less than standard.

Participation

The analysis, synthesis, evaluation, and application of a system of beliefs and rituals centering on a supernatural being and an ethical system evolving from them.
Minimal Participation

Irregular attendance to organized activities; for example, church services.

Active Observer

One who attends various organized religious activities with only covert participation.

Followership Participation

One who attends various religious activities with participation as motivated by group leaders.

Leadership

One who participates in various organized religious activities contributing innovative applications or religious theories and principles and providing deductive and inductive motivation to other participants.

Figure 22 illustrates the framework of the religion component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

PEER INFLUENCES COMPONENT, CRITERIA, AND FRAMEWORK

A learner's behaviors influence, and are influenced by, his peer group. As a member of a peer group, a learner has expectations imposed upon him by societal norms and groups with which he interacts. He may be a leader, follower, or non-participant. He may be totally committed, intermittently committed, or uncommitted to peer group
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Figure 22

Framework of the Religion Component of the Superstructure
activities and/or unity. Motor skills, cognitions, and especially, affects, are influenced by peers.

Peer Group

A peer group is a group considered to be one's equal in terms of interest, qualification, association, or station in life.

Total Commitment

A peer group member whose life frame is focused in major part on peer activities and peer unity. It is recorded on the profile as greater than standard.

Intermittent Commitment

A peer group member whose life frame is focused on peer group participation and peer unity only at times when he is selfishly concerned or times of crisis. It is recorded on the profile as standard.

Uncommitted

A peer group member who takes no interest in peer group activities or peer group unity. It is recorded on the profile as less than standard.

Non-participant

A member of a peer group who takes no part in peer group activities.

Solitary

A member of a peer group who operates alone to create and strengthen peer group unity.
Followership Participation
A member of a peer group who participates in peer activities as motivated by peer leaders.

Leadership
One who participates in peer group activities contributing innovative applications of interests and providing deductive and inductive motivation to other peer group members.

Figure 23 illustrates the framework of the peer influences component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

MORSES COMPONENT, CRITERIA, AND FRAMEWORK

Folkways have their origin in the instinctual drives of mankind, that is, the basic task of life, to live. Men begin with acts, not thoughts. Every moment brings necessities that must be satisfied at once. Need was the first experience. Analogy makes it easy to assume that the ways of ancestors had produced channels of habit and predisposition along which dexterities and other psychophysical creativities would run easily. All adopted the same way for the same purpose based upon other's experiences; then the ways turned into customs and became mass phenomena. The young learned customs by tradition, imitation, and authority. Folkways were uniform, universal in the group, imperative, and invariable. As time goes on, the folkways become more and more arbitrary, positive, and imperative. Folkways become coercive. All are forced to conform, and the folkways dominate societal life.
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**Figure 23**

Framework of the Peer Influences Component of the Superstructure
Then, they seem true and right, and arise into mores as the norm of welfare. As a result, faiths, ideas, doctrines, religions, and philosophies, arise.\textsuperscript{12}

The mores are the folkways, including the philosophical and ethical generalizations as to societal welfare which are suggested by them, and inherent in them as they grow.

Mores are norms that the group defines as essential to social welfare and that are strongly sanctioned. Institutions and laws are produced out of mores.

**Political Mores**

Political mores are codes related to the conduct of government in the making, execution, and interpretation of laws.

**Social Agencies Mores**

Within the body and activity of social agencies a set of influences tend to generate mores,\textsuperscript{13} such as sportsmanship, camaraderie, and in a specific instance, the Boy Scouts of America hold to a creed that a scout is trustworthy, loyal, helpful, friendly, courteous, kind, cheerful, thrifty, brave, clean, and reverent.

**Religion Mores**

An organized system of beliefs and rituals centering on a supernatural being or beings constitutes a religion. Religious mores usually provide a creed for daily life activities such as Judeo-Christian virtues and ethics.


\textsuperscript{13}Ibid.
Family Mores

The family is the basic unit in society having as its nucleus a patriarch, matriarch, or both, and whose primary purpose is to rear their own or adopted children. Mores would include such things as intra-family unity, inter-family interactions, and family interaction with society.

School Mores

A group of learners and teachers pursuing knowledge constitutes a school. Mores are developed such as enthusiasm for learning, respect for individuals and groups, and cultural transmissions.

Military Mores

The military is considered to be any or all branches of the armed forces. Mores are developed such as loyalty to country, branch of service, duty, and honor.

Peer Mores

A peer is a person considered to be one's equal in terms of interest, qualification, association, or station in life. Mores are developed such as group loyalties and intra-group interactions, group interactions, and societal interactions.

Total Commitment

A learner is considered to be totally committed to a set of mores when his entire life activities are based on the moral framework. It is recorded on the profile as greater than standard.
Intermittent Commitment

A learner is considered to be committed intermittently to a system of mores when his concern for self tends to neutralize his moral concerns. It is recorded on the profile as standard.

Uncommitted

A learner is considered to be uncommitted when his life activities are apparently ego-centric or when his moral commitments are covert. It is recorded on the profile as less than standard.

Figure 24 illustrates the framework of the mores component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

SOCIAL AGENCY INFLUENCES COMPONENT, CRITERIA, AND FRAMEWORK

Social agencies are instruments of the citizens of the community. The agency represents the organized efforts of groups of people, or individuals, to meet the specific needs of people which arise out of social conditions. The social agency is a non-profit institution which operates with the support of the people it serves. Social agencies have been variously classified as being character building, welfare oriented, leisure time groups, recreational, informally educational, youth oriented, or in combinations of these classifications.\textsuperscript{14} Within the body and activity of such social agencies a set of influences tend to

\textsuperscript{14} Ibid.
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Figure 24

Framework of the Mores Component of the Superstructure
generate mores, such as sportsmanship, camaraderie, and in a specific instance, for example, the Boy Scouts of America hold to a creed that a scout is trustworthy, loyal, helpful, friendly, courteous, kind, cheerful, thrifty, brave, clean, and reverent.

Participant
A learner who benefits directly or indirectly from social agencies as either a client, a volunteer, or vicariously through a family member, peer, or teacher.

Client
A person who seeks or engages in the services of a social agency.

Volunteer Worker
A person who volunteers, usually without remuneration, to provide a service through a social agency.

Low Influence
The condition of low influence of a social agency on a learner is one in which the social agency has little or no effect on the learner. If a learner does not utilize social agencies for character building, group work, leisure-time, recreational, informal education, or youth-serving, then the influence of the agency can be said to be little or none. It is recorded on the profile as less than standard.

Intermittent Influence
The influence of a social agency on a learner can be said to be intermittently influencing when the learner reacts to such influences at times which appear to be reasonable to the mental age, chronological
age, and maturity level of the learner. It is recorded on the profile as standard.

**High Influence**

The influence of a social agency on a learner can be said to be high in influence when the learner seeks their services frequently or continuously. The services of a social agency can be said to be character building, group work, leisure-time, recreational, informal education, or youth-serving oriented. It is recorded on the profile as greater than standard.

Figure 25 illustrates the framework of the mores component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

**POLITICS COMPONENT, CRITERIA, AND FRAMEWORK**

Man's perceptions influence, and are influenced by, his culture. A part of a learner's culture is composed of politics. Politics is constituted by the process of government, especially in the conduct of making, executing, and interpreting laws.

This process of government affects the learner vicariously through family and/or acquaintances, as can be the case in civic, state, national, and international affairs, or directly, as can be the case in school government.

**Politics**

The process of government, especially the conduct of making, executing, and interpreting laws, constitute politics.
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<td>Character Building</td>
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<td>Youth-serving</td>
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Figure 25
Framework of the Social Agency Influences
Component of the Superstructure
Leadership

The condition of participating in various organized political activities, in either a worker or office holder role, contributing innovative applications on political theories and principles and providing deductive and inductive motivation to other participants. In the case of real civic and governmental events, the influence of the learner's family structure and peer groups is to be taken into consideration.

In the case of school government, the learner may, of course, provide more or less intense leadership.

Ideology

A set of beliefs about the proper order of society and how the proper order can be achieved.

Inactive Participation

A learner is inactive when his interest is apparently non-existent, or is covert.

Passive Participation

A learner who listens and otherwise observes political activities including participation in his voting franchise without providing other input.

Less than Standard Activity

A member of the society who takes no active part in the conduct of government, either vicariously, as in the case of most learner participation, in civic, state, and national political affairs, and
possible vicarious non-participation in the case of school governmental activities. It is recorded on the profile as less than standard.

**Standard Activity**

A member of society whose life frame is focused on political participation only at times when he is selfishly concerned or times of crisis. It is recorded on the profile as standard.

**Greater than Standard Activity**

A member of society whose life frame is focused in major part on the political activity in the conduct of government. It is recorded on the profile as greater than standard.

Figure 26 illustrates the framework of the politics component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

**KINESICS COMPONENT, CRITERIA, AND FRAMEWORK**

As previously demonstrated, the learning process is enhanced by ability to communicate. In addition to the aforementioned skills, the ability to communicate by means of nonlinguistic functions and motions of the body, such as shrugs, gesticulations, and gestures is an integral component. Yet, learners vary in the degree to which they are able to communicate kinesically. Instruction designed not taking these differences into account is considered to be inefficient, ineffective, and any learning that takes place does so by chance.
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**Figure 26**

Framework of the Politics Component of the Superstructure
Kinesics

The ability to communicate by means of nonlinguistic functions and motions of the body, such as shrugs, gesticulations, and gestures.

Interpretation

The ability to receive meanings through kinesics is dependent upon the versatility of interpretation; that is, the interpretation of meaning conveyed in nonlinguistic functions and motions of the body; and, the interpretations of the accuracy of these acts.

Performance

The ability to transmit meanings to others is through kinesic action is dependent upon the versatility (ability) in executing physiological functions involved in kinesics, and, the accuracy involved in performing these acts.

Highly Communicative

A learner is highly communicative when, kinesically, his transmissions are completely received and when he receives the kinesic transmissions of others more or less completely. It is recorded on the profile as greater than standard.

Standard Communication

A learner has standard kinesic communication ability when his kinesic transmissions are received by others at levels required by the learning event and when he receives the kinesic transmissions of others at levels required by the learning event. It is recorded on the profile as standard.
Incommunicative

A learner is considered to be kinesically incommunicative when he does not transmit kinesic signs effectively nor does he receive kinesic signs of others effectively. It is recorded on the profile as less than standard.

Figure 27 illustrates the framework of the kinesics component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

PROXEMICS COMPONENT, CRITERIA, AND FRAMEWORK

Each learner projects physical and social distances between himself and others in the act of communicating. Learners vary in the ability to judge and penetrate these distances, and, vary in their ability to extend their own personal fields to optimal limits. Learning events should be designed so as to allow the learner to operate optimally in his own field in relation to others.

Proxemics

The ability of a learner to judge acceptable, critical, physical, and social distances which influence him, and as his physical and social distances influence others, constitute proxemics.

Frequency

A condition within which the learner becomes aware of how often his critical physical and social distances influence others, and how often theirs influence him.
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**Figure 27**

Framework of the Kinesics Component of the Superstructure
Performance

The condition in which the learner establishes tolerable physical and social distances.

Judgement

The ability of the learner to judge the tolerability of his critical physical and social distances as they influence others and as theirs influence him.

Recovery

A condition in which the learner perceives intolerance of his critical physical and social distances as they influence others and as theirs influence him and is capable of recovering from the imbalance and making appropriate adjustments.

Low Ability

Low ability is a condition of learner in which he is seldom effective in judging acceptable, critical, physical and social distances which influence him, and as his physical and social distances influence others. It is recorded on the profile as less than standard.

Standard Ability

The ability of a learner to judge acceptable critical, physical, and social distances which influence him, and as his physical and social distances influence others, is considered to be standard when he is able to make these judgements at times as required by the learning event. It is recorded on the profile as standard.
High Ability

The ability of a learner to judge acceptable critical, physical, and social distances which influence him, and as his physical and social distances influence others, is considered to be high when he demonstrates a continuous ability to make this judgement. It is recorded on the profile as greater than standard.

Figure 28 illustrates the framework of the proxemics component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

TRANSACTIONALS COMPONENT, CRITERIA, AND FRAMEWORK

Learners vary in the ability to maintain a positive communicative interaction which significantly influences the goals of others involved in that interaction. This is especially salient when prescribing the modality of instruction for any given learner. For example, a learner with greater than standard ability in transactionals likely would find modes of instruction that involve leadership as a primary task, or opportunity, to be particularly relevant.

Transactionals

Transactionals are defined to be the conditions which expose the ability of the learner to maintain a positive influencing interaction with others.
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<th>Interpretation</th>
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<td>Performance</td>
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**Figure 28**

*Framework of the Proxemics Component of the Superstructure*
Moderator

The learner participates as a moderator when he is the obvious leader of the group. His leadership may range through various extremes. One of the extremes is dominance. As a dominant moderator the learner would tend to influence group decisions and activities almost entirely. Neutrality, as a moderator, is a condition in which the moderator conducts the development of group decisions and activities without influencing them in any way. Persuasion, as a moderator, is a condition in which the moderator influences group decisions and activities by means of argument, reasoning, or entreaty, without dominance.

Participant

Active participation is a condition in which the learner exercises a direct positive influencing interaction with others in a more or less continuous way. A passive participant is one who demonstrates little or no overt transactional activities. A negative participant is one whose transactional influences tend to divert, confine, or counteract the apparent intentions of others.

Catalytic Agent

A catalytic agent is a participant whose activities tend to initiate, modify, or stimulate the activities of others. The catalytic agent does not appear, however, to enter into the actual activities of others.

Low Influencing Interaction

Low influencing interaction is a condition where the learner is seldom active and seldom effective in transactual activities. It is recorded on the profile as less than standard.
Standard Influencing Interaction

The transactual ability of a learner is considered to be standard when his positive influencing interaction with others operates at times as required by the learning event. It is recorded on the profile as standard.

High Influencing Interaction

The transactual ability of a learner is considered to be high when he demonstrates a continuous positive influencing interaction with others. It is recorded on the profile as greater than standard.

Figure 29 illustrates the framework of the transactionals component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

ETHICS COMPONENT, CRITERIA, AND FRAMEWORK

Learners are committed to varying degrees to a set of values, a group of principles, obligations, and/or duties. This commitment need not imply a morality. Both a minister and a convicted criminal may be committed to a set of values even though the values are decidedly different.

Learners also vary in the ability to receive and interpret the values, principles, obligations, and/or duties of others.

Ethics

The ability to receive, interpret, and commit to a describable set of values, moral principles, obligations, or duties.
Figure 29

Framework of the Transactionals Component of the Superstructure
Low Ability

When a learner seldom receives, interprets, and commits to a describable set of values, moral principles, obligations, or duties, he can be considered to have low ability. It is recorded on the profile as less than standard.

Standard Ability

When a learner receives, interprets, and commits to a describable set of values, moral principles, obligations, or duties, at times required by the learning events he can be considered to have standard ability. It is recorded on the profile as standard.

High Ability

When a learner receives, interprets, and commits to a describable set of values, moral principles, obligations, or duties, successfully and on a continuous basis, he can be considered to have high ability. It is recorded on the profile as greater than standard.

Figure 30 illustrates the framework of the ethics component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

EMPATHIC COMPONENT, CRITERIA, AND FRAMEWORK

Learners vary in the ability to identify with, or have a vicarious experience of, another person's (or persons') feelings, ideas, or volitions. This has implications for learning event design, particularly, when prescribing the modality of instruction for any
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**Figure 30**

Framework of the Ethics Component of the Superstructure
given learner. For example, a learner with greater than standard empathic ability would find that modes of instruction including significant others salient.

Empathy

Empathy can be defined as the capacity for participating in another's feelings or ideas.

Identification of Points of View

Empathy includes the identification of points of view held by the learner, by identification of the learner's ability to determine his own points of view, and the identification of the learner's ability to determine points of view held by others.

Open Mindedness

The condition of empathy dictates that the empathizer not make value judgements or moral decisions about the points of view and/or behaviors exhibited by others, and that the learner be receptive and unprejudiced toward ideas expressed by others.

Attentiveness

Attentiveness is being heedful of the state, or condition, of another, completely and thoroughly.

Completeness. Possessing all necessary parts,

Thoroughness. Carried to completion.
Stimulating Feedback Production

In order to participate in another's feelings and ideas it is necessary for the person being empathized with to return to the input (learner) a part of the output of the process. The empathizer, in the process of empathizing, solicits this feedback in varying degrees.

Accuracy

The ability of the learner to be free from mistake, or error, in his ability to identify points of view, in his open-mindedness, in his attentiveness, and in his ability to stimulate feedback production in his relationships with others, constitutes a degree of accuracy.

Low Ability

When a learner seldom attempts to participate, or is seldom successful in participating, in another's feelings or ideas, he can be considered to manifest low ability. It is recorded on the profile as less than standard.

Standard Ability

When a learner attempts to participate, or is successful in participating, in another's feelings or ideas at times as required by the learning event, he can be considered to manifest standard ability.

High Ability

When a learner attempts to participate, or is successful in participating, in another's feelings or ideas on a continuous basis, he can be said to manifest high ability. It is recorded on the profile as greater than standard.
Figure 31 illustrates the framework of the empathic component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

ESTHETICS COMPONENT, CRITERIA, AND FRAMEWORK

Learners vary in the ability to receive and interpret situations, products, and ideas in terms of the beauty, or pureness, of their character. Typically, educators and learners have considered only "art" as having esthetic value. But, a learner may find beauty, or pureness, in a task performed well, in an idea, or in a form of government. Opportunity to operate optimally within this affect enhances learning.

Esthetics

The ability to receive and interpret situations, products, and ideas in terms of the beauty or pureness of their character.

Beauty. Beauty is the quality in situations, products, and ideas that gives pleasure to the senses or exalts pleasure to the spirit.

Pureness. Pureness is the quality in situations, products, and ideas that makes them untainted, unmixed, spotless, unalloyed, and in general free from what vitiates, weakens, or pollutes.

Low Ability

When a learner seldom receives or interprets situations, products, and ideas in terms of the beauty and pureness of their
### Figure 31

Framework of the Empathic Component of the Superstructure

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character, he can be considered to have low ability. It is recorded on the profile as less than standard.

**Standard Ability**

When a learner receives or interprets situations, products, and ideas in terms of the beauty and pureness of their character at times as required by the learning event, he can be considered to have standard ability. It is recorded on the profile as standard ability.

**High Ability**

When a learner receives or interprets situations, products, and ideas in terms of the beauty and pureness of their character successfully on a continuous basis, he can be considered to have high ability. It is recorded on the profile as greater than standard.

Figure 32 illustrates the framework of the esthetics component of the superstructure of learner analysis. Using this framework the designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.

**HISTRIONICS COMPONENT, CRITERIA, AND FRAMEWORK**

Learners vary in the ability to exhibit a deliberate behavior, or play a role, to produce some particular effect on other persons. If a learner has greater than standard ability in histrionics he can demonstrate, more effectively, how to fulfill role expectations. Learning events which allow him to stage deliberate effects enhances his learning.
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Figure 32
Framework of the Esthetics Component of the Superstructure
Histrionics

The ability to observe, interpret, or perform a staged behavior, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others.

Genuine Behavior

Genuine behavior is that behavior that is free from hypocrisy and/or pretense.

Artificial Behavior

Artificial behavior applies chiefly to emotions or states of mind not naturally caused nor spontaneously aroused; these behaviors are usually considered to be feigned, assumed, affected, stilted, imitated, synthetic, facitious, and cunning.

Interpretation

Interpretation is the ability to explain the meaning of genuine and artificial behaviors.

Performance

Performance is the execution of a staged behavior, either genuine or artificial, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others.

Dramatic Analysis

Dramatic analysis is the process of determining genuine and artificial behavior in theatricals, documentaries, and literature.

Theatricals. Theatricals are of, or related to, the presentation of plays and are marked by an extravagant display or exhibitionism.
Documentaries. A supposedly factual, authenticated, and objective presentation, but can and sometimes does contain both genuine and artificial behaviors.

Literature. Writings in prose and verse usually expressing ideas of permanent or universal interest.

Low Ability

When the learner seldom demonstrates the ability to observe, interpret, or perform a staged behavior, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others, he is considered to have low ability. It is recorded on the profile as less than standard.

Standard Ability

When the learner demonstrates the ability to observe, interpret, or perform a staged behavior, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others, at times required by the learning event he is considered to have standard ability. It is recorded on the profile as standard.

High Ability

When the learner demonstrates the ability to observe, interpret, or perform a staged behavior, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others, on a continuous basis he is considered to have high ability. It is recorded on the profile as greater than standard.

Figure 33 illustrates the framework of the histrionics component of the superstructure of learner analysis. Using this framework the
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**Figure 33**
Framework of the Histrionics Component of the Superstructure
designer of the learning event can develop a profile of the learner that will facilitate the design of a learning event based upon the needs and nature of the learner.
Chapter 4

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

SUMMARY

It was the problem of this study to develop a superstructure of learner analysis. The framework of the superstructure was composed of component elements which, together, provide a consistent and comprehensive analysis of the learner.

More specifically, this study was intended for development of a superstructure of analysis of learning components of specific individuals. It was not intended for comparison of any individual with any other individual.

The study was limited to identifying, isolating, and interpreting learning components and their elements, and to designing a technique of profiling the results of analysis. The technique of profiling the results of analysis contributed to the gestalt of the analysis and its application to learning event design.

The study was delimited to major points:

1. identifying the elements for analysis,

2. devising a technique of summarizing for convenient display, or symbolization, data derived from the analyses.

The assumptions under which the study was conducted included:

1. The acceptance of the worth and dignity of learners, found to be aspects of most philosophies, most texts on educational psychology,
most learning theories, and most school's statements of philosophies, made learner analysis mandatory as the only valid process in attaining the intensively subscribed goal,

2. Learner analysis was expensive and time consuming, but, failure to make adequate analysis was more expensive and potentially deprecating to the educational effort,

3. Each learner was seen to be unique in that learners learn in different ways and at different rates. Each learner had individual wants, needs, and interests,

4. Conditions existed within a learner as a part of a learner's uniqueness that precluded learning, or, created communication noise and caused distortion of message reception and response outputs, and,

5. As long as a learner was physiologically and psychologically sound he was able to learn. Whether or not he did learn was a function of the general process to which he was exposed. The three factors within this process that established the intent of the learner to learn were:

   a. relevance,

   b. motivation, and

   c. appropriate design of the learning event.

The descriptive term, learner analysis, was noticeably absent in the literature, yet, the concept of analysis of learners had been present since the earliest times of recorded educational development. The review of literature showed that analysis of individual learners had been an evolutionary process not unlike that described by Charles Darwin. Until now, no comprehensive technique of analysis of learners had been developed that supported a prescription of designed learning events in
a systemically designed program of instruction that lent itself to experimental testing and validation. Until now, there had been no comprehensive technique which supported validation of the modes of instruction relevant to the prescription, and subsequently, validation of an entire instructional program.

CONCLUSIONS

Figure 34 illustrates a superstructure of learner analysis composed of all of the items which when treated individually and then combined, provide the comprehensive picture of the nature of the learner.

To aid in the development of appropriate learning event design the following determinations about the learner must be made:

Sensory-Motor

1. The ability to hear clearly (Auditory).
2. The ability to see clearly all significant details (Visual).
3. The ability to receive and interpret appropriate aromas (Olfactory).
4. The ability to receive and interpret appropriate tastes (Savory).
5. The ability to feel and interpret appropriate tactile stimuli (Tactile).
6. The ability to detect and interpret for appropriate applications, degrees of bone-joint angulations, change of angulations, muscle stretches, and tendon tensions (Proprioceptive).
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**Figure 34**

Superstructure of Learner Analysis
7. The ability to perform and develop a relevant set of motor skills (Kinesthetic).

Symbol Manipulation

8. The ability to read with optimal speed and comprehension at pertinent levels (Reading).

9. The ability to write efficiently and expressively at pertinent levels about pertinent matters (Writing).

10. The ability to use learning techniques with efficiency and effectiveness (Cognitive Learning Skills).

11. The ability to compute relevant problems involving quantities which can be symbolized numerically (Computation).

12. The ability to construct a diagram displaying the relationship of components making up three dimensional whole objects (Diagrammatic Planning).

13. The ability to interpret diagrams which represent three-dimensional whole objects made up of components (Diagrammatic Interpretation).

14. The ability to predict the structural form(s) of three-dimensional whole objects, made up of components, on any of its aspects which are normally invisible in a two-dimensional view (Structure Analysis).

Oral Communication Skills

15. The ability to speak efficiently and expressively at pertinent levels about pertinent matters (Speaking).

16. The ability to listen skillfully (Listening).
Personal Identity

17. The ability to interpret one's relationships to environment and to revise and refine either, or both, optimally (Synnoetics).

18. The identification and interpretation of the influencing ethnic concepts and interactive behavior of others, as they relate to one's own (Ethnic).

Cultural Determinants

19. The identification and interpretation of the family organization and practices of others, as they relate to one's own (Family).

20. The identification and interpretation of the influencing religious concepts and practices of others, as they relate to one's own (Religion).

21. The identification and interpretation of the influencing peers of others, and the relationships of those peer members to one's own peer group (Peer Influences).

22. The identification and interpretation of functional patterns of mores, as they influence the behavior of others, and as they relate to one's own (Mores).

23. The identification and interpretation of agencies which influence the learner (Social Agency Influences).

24. The identification and interpretation of the influencing political concepts and practices of others, as they relate to one's own (Politics).
Interactional-Transaction Patterns

25. The ability to receive, interpret, and use non-verbal language intended to create effects (Kinesics).

26. The ability to judge and respect, perhaps tactfully penetrate, the critical physical and social distance fields of others, and to extend one’s personal fields to optimal limits (Proxemics).

27. The ability to maintain an interaction of influence with a variety of others (Transactionals).

Affective

28. The ability to receive, interpret, and commit to a describable set of values, or moral principles, obligations, or duties (Ethics).

29. The ability to receive, interpret, and identify with the feelings, ideas, emotions, and purposes of others (Empathic).

30. The ability to receive and interpret situations, products, and ideas in terms of the beauty or pureness of their character (Esthetic).

31. The ability to observe, interpret, or perform a staged behavior, or a deliberate exhibition of emotion or temperament, apparently intended to have a deliberate effect on others (Histrionics).

IMPLICATIONS

For too long many educators have been attempting to teach without answering some basic questions concerning their program of
instruction. Specifically, what are teachers trying to teach, to whom, to what degree, how does one know when it has been learned, and perhaps most importantly, why should it be learned? Under these conditions the learning that takes place is considered by many to be accidental and comes about regardless of the ineffectual efforts of the teacher.

A necessary characteristic of a learning event which has the capacity for producing professional accountability, that is, one which can be validated, is that it be designed to suit the needs of the learner. It is not possible to design learning events adequately until one has some comprehensive measurement of the learner’s needs. To get such a measurement, a technique of analysis is mandated. The results of analysis provide diagnostic and prescriptive data which guide learning event design.

We are living in a period of development when yesterday’s ideas and methodologies of teaching are swiftly becoming obsolete; today’s ideas and methodologies will be obsolete tomorrow, or soon after. To keep abreast of this change, we must be versatile to the limits of the need, be aware that the change is inevitable, and make the necessary behavioral adjustments.

The more thoroughly the learner’s needs and the teaching-learning process are understood, the more educators realize the need for a continuing program of developmental evaluation, validation, and change: ranging from changes of a minor nature to replacement of entire methodologies.
RECOMMENDATIONS

From these conclusions and implications the following recommendations can be made:

1. It is recommended that the superstructure of learner analysis be tested for its validity and reliability by other researchers.

2. It is recommended that each component of the superstructure be tested for its validity and reliability by other researchers.

3. It is recommended that each element of the superstructure be tested for its validity and reliability by other researchers.

4. It is recommended that in the absence of satisfactory instruments to analyze the elements identified, such instruments be developed by other researchers.

5. It is recommended that any instruments extant or to be developed be tested for their validity and reliability by other researchers.

6. It is recommended that the superstructure of learner analysis be further refined and developed as a part of a continuing evaluation process by other researchers.

7. It is recommended that additional component elements be added to the existing framework as the need arises as a part of a continuing evaluation process developed by other researchers.

8. It is recommended that existing component elements and component elements that might be added, be further refined and developed as the need is demonstrated as a part of a continuing evaluation process developed by other researchers.

9. It is recommended that the technique of summarizing for convenient display, or symbolization, of the data derived from the
analyses, be further refined and developed as the need is demonstrated as a part of a continuing evaluation process developed by other researchers.
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